

Psychological Applications and Trends 2021

Edited by
Clara Pracana
Michael Wang



Psychological Applications and Trends

2021

Edited by:

Clara Pracana

&

Michael Wang

Edited by:

- Prof. Clara Pracana, Full and Training Member of the Portuguese Association of Psychoanalysis and Psychoanalytic Psychotherapy, Portugal,

- Prof. Michael Wang, Emeritus Professor of Clinical Psychology, University of Leicester, United Kingdom

Published by inScience Press, Rua Tomás Ribeiro, 45, 1º D, 1050-225 Lisboa, Portugal

Copyright © 2021 inScience Press

All rights are reserved. Permission is granted for personal and educational use only.

Commercial copying, hiring and lending is prohibited. The whole or part of this publication material cannot be reproduced, reprinted, translated, stored or transmitted, in any form or means, without the written permission of the publisher. The publisher and authors have taken care that the information and recommendations contained herein are accurate and compatible with the generally accepted standards at the time of publication.

The individual essays remain the intellectual properties of the contributors.

ISSN (electronic version): 2184-3414

ISSN (printed version): 2184-2205

ISBN: 978-989-54815-5-2

Legal Deposit: 440723/18

Printed in Lisbon, Portugal, by GIMA - Gestão de Imagem Empresarial, Lda.

BRIEF CONTENTS

| | |
|-------------------------------------|------|
| Foreword | v |
| Organizing and Scientific Committee | vii |
| Sponsor | x |
| Keynote Lectures | xi |
| Special Talk | xv |
| Index of Contents | xvii |

FOREWORD

This book contains a compilation of papers presented at the International Psychological Applications Conference and Trends (InPACT) 2021, organized by the World Institute for Advanced Research and Science (W.I.A.R.S.), that this year has been converted into a fully Virtual Conference as a result of the ongoing Coronavirus (COVID 19) pandemic.

Modern psychology offers a large range of scientific fields where it can be applied. The goal of understanding individuals and groups (mental functions and behavioral standpoints), from this academic and practical scientific discipline, aims ultimately to benefit society.

The International Conference seeks to provide some answers and explore the several areas within the Psychology field, new developments in studies and proposals for future scientific projects. The goal is to offer a worldwide connection between psychologists, researchers and lecturers, from a wide range of academic fields, interested in exploring and giving their contribution in psychological issues. We take pride in having been able to connect and bring together academics, scholars, practitioners and others interested in a field that is fertile in new perspectives, ideas and knowledge.

We counted on an extensive variety of contributors and presenters, which can supplement the view of the human essence and behavior, showing the impact of their different personal, academic and cultural experiences. This is, certainly, one of the reasons there are nationalities and cultures represented, inspiring multi-disciplinary collaborative links, fomenting intellectual encounter and development.

InPACT 2021 received 358 submissions, from more than 40 different countries from all over the world, reviewed by a double-blind process. Submissions were prepared to take form of Oral Presentations, Posters and Workshops. 117 submissions (overall, 33% acceptance rate) were accepted for presentation in the conference.

The conference also includes:

- Two keynote presentations, one by Prof. Dr. Sara Tai (Senior Lecturer in Clinical Psychology & Consultant Clinical Psychologist, School of Health Sciences, CeNTrUM, Division of Psychology and Mental Health, The University of Manchester, United Kingdom), and one by Dr. Caroline Hickman (Lecturer in Social Work and Climate Psychology, Department of Social & Policy Sciences, University of Bath, and practicing Psychotherapist & Board Member of the Climate Psychology Alliance, United Kingdom).
- One Special Talk by Prof. Dr. Michael Wang (Emeritus Professor of Clinical Psychology, University of Leicester; Chair, Association of Clinical Psychologists, United Kingdom).

We would like to express our gratitude to our invitees.

The Conference addresses different categories inside Applied Psychology area and papers fit broadly into one of the named themes and sub-themes. The conference program includes six main broad-ranging categories that cover diversified interest areas:

- **CLINICAL PSYCHOLOGY:** Emotions and related psychological processes; Assessment; Psychotherapy and counseling; Addictive behaviors; Eating disorders; Personality disorders; Quality of life and mental health; Communication within relationships; Services of mental health; and Psychopathology.
- **EDUCATIONAL PSYCHOLOGY:** Language and cognitive processes; School environment and childhood disorders; Parenting and parenting related processes; Learning and technology; Psychology in schools; Intelligence and creativity; Motivation in classroom; Perspectives on teaching; Assessment and evaluation; and Individual differences in learning.

- **SOCIAL PSYCHOLOGY:** Cross-cultural dimensions of mental disorders; Employment issues and training; Organizational psychology; Psychology in politics and international issues; Social factors in adolescence and its development; Social anxiety and self-esteem; Immigration and social policy; Self-efficacy and identity development; Parenting and social support; Addiction and stigmatization; and Psychological and social impact of virtual networks.
- **LEGAL PSYCHOLOGY:** Violence and trauma; Mass-media and aggression; Intra-familial violence; Juvenile delinquency; Aggressive behavior in childhood; Internet offending; Working with crime perpetrators; Forensic psychology; Violent risk assessment; and Law enforcement and stress.
- **COGNITIVE AND EXPERIMENTAL PSYCHOLOGY:** Perception, memory and attention; Decision making and problem-solving; Concept formation, reasoning and judgment; Language processing; Learning skills and education; Cognitive Neuroscience; Computer analogies and information processing (Artificial Intelligence and computer simulations); Social and cultural factors in the cognitive approach; Experimental methods, research and statistics; and Biopsychology.
- **PSYCHOANALYSIS AND PSYCHOANALYTICAL PSYCHOTHERAPY:** Psychoanalysis and psychology; The unconscious; The Oedipus complex; Psychoanalysis of children; Pathological mourning; Addictive personalities; Borderline organizations; Narcissistic personalities; Anxiety and phobias; Psychosis; Neuropsychoanalysis.

This book contains the results of the different researches conducted by authors who focused on what they are passionate about: to study and develop research in areas related to Psychology and its applications. It includes an extensive variety of contributors and presenters that are hereby sharing with us their different personal, academic and cultural experiences.

We would like to thank all the authors and participants, the members of the academic scientific committee, and of course, to the organizing and administration team for making and putting this conference together.

Looking forward to continuing our collaboration in the future,

Prof. Clara Pracana

*Full and Training Member of the Portuguese Association of Psychoanalysis and Psychoanalytic Psychotherapy, Portugal
Conference and Program Co-Chair*

Prof. Michael Wang

*Emeritus Professor of Clinical Psychology, University of Leicester, United Kingdom
Conference and Program Co-Chair*

SCIENTIFIC COMMITTEE

Conference and Program Co-Chairs

Clara Pracana

Full and Training Member of the Portuguese Association of Psychoanalysis and Psychoanalytic Psychotherapy, Portugal

Michael Wang

Emeritus Professor of Clinical Psychology, University of Leicester, United Kingdom

International Scientific Committee

Abdulqawi Salim Alzubaidi, Sanaa University, Yemen

Acácia Santos, São Francisco University, Brazil

Adam Lewin, University of South Florida, USA

Adilia Silva, Independent Researcher/Clinician, South Africa

Adriana Baban, Babes-Bolyai University, Romania

Alexia Carrizales, University of Franche-Comté, France

Alois Ghergut, University Alexandru Ioan Cuza from Iasi, Romania

Ana Paula Couceiro Figueira, University of Coimbra, Portugal

Andrea Guazzini, University of Florence, Italy

Andreja Bubic, University of Split, Croatia

Aneta Pasternak, Warsaw Management University, Poland

Anna Alexandrova-Karamanova, Institute for Population and Human Studies - BAS, Bulgaria

Anna Janovská, Pavol Jozef Šafárik University in Košice, Slovakia

Anne-Marie Émond, Université de Montréal, Canada

Atmane Ikhlef, Independent Consultant/Researcher, Algeria

Audrey Moco-Daijardin, University of Nice Cote d'Azur, France

Auksė Endriulaitienė, Vytautas Magnus University, Lithuania

Beatriz Delgado Domenech, University of Alicante, Spain

Binnur Yesilyaprak, Ankara University, Turkey

Breda McGrath, The Chicago School of Professional Psychology, USA

Charles David Tauber, Coalition for Work with Psychotrauma and Peace (CWWPP), Croatia

Chris McVittie, Queen Margaret University, United Kingdom

Colette Dufresne-Tassé, Université de Montréal, Canada

Danijela S. Petrović, University of Belgrade, Serbia

David Aparisi, Universidad de Alicante, Spain

Dweep Chand Singh, AIBHAS, Amity University Uttar Pradesh, NOIDA, India

Ederaldo J. Lopes, Federal University of Uberlândia, Brazil

Elçin Sakmar Balkan, Yale University, USA

Elena Levchenko, Perm State University, Russia

Elena Lisá, Comenius University in Bratislava, Slovakia

Elena Rodionova, Saint-Petersburg University, Russia

Elenita M. Tiamzon, World Citi Colleges, Philippines

Emel Kuruoğlu, Dokuz Eylul University, Turkey

Emerson Rasera, Federal University of Uberlândia, Brazil

EP Petkari, Universidad Internacional de la Rioja, Spain

Fotios Anagnostopoulos, Panteion University of Social & Political Sciences, Greece

Gandharva Joshi, Saurashtra University, India

Gordana Đigić, University of Niš, Serbia

- Gordana Jovanović**, University of Belgrade, Serbia
- Hayder Al-Jouranj**, Human Rights Institute / Åbo Akademi University, Finland
- Isabella Corradini**, Themis Research Centre, Italy
- Jakob Pietschnig**, University of Vienna, Austria
- Jana Schrötter**, Pavol Jozef Šafárik University in Košice, Slovakia
- Jelena Opsenica Kostić**, University of Niš, Serbia
- Jelisaveta Todorović**, University of Niš, Serbia
- Joanne Dickson**, Edith Cowan University, Australia
- Katarína Greškovičová**, Comenius University in Bratislava, Slovakia
- Katherine Makarec**, William Paterson University, USA
- Kostas A. Fanti**, University of Cyprus, Cyprus
- Kristi Kõiv**, University of Tartu, Estonia
- Kristina Randelović**, University of Niš, Serbia
- Kyle A. Msall**, Zayed University, United Arab Emirates
- Lada Kaliská**, Matej Bel University, Slovakia
- Laura Furcsa**, Eszterházy Károly University, Hungary
- Liliana Mata**, “Vasile Alecsandri” University of Bacau, Romania
- Lilly Both**, University of New Brunswick in Saint John, Canada
- Lisa Best**, University of New Brunswick, Canada
- Loreta Bukšnytė-Marmienė**, Vytautas Magnus University, Lithuania
- Luca Cerniglia**, Università Telematica Internazionale UNINETTUNO, Italy
- Lucia Barbierik**, Pavol Jozef Šafárik University in Košice, Slovakia
- Luis Alberto Casado Aranda**, University of Granada, Spain
- Magdalena Poraj-Weder**, The Maria Grzegorzewska University, Poland
- Marcelo F. Costa**, University of São Paulo, Brazil
- Marco Vassallo**, Council for Agricultural Research and Economics (CREA), Italy
- Margit Höfler**, Danube University Krems, Austria
- Maria Iakovleva**, Saint Petersburg State University, Russia
- Marina Bardyshevskaya**, Lomonosov Moscow State University, Russia
- Martin Eisemann**, Tromsø University, Norway
- Mary (Rina) M. Chittooran**, Saint Louis University, USA
- Meba Alphonse Kanda**, West Rand Health District / University of South Africa, South Africa
- Meral Atıcı**, Çukurova University, Turkey
- Michael Zeiler**, Medical University of Vienna, Austria
- Miroslava Bozogánová**, Centre of Social and Psychological Sciences, Slovak Academy of Sciences, Slovakia
- Miroslava Köverová**, Pavol Jozef Šafárik University in Košice, Slovakia
- Mojca Juriševič**, University of Ljubljana, Faculty of Education, Slovenia
- Nadia Mateeva**, Bulgarian Academy of Sciences, Bulgaria
- Nahal Salimi**, Northern Illinois University, USA
- Neala Ambrosi-Randić**, Juraj Dobrila University of Pula, Croatia
- Nuria Carriedo**, UNED - Universidad Nacional de Educación a Distancia, Spain
- Oana Dănilă**, Alexandru Ioan Cuza University, Iasi, Romania
- Olesya Volkova**, Krasnoyarsk State Medical University, Russia
- Olga Deyneka**, St. Petersburg State University, Russia
- Olga Orosová**, Pavol Jozef Šafárik University in Košice, Slovakia
- Olga Tararukhina**, The Chicago School of Professional Psychology, USA
- Omar Rahman**, University of South Florida, USA
- Otilia Clipa**, Stefan cel Mare University, Romania
- Paolo Valerio**, Naples University Federico II, Italy
- Páraic Scanlon**, Birmingham City University, United Kingdom

Patrizia Meringolo, Università degli Studi di
Firenze, Italy

Plamen Dimitrov, PsyNet - Professional
Network of Psychologists in Private Practice,
Bulgaria

Regina Fernández Morales, Universidad
Rafael Landivar, Guatemala

Reinhold Viehoff, Martin Luther University,
Germany

Roxana-Maria Ghiațău, Alexandru Ioan Cuza
University, Iasi, Romania

Saeed Ahmed, Rutland Regional Medical
Center, USA

Sam Vaknin, Southern Federal University /
CIAPS - Centre for International Advanced and
Professional Studies, Russia

Sharo (Shahrokh) Shafaie, Southeast Missouri
State University, USA

Shulamith Kreitler, Tel-Aviv University,
Israel

Silvia Cimino, Sapienza University of Rome,
Italy

Snežana Stojiljković, University of Niš, Serbia

Sonia Grubits, Dom Bosco Catholic
University, Brazil

Sonya Yakimova, APSH34/University Paul
Valery, France

Suppiah Nachiappan, Sultan Idris Education
University, Malaysia

Suzie Savvidou, The University of Sheffield
International Faculty, CITY College, Greece

Tatiana Martsinkovskaya, Russian State
University, Russia

Veena Easvaradoss, Women's Christian
College, Chennai, India

Victor Martinelli, University of Malta, Malta

Vildan Mevsim, Dokuz Eylul University,
Turkey

Vittore Perruci, Università della Valle d'Aosta,
Italy

Vladislav Dominiak, Saint-Petersburg State
University, Russia

Werner Leitner, IB Hochschule, Germany

Yoshitaka Yamazaki, Bunkyo University,
Japan

SPONSOR



<http://www.wiars.org>

KEYNOTE LECTURES

NEW DIRECTIONS FOR WORKING WITH PEOPLE EXPERIENCING PSYCHOSIS: A FOCUS ON PRINCIPLES

Prof. Dr. Sara Tai

BA(Hons), MSc, D.ClinPsy, CPsychol,

Senior Lecturer in Clinical Psychology & Consultant Clinical Psychologist, School of Health Sciences, CeNTrUM (Centre for New Treatments and Understanding in Mental Health), Division of Psychology and Mental Health, The University of Manchester (United Kingdom)

Abstract

The UK National Institute for Care and Health Excellence (NICE) recommends that all people experiencing psychosis are offered psychological therapies, e.g. Cognitive Behaviour Therapy (CBT), to target distress associated with symptoms and improve functioning. However, clinicians working with people experiencing psychoses face multiple challenges. Usually, individuals' descriptions of their problems don't match the problem outlined in the referral. Comorbid presentations are the rule rather than the exception, yet evidence-based treatments are designed to be disorder or problem specific. Existing interventions are designed to be delivered in weekly or fortnightly schedules, yet end up being delivered according to variable and unpredictable schedules due to cancelled and missed appointments. Most treatments emphasise using unique strategies and techniques, yet many of these activities reflect common underlying evidence-based principles of effective treatment. Psychological therapy that is applicable to any problem, 'transdiagnostically', using a variable treatment session schedule, and based on robust principles of psychological distress and psychological change, would be extremely useful. In this keynote, Sara will introduce three principles frequently identified in the literature and integral to providing effective and efficient therapy for psychoses. The principles: control; conflict; and reorganisation will be described and explained using practical illustrations. The importance of control to people's mental health and general wellbeing is emphasised repeatedly throughout the literature, particularly for people experiencing psychosis. When control is not mentioned explicitly, concepts such as regulation and self-determination point to the same principle. Conflict (incongruence, dissonance, dilemmas, being in two minds) is also commonly discussed and is a general formulation underlying the distress that manifests in various symptom patterns. People become psychologically distressed and develop psychosis when they want to achieve two incompatible goals at the same time. An example of such conflict might be wanting to forget a past traumatic event but also needing to remember it in order to understand how it happened and prevent it happening again. The third principle, reorganisation, has strong support in the literature, and is the process of change in which new perspectives, insights, and points of view are developed. This keynote explains the way in which these three principles can be integrated to understand psychosis and enhance the effectiveness of therapy by enabling clinicians to work flexibly and responsively. Data from recent studies will also be presented to illustrate the feasibility and acceptability of a principles-based approach to working with people experiencing psychosis.

Keywords: *Psychosis, psychological interventions, principles-based-approach, control, conflict.*

Biography

Dr. Sara Tai is a Senior Lecturer in Clinical Psychology at the University of Manchester and Consultant Clinical Psychologist with Greater Manchester Mental Health NHS Foundation Trust. She is a reflexive scientist practitioner, therapist, educator and researcher, who has worked in a range of mental health settings, with people experiencing a broad range of serious and enduring problems affecting their mental health. She has worked with people experiencing psychosis for over 20 years, including early intervention, community, and acute psychiatric in-patient services. Sara is a clinician-researcher who has been developing a transdiagnostic cognitive therapy (the Method of Levels, MOL) since 2005. Her work elucidates how key psychological mechanisms such as control and awareness cross traditional diagnostic boundaries and help unify apparently disparate therapeutic traditions. She is an experienced practitioner, researcher, and trainer of CBT and MOL. Her work not only helps explain the nature and origin of psychological distress but, with colleagues, offers new therapeutic opportunities. She provides supervision and workshops internationally and conducts research, including large clinical trials in the UK, USA, Canada, China, and across Europe. She has published widely in this area, including the book “A principles-based approach to counselling and psychotherapy”.

A PSYCHOLOGICAL EXPLORATION OF CLIMATE ANXIETY, GRIEF, HOPE & DESPAIR

Dr. Caroline Hickman

*Lecturer in Social Work and Climate Psychology, Department of Social & Policy Sciences, University of Bath, and practicing Psychotherapist & Board Member of the Climate Psychology Alliance (CPA)
(United Kingdom)*

Abstract

Climate-anxiety is increasingly being recognised as an emotionally congruent response to the worrying news about the environment from around the world. As our fears grow about environmental and climate change related problems it can be hard to know how to psychologically cope with these unprecedented and unpredictable global catastrophes. However, the complex feelings evoked by increasing awareness are not just anxiety; people report feeling existential and planetary grief, hope and hopelessness, nihilism and despair.

These emergent psychological challenges can bring us face to face with our own feelings of vulnerability, fragility, hope and resilience, as well as concerns about the planet. Navigating these complex times is perhaps the greatest challenge that humanity has yet faced, and psychology and psychotherapy has undoubtedly a central role to play in this.

This talk will explore a relational psychological approach to support ourselves and clients in navigating these unprecedented times. It will examine unconscious process, uncertainty, ambivalence and attachment, inner and external relational worlds, the threat of collapse internally into despair, or the flight to hope externally; we will look at the shadow of eco-anxiety and the archetypal images and dreams that adults, young people and children are now bringing to the therapy room.

Biography

Caroline is a lecturer at the University of Bath in social work and climate psychology. A practicing psychotherapist & board member of the Climate Psychology Alliance (CPA). Currently for CPA she is supporting the development of a range of therapeutic outreach projects and supporting the development of a service providing climate crisis aware psychotherapy.

With CPA she is also creating a series of podcasts on Climate Psychology & Eco-Anxiety – ‘Climate Crisis Conversations – Catastrophe or Transformation’.

Caroline works with schools, parent groups, youth activist groups and as a psychotherapist with children & young people & adults dealing with eco anxiety and distress about the climate & biodiversity crisis.

Through the University she has been researching children & young people’s feelings including eco-anxiety about the climate and biodiversity crisis for 5 years to uncover and explore different stories, narratives and images around our defences against the ‘difficult truth’ we are facing. Her climate change research is with children & young people in the UK, The Brazil, USA, Maldives, Nigeria & Bangladesh.

SPECIAL TALK

FRONTLINE HEALTHCARE STAFF SUPPORT IN THE UNITED KINGDOM: THE ROLE OF CLINICAL PSYCHOLOGY

Prof. Dr. Michael Wang

Emeritus Professor of Clinical Psychology, University of Leicester; Chair, Association of Clinical Psychologists (United Kingdom)

Abstract

The Coronavirus pandemic has created huge stress on frontline healthcare staff in every country with unprecedented pressure on hospital services and ICUs, and much greater frequency of patient death. In the UK, clinical psychologists are well placed to provide mental health care and support to medical, nursing and paramedical staff, given common employment in the British National Health Service (NHS) and their competences in managing stress and common mental health problems. The author has contributed to the organization and provision of psychological staff support systems at national level through his membership of a national expert advisory group and through the Association of Clinical Psychologists UK (the professional body for clinical psychologists) which has been providing one-to-one support to ICU consultants and senior managers in the NHS.

The author will describe the various support systems for frontline NHS staff and their impact.

Keywords: *Coronavirus pandemic, healthcare worker support, work stress, ICU.*

Biography

Prof. Michael Wang, BSc(Hons), MSc(Clin.Psy), PhD, C. Psychol., FBPSS, is Emeritus Professor of Clinical Psychology in the Clinical Psychology Unit, Centre for Medicine, University of Leicester, and former Director of the National Health Service-funded Doctoral Postgraduate Clinical Psychology Training Course (2005-2014). He is a former Chair of the Division of Clinical Psychology of the British Psychological Society. Prof. Wang is also a full practitioner member of the BPS Division of Neuropsychology and a member of the BPS Division of Health Psychology. He is Chair of the Association of Clinical Psychologists UK.

He has worked as a clinical psychologist for 40 years. Prior to his appointment in Leicester he was Director of the 6-year, integrated Doctoral Clinical Psychology Training Course at the University of Hull. Throughout his academic career he has maintained an Honorary Consultant role in the NHS, treating patients with anxiety disorders, depression and obsessional compulsive disorder. He has more than 20 years' experience of examining patients with traumatic brain injury for the UK courts.

He obtained his three degrees from the University of Manchester: following graduating with a BSc in Psychology in 1978 he began his professional postgraduate training in Clinical Psychology in the Faculty of Medicine. Subsequently he completed a research PhD in 1990 which investigated learning and memory in alcoholics.

Over recent years Prof Wang has gained an international reputation for his research on cognitive and memory function during general anaesthesia. In 2004 he organized the 6th International Symposium on Memory and Awareness in Anaesthesia and Intensive Care (in Hull) – the foremost international forum for clinical research in this particular field. He has held appointments on a number of prominent committees in the British Psychological Society including the professional accrediting body for clinical psychology training, and a committee that is in the process of determining national standards for competence in the use

of neuropsychological tests. He has served as an expert advisor on a NICE (UK) Committee in relation to the monitoring of depth of anaesthesia and also as an expert member of the Royal College of Anaesthesia's National Audit Project 5 (a national audit of anaesthetic awareness reports). In 1999 he was made Fellow of the British Psychological Society and is also a Fellow of the Royal Society of Medicine.

In 2015 he was awarded the Humphry Davy Medal by the Royal College of Anaesthetists for his contribution to the understanding of accidental awareness during general anaesthesia.

Prof. Wang has published more than 60 papers in peer-reviewed journals, and numerous book chapters. He has been an invited speaker at international conferences on more than 30 occasions. In collaboration with colleagues he has won more than £1.2 million in research funding. He has supervised more than 40 doctoral research projects over the past 25 years. He has been a regular contributor and session chair at recent InPACT conferences, and recently joined the conference team as a co-organiser.

INDEX OF CONTENTS

ORAL PRESENTATIONS

Clinical Psychology

| | |
|--|-----------|
| Features of doctors life-world stability during the pandemic COVID-19 | 3 |
| <i>Olga V. Petryaeva, & Irina O. Loginova</i> | |
| Impact of the confinement on the use of video games, gaming-related motivations: A quantitative and qualitative study | 7 |
| <i>Gaëlle Bodi, Célia Maintenant, & Valérie Pennequin</i> | |
| The landscape of one breast: Empowering breast cancer survivors through developing a transdisciplinary intervention framework in a Jiangmen breast cancer hospital in China | 12 |
| <i>Yuk Yee Lee Karen, & Kin Yin Li</i> | |
| Communication style: The many shades of gray | 17 |
| <i>Shulamith Kreitler</i> | |
| The experience of infertility and quality of life of women undergoing the IVF process – a study in Serbia | 22 |
| <i>Jelena Opsenica Kostic, Milica Mitrovic, & Damjana Panic</i> | |
| Perceived self-regulatory success in dieting and its correlates among women with food addiction | 27 |
| <i>Sarah El Archi, Paul Brunault, Nicolas Ballon, Christian Réveillère, & Servane Barrault</i> | |
| The assimilation process of problematic experiences and long-term outcomes in psychotherapy for depression: Comparing a relapsed and a non-relapsed case | 32 |
| <i>Beatriz Viana, Ricardo Machado, William B. Stiles, João Salgado, Patricia Pinheiro, & Isabel Basto</i> | |
| The polish adaptation and further validation of the Covid Stress Scales (CSS) | 37 |
| <i>Monika Frydrychowicz, Julia Pradelok, Kinga Zawada, Dominika Zyśk, & Katarzyna Adamczyk</i> | |
| The effect of COVID-19 pandemic on the emotions of nurses in Israel | 42 |
| <i>Orly Zelevich, Gadi Navon, Halit Kantor, & Shulamith Kreitler</i> | |
| Contemplation: The ratio of conscious and unconscious | 47 |
| <i>Garnik V. Akopov</i> | |
| Understanding New Zealand adults' attitudes towards digital interventions for health | 51 |
| <i>Holly Wilson, & Liesje Donkin</i> | |
| The role of music in psychological and emotional development | 56 |
| <i>Shveata Mishra, & Ina Shastri</i> | |

| | |
|---|-----|
| Perceptions pertaining to stigma and discrimination about depression: A focus group study of primary care staff <i>Ayesha Aziz, & Nashi Khan</i> | 61 |
| Emotions and attitudes of pregnant women in social isolation in the period of Coronavirus pandemic <i>Renata da Silva Coelho, Leila Salomão de La Plata Cury Tardivo, Helena Rinaldi Rosa, & Joice Aparecida Araujo Dominguez</i> | 66 |
| Psychoeducation to prevent the spread of HIV among men who have sex with men in Surabaya city <i>Christina Albertina Ludwinia Parung, & I Gusti Ayu Maya Vratasti</i> | 71 |
| Anxiety, depression of pregnant women during COVID-19 pandemic: Article review <i>Varvara O. Anikina, Svetlana S. Savenysheva, & Mariia E. Blokh</i> | 76 |
| An explorative study regarding the relations between dark triad and HEXACO model of personality <i>Dan Florin Stănescu, & Marius Constantin Romaşcanu</i> | 80 |
| Fatigue and anxiety in breast cancer: The relationship with interpretation bias <i>Nidhi Vedd</i> | 85 |
| Compulsive buying and related motives: Enhancement and coping <i>Kuntay Arcan</i> | 89 |
| Problematic internet use among adolescents and the view of context: A PLS-structural equation model <i>Lucrezia Ferrante, Claudia Venuleo, & Simone Rollo</i> | 94 |
| Quality of life of patients undergoing surgical treatment of lower limb cancer <i>Maria Iakovleva, Olga Shchelkova, & Ekaterina Usmanova</i> | 99 |
| Being online during COVID-19 and the relationship with well-being: Narratives among university students <i>Simone Rollo, Claudia Venuleo, Lucrezia Ferrante, Claudia Marino, & Adriano Schimmenti</i> | 103 |
| Perceived stress in patients with coronary artery disease during the COVID-19 pandemic <i>Márcia Schmidt, Karine Schmidt, Vitória Silva, Filipa Waihrich, & Alexandre Quadros</i> | 108 |
| Feelings and reactions of men and women to the COVID 19 pandemic in Brazil <i>Renata da Silva Coelho, Joice Aparecida Araujo Dominguez, Helena Rinaldi Rosa, & Leila Salomão de La Plata Cury Tardivo</i> | 113 |
| Buffering effect for 2nd COVID-19 lockdown: The role of academic e-learning adoption among Generation Z <i>Jessica Ranieri, Federica Guerra, & Dina Di Giacomo</i> | 118 |
| Anxiety and depression in patients suffering a myocardial infarction during the COVID-19 pandemic <i>Márcia Moura Schmidt, Amanda Bittencourt Lopes da Silva, Samanta Fanfa Marques, & Cynthia Seelig</i> | 123 |
| Factors contributing to well-being: Comparing functional somatic symptom disorders and well-defined autoimmune disorders <i>Kendra Hebert, & Lisa Best</i> | 128 |

| | |
|--|------------|
| Emotional impact in frontline and secondline healthcare professionals: COVID-19 and II wave | 133 |
| <i>Federica Guerra, Jessica Ranieri, Claudio Ferri, & Dina Di Giacomo</i> | |
| Living well after cancer: The impact of social support and productive leisure | 138 |
| <i>Cecile J. Proctor, Danie A. Beaulieu, Anthony J. Reiman, & Lisa A. Best</i> | |
| <u>Educational Psychology</u> | |
| Domestic violence against women and its impact on children's school performance | 143 |
| <i>Ediane Alves, & Paulo Prado</i> | |
| Relationships between models of family education and deviant behaviors among teenagers | 148 |
| <i>Thu Huong Tran, Thu Huong Tran, Thi Ngoc Lan Le, Thi Minh Nguyen, & Thu Trang Le</i> | |
| Learning strategies and school motivation in experiential learning vs. traditional learning | 153 |
| <i>Camelia Mădălina Răducu</i> | |
| Conceptualization of teacher burnout and online burnout prevention among Hungarian teachers | 158 |
| <i>Szilvia Horváth, & Katalin N. Kollár</i> | |
| Procrastination and self-concept in more/less conscientious students | 162 |
| <i>Marianna Berinšterová, Miroslava Bozogánová, Monika Magdová, Jana Kapová, & Katarína Fuchsová</i> | |
| Teachers' wellbeing: The role of calling orientation, job crafting and work meaningfulness | 167 |
| <i>Lana Jurčec, Tajana Ljubin Golub, & Majda Rijavec</i> | |
| Victimized teachers' experiences about teacher-targeted bullying by students | 172 |
| <i>Kristi Kõiv, & Minni Aia-Utsal</i> | |
| The role of achievement goals in motivational regulation and flow in learning | 177 |
| <i>Tajana Ljubin-Golub</i> | |
| Practical and scientific challenges in adapting digital cognitive tests in professional environment | 182 |
| <i>Mélany Payoux, Lara Abdel Halim, Alexandra Didry, & Arnaud Trensouez</i> | |
| One month before the pandemic: Students' preferences for flexible learning and what we can learn | 187 |
| <i>Martina Feldhammer-Kahr, Stefan Dreisiebner, Martin Arendasy, & Manuela Paechter</i> | |
| Parental educational styles as predictors of perfectionism and quality of sibling relationships among students | 192 |
| <i>Danijela Randjelovic, Jelisaveta Todorovic, & Miljana Spasic Snele</i> | |
| Academic learning process between face-to-face and online class of medical technology students during pandemic | 197 |
| <i>Eloisa Sandra B. Gerio, Christopher Angel Gonzales, Lyka Marie Nagum, Althea Bridget Rufino, Nicole Marnel Tadeo-Awingan, Emmanuel Saludes, Ellen Tiamzon, & Eugene Dayag</i> | |

Social Psychology

| | |
|--|------------|
| Fostering positive attitudes towards self-care among the youth in Bongol village during the recovery movement control order | 202 |
| <i>Getrude C. Ah Gang, & Jaimond Lambun</i> | |
| Perceptions of the lockdown: Current and retrospective assessments | 207 |
| <i>Marina Egorova, Oxana Parshikova, Daria Tkachenko, & Yulia Chertkova</i> | |
| The effects of previous adversity, happiness and religious faith in enhancing university students' resilience to the COVID-19 pandemic | 212 |
| <i>Getrude C. Ah Gang, Chua Bee Seok, & Carmella E. Ading</i> | |
| Person-environment misfit and mental disorder among PhD students: The mediating role of meaningful work | 217 |
| <i>Francesco Tommasi, Andrea Ceschi, & Riccardo Sartori</i> | |
| Psychological distress, relationship quality and well-being in time of COVID-19 pandemic movement control order enactment among couples in Malaysia | 222 |
| <i>Chua Bee Seok, Ching Sin Siau, Low Wah Yun, Mimi Fitriana, & Rahmattullah Khan</i> | |
| Self-efficacy and the process of gay sexual identity development among gay men in Malaysia | 227 |
| <i>Carmella E. Ading, Aminuddin Ibrahim Lastar, Getrude Cosmas Ahgang, & Mohammad Hashim Othman</i> | |
| Attitudes of students towards gamete donation and basic life values | 232 |
| <i>Jelena Opsenica Kostic, Damjana Panic, & Milica Mitrovic</i> | |
| Ideas about marriage depending on the structure of valuable orientations of women in early adulthood | 237 |
| <i>Svetlana Merzlyakova, & Marina Golubeva</i> | |
| Alternatives to disenchantment? An internet-mediated research during the COVID-19 pandemic | 242 |
| <i>Rosângela Araújo Darwich, Maira de Cássia Evangelista de Sousa, & Ana Leticia de Moraes Nunes</i> | |
| The workplace attachment styles questionnaire in shortened 9-item version | 247 |
| <i>Kristina Mrázková, & Elena Lisá</i> | |
| Self-knowledge of graduate students in Northern Brazil | 252 |
| <i>Rosângela Araújo Darwich, Ana Leticia de Moraes Nunes, Lia Cristina da Silva Botega, & Agnes Caroline Alves de Souza</i> | |
| The acceptance of different types of migrants to Slovakia based on gender | 257 |
| <i>Miroslava Bozogánová, & Tatiana Pethö</i> | |
| The psychological condition of Russian society in the context of the COVID-19 pandemic | 262 |
| <i>Olga Deyneka, & Alexandr Maksimenko</i> | |
| Psychological time and economic mind of entrepreneurs. Evidence from small business of Russian industrial region | 267 |
| <i>Ekaterina Zabelina, Svetlana Kurnosova, & Ekaterina Vedeneeva</i> | |

| | |
|--|------------|
| Work and health in transition: Trends of subjectification in applied psychology | 272 |
| <i>Severin Hornung, Matthias Weigl, Britta Herbig, & Jürgen Glaser</i> | |
| Social metacognition in the process of decision making | 277 |
| <i>Tatiana V. Folomeeva, & Ekaterina N. Klimochkina</i> | |
| Psychometric analysis of the Slovak version of the postpartum bonding questionnaire for non-clinical sample | 282 |
| <i>Katarína Greškovičová, Barbora Zdechovanová, & Rebeka Farkašová</i> | |
| Police officers' knowledge of, and attitudes towards, mental illness and the mentally ill individuals | 287 |
| <i>Nahal Salimi, Bryan Gere, & Sharo Shafaie</i> | |
| The relationship between autonomous versus external motivation and regulatory focus | 292 |
| <i>Marcela Bobková, & Ladislav Lováš</i> | |
| 4 steps for fighting COVID-related anxiety: An application of virtual reality in a small company | 297 |
| <i>Diletta Mora, Alessandra Falco, Annamaria Di Sipio, & Alessandro De Carlo</i> | |
| Smart working and online psychological support during the COVID-19 pandemic: Work-family balance, well-being, and performance | 302 |
| <i>Sebastiano Rapisarda, Elena Ghersetti, Damiano Girardi, Nicola Alberto De Carlo, & Laura Dal Corso</i> | |
| The mediating effect of emotional intelligence on the big five personality traits and the big six vocational interests | 307 |
| <i>Mayiana Mitevska, & Paulina Tsvetkova</i> | |
| Risk of COVID-19 infection at work and psycho-physical strain: The moderating role of negative affectivity | 312 |
| <i>Damiano Girardi, Alessandro De Carlo, Laura Dal Corso, Annamaria Di Sipio, & Alessandra Falco</i> | |
| Inclusive employment for people with disability: A review | 317 |
| <i>Marcos Gómez-Puerta, Esther Chiner, & María-Cristina Cardona-Moltó</i> | |
| Transformation of coping in the social situation of transitivity: Cross-cultural aspect | 322 |
| <i>Vasilisa Orestova, Dmitry Khoroshilov, & Elena Belinskaya</i> | |
| Supported employment as a strategy for access to inclusive employment for people with disabilities: A review | 325 |
| <i>Esther Chiner, Marcos Gómez-Puerta, & María-Cristina Cardona-Moltó</i> | |
| The psychoanalytic thought of Hélio Pellegrino (1924-1988): Initial reflections | 330 |
| <i>Larissa Leão de Castro, & Terezinha Camargo Viana</i> | |
| <u>Legal Psychology</u> | |
| The effectiveness of social ads targeting drunk driving | 335 |
| <i>Dainora Šakinytė, Rasa Markšaitytė, Laura Šeibokaitė, Auksė Endriulaitienė, & Justina Slavinskienė</i> | |
| Human-automation interaction in law: Mapping legal decisions, cognitive processes, and automation levels | 340 |
| <i>Dovilė Petkevičiūtė-Barysienė</i> | |

Cognitive and Experimental Psychology

- Age differences in the acute stress effects on declarative memory performance** 345
Vanessa Hidalgo, Matias M. Pulpulos, Teresa Montoliu, Isabel Crespo-Sanmiguel, Mariola Zapater-Fajari and Alicia Salvador
- Are there differences in the development of the executive functions of children with a typical and atypical development stimulated by a game on a tablet?** 349
Cristian A. Rojas-Barahona, Carla E. Förster Marin, Francisco Aboitiz, & Jorge Gaete
- The effect of different spatial working memory loads on visual search** 354
Margit Höfler, Sebastian A. Bauch, Elisabeth Englmaier, Julia Friedmann-Eibler, Corina Sturm, & Anja Ischebeck
- Voice and speech features as a diagnostic symptom** 359
Elena Lyakso, Olga Frolova, & Aleksandr Nikolaev
- Dangerous technologies of the future - artificial consciousness and its impact on human consciousness** 364
Tetiana Zinchenko
- The differences in response to acute stress of individuals with higher and lower neuroticism** 369
Gabija Jarašiūnaitė-Fedosejeva, Erika Varnagirytė, & Aidias Perminas
- The contribution of EEG recordings to the audiovisual recognition of words in university students with dyslexia** 374
Pavlos Christodoulides, Victoria Zakopoulou, Katerina D. Tzimourta, Alexandros T. Tzallas, & Dimitrios Peschos
- The influence of race and emotion on cognition and metacognition of facial pictures** 379
Zhaolan Li, Wenwu Dai, Peiyao Cong, & Ning Jia

Psychoanalysis and Psychoanalytical Psychotherapy

- The concept of cumulative trauma in times of COVID-19: Could Khans theory become useful again?** 384
Gianluca Crepaldi, & Pia Andreatta

POSTERS

Clinical Psychology

- The effects of emotional working memory training on trait anxiety** 391
Gabrielle Veloso, & Welison Evenston Ty
- Mind-body integration in dance movement therapy** 394
Hongju Li, & Xindi Cao
- Features of the human life-world stability of future doctors who are characterized by psychological health** 397
Olga V. Petryaeva, Irina O. Loginova, Irina O. Kononenko, & Nina N. Vishnjakova
- Does the sense of relational entitlement mediate the association between narcissism and couple conflict?** 400
Octav Sorin Candea
- Music as a treatment for borderline personality disorder sufferers who have developed cardiometabolic syndrome** 403
Esther Hunter
- 'I am not a monster': The linguistic stigma of borderline personality disorder.** 406
Kaja Widuch
- Characteristics of resilience in Hong Kong older adults: A qualitative study** 409
Pak Kwong Chung, Chun Hu, & Chun-Qing Zhang
- Longitudinal effect of the PUNAV prevention program on normative beliefs and alcohol use among university students** 411
Ondrej Kalina, Lucia Barbierik, & Jozef Benka
- A study of the effectiveness of a mutual exchange support program for parents of children with development disorders** 414
Yutaro Hirata, Yutaka Haramaki, & Yasuyo Takano
- Effect of mindfulness meditation and coping strategies on affect and depression symptomatology among medical students during national lockdown - A prospective, non-randomised controlled trial** 417
Thomas Khan-White

Educational Psychology

- The importance of understanding metaphors working with figurative language: Some tools** 420
Ana Paula Couceiro Figueira, Sofia Campos, & Célia Ribeiro
- Communication skills, moral development, and gender differences between elementary and middle school students** 423
Aya Fujisawa
- Effectiveness of the programs unplugged and unplugged 2 on alcohol use and smoking among schoolchildren** 426
Viera Čurová, Olga Orosová, Lenka Abrinková, & Marcela Štefaňáková

Localized revision of the epistemic curiosity scale for Chinese senior high school students 429
Wenwu Dai, Yuxin Xia, & Ning Jia

On-line learning and burnout of teachers and the intellectual helpfulness of students 432
Aleksandra Jędrzysek-Geisler

Social Psychology

Personal and organizational characteristics antecedents of meaningful work 435
Francesco Tommasi, Andrea Ceschi, & Riccardo Sartori

Willingness to share personal information 438
Lilly Elisabeth Both

The darkside of idiosyncratic deals: Humanistic versus neoliberal trends and applications 441
Severin Hornung, & Thomas Höge

Working conditions: When the race for performance turns self-medication into doping behavior 444
Audrey Moco-Daijardin

Personal growth and COVID-19 distress 447
Madrudin Magomed-Eminov, Ekaterina Karacheva, Olga Kvasova, Olga Magomed-Eminova, Ivan Prihod'ko, & Olga Savina

The influence of power and social distance on fairness perception in the multiplayer economic game 450
Xueying Li, Xilei Wang, Wenwu Dai, & Ning Jia

Features of virtual self-presentation of youth in the modern technological society 453
Natalia Golubeva, Anna Ayanyan, & Svetlana Preobrazhenskaya

The impact of feedback and warning on retrieval-enhanced suggestibility 456
Xilei Wang, Xueying Li, Wenwu Dai, & Ning Jia

Cognitive and Experimental Psychology

Determination of correlations between subjects' psychophysiological parameters and the results of the perceptual experiment 459
Aleksey Grigorev, & Viktor Gorodnyi

The effect of the instructions on face recognition: Accuracy and eye movements 462
Ignacio Sifre De Sola, Nieves Pérez-Mata, & Margarita Diges

Ferrets may learn awareness if their own body limits 465
Ivan A. Khvatov, Alexander N. Kharitonov, & Alexey Yu. Sokolov

Psychoanalysis and Psychoanalytical Psychotherapy

Identification and symbolization in adolescent depression today 468
Larissa Leão de Castro, & Terezinha de Camargo Viana

WORKSHOPS

Social Psychology

Expanding pluralism in the age of COVID 473

Joanne Ginter

New trends in personality psychology: Social and virtual aspect 476

Tatiana Martsinkovskaya, Daria Tkachenko, & Vladimir Karpuk

AUTHOR INDEX 479

ORAL PRESENTATIONS



FEATURES OF DOCTORS LIFE-WORLD STABILITY DURING THE PANDEMIC COVID-19

Olga V. Petryaeva¹, & Irina O. Loginova²

¹*Federal State-Financed Institution Federal Siberian Research Clinical Centre under the Federal Medical Biological Agency (Russia)*

²*Professor V.F. Voyno-Yasenetsky Krasnoyarsk State Medical University (Russia)*

Abstract

Statement of the problem. The article formulates the problem and purpose of a study focused on identifying the characteristics of the doctors life-world stability during the pandemic associated with COVID-19. The problem of this study is due to the contradiction between the desire of people for stability, certainty, the ability to control their lives and the circumstances and conditions of the pandemic regime that limit people in such aspirations and opportunities.

Purpose of the article: to recognize the characteristics of the doctors life-world stability during the pandemic associated with COVID-19.

Methodology (materials and methods). The research methodology was composed of systemic anthropological psychology, which allows a person's living space to be considered as his (human) not linear, but multivariate future. At the same time, it becomes possible to consider the processes of self-fulfillment in space and time (chronotope), that is, in a life scan that has not yet taken place, but which a person is a part of. The methodological potential of systemic anthropological psychology in conjunction with the conceptual foundations of the theory of life self-fulfillment allows us to consider the human life-world stability as an opportunity for life self-realization of the project of one's life. This project just makes up such a characteristic of a person that can manifest itself precisely in the processes of life's self-fulfillment. In order to maintain the chronotopic logic of human life in the context of this study, we used the author's methodology "Study of the human life-world stability" (Loginova, 2012). The total sample size was 78 doctors: 58 - doctor on duty; 20 - attending doctor.

Research results. For the first time, data were obtained on the characteristics of the doctors life-world stability during the pandemic associated with COVID-19. The specifics of changing the time mode of events, the emotional background, the continuity of personal history and the decrease in reflexivity are key. According to the above parameters, significant differences were found in the indicators before the events associated with the special epidemiological regime of the pandemic caused by COVID-19 and during the pandemic.

Conclusions in accordance with the purpose of the article. The materials presented will allow psychologists to take these results into account when working with doctors who have particularly experienced the period of the pandemic associated with COVID-19, keeping these parameters in focus as targets for psychological assistance. The obtained data actualizes the need to develop special psychological support programs when leaving the special epidemiological regime of a pandemic.

Keywords: *Systemic anthropological psychology, human life-world stability, living space, opportunities for life self-fulfillment, pandemic, COVID-19.*

1. Introduction

The problem of this study is due to the contradiction between the desire of people for stability, certainty, the ability to control their lives and the circumstances and conditions of the pandemic regime that limit people in such aspirations and opportunities.

The problem of all mankind, faced with the CoVid-19 pandemic, is that every person, regardless of gender, education, social status and other characteristics, finds himself in a situation of broken relations with a previously familiar and understandable world, which can be summarized as adverse mental health effects [Rajkumar, 2020, c. e102066]. People who are used to planning their lives months ahead, choosing ways of interacting with the social environment, at one point found themselves in a situation of frustrated opportunities. Thus, the pandemic brings a lot of uncertainty, which makes it difficult to meet even basic

human needs [Fiedorowicz, 2020, c. e110123]. While large numbers of people around the world will demonstrate **resilience** to the profound loss, stress and fear associated with COVID-19, the virus is likely to exacerbate existing mental health conditions and contribute to the emergence of new stress-related disorders for many [Horesh et al., 2020, c. 331]. In critical (even extreme) changing conditions of life, the role of issues of psychological assistance undoubtedly increases, which plays a decisive role in restoring and maintaining emotional stability [Wang et al., 2020, p. 733], which means, to a certain extent, **the stability of the human life world.**

2. Purpose of the article

To recognize the characteristics of the doctors life-world stability during the pandemic associated with COVID-19.

3. Methodology (materials and methods)

The research methodology was composed of systemic anthropological psychology, which allows a person's living space to be considered as his (human) not linear, but multivariate future. At the same time, it becomes possible to consider the processes of self-fulfillment in space and time (chronotope), that is, in a life scan that has not yet taken place, but which a person is a part of. The methodological potential of systemic anthropological psychology in conjunction with the conceptual foundations of the theory of life self-fulfillment allows us to consider the human life-world stability as an opportunity for life self-realization of the project of one's life. This project just makes up such a characteristic of a person that can manifest itself precisely in the processes of life's self-fulfillment. In order to maintain the chronotopic logic of human life in the context of this study, we used the author's methodology "Study of the human life-world stability" (Loginova, 2012). The total sample size was 78 doctors: 58 - doctor on duty (first group); 20 - attending doctor (second group).

At the preliminary stage, those who did not fill out the proposed questionnaires in full, as well as those who did not meet the following criteria, were excluded from the sample:

- voluntary consent to participate in the research;
- men and women between the ages of 25 and 55.

Statistical analysis of empirical data was carried out using the statistical package IBM SPSS Statistics v.19. Verification of quantitative data for obedience to the law of normal distribution was carried out using the Shapiro-Wilk test. Quantitative data are presented in the form of arithmetic means, qualitative data - in percent. Comparison of qualitative characteristics between the study groups was carried out using Fisher's exact test, quantitative characteristics - the Mann-Whitney test due to the absence of a normal distribution of variables.

The critical value of the significance level was taken as $p < 0.05$.

The collection of empirical data was carried out from March 30 to May 28, 2020. Processing, analysis and interpretation - from May 29 to June 07, 2020.

4. Results

The first stage of the study was devoted to checking the groups for comparability. We found that the groups of doctors on duty and attending doctors are identical in composition. This fact allowed us to conduct a comparative analysis of the doctors life-world stability.

For the first time, data were obtained on the characteristics of the doctors life-world stability during the pandemic associated with COVID-19.

This comparative analysis shows that in a pandemic the retention of the past line is more pronounced (this is evidenced by the events described by the respondents and the verbs they use in the story). The share of the past in a pandemic significantly exceeds the representation of the present. A number of authors point out similar effects manifested in time management problems [Mackolil et al., 2020, p. e102156], which confirms our research position. The support in the growing negative emotional background (50%) is a responsible attitude (50%) to events in life. A decrease or complete rejection of the value attitude towards life events in favor of a responsible person leads to a violation of personal history, to a significant deficiency of the reflexive position.

The specifics of changing the time mode of events, the emotional background, the continuity of personal history and the decrease in reflexivity are key.

Table 1. Results of the doctors life-world stability of two groups.

| Options | First group | Second group |
|--|--|--|
| Temporary of events tendency | The present - the future 60% The past - the present - the future 40% | The present - 20% The past - 40% The past and the present - 40% |
| The ratio of verbs | The present - the future 60% The past - the present - the future 40% | The present - 20% The past - 40% The past and the present - 40% |
| Criterion for the described events content selecting | Chronotopic 30% Topological 60% Biographical 10% | Chronotopic 20% Topological 30% Biographical 50% |
| General emotional background of events | Positive 60% Neutral 30% Negative 10% | Positive 20% Neutral 30% Negative 50% |
| The meaning of the described life events | The overall direction of the development line is conserved 50% General orientation is not withheld 30% The beginning of the development line 20% | The overall direction of the development line is conserved 10% General orientation is not withheld 20% The beginning of the development line 70% |
| Attitude to events | Value 60% Responsible 20% Rational 20% | Value 20% Responsible 60% Rational 20% |
| Continuity of personal history | Retained 75% Situational 20% Missing 5% | Retained 0% Situational 30% Missing 70% |
| Author reflexive position | Holistic reflexive position 60% Situational reflexive attitude 25% Absence of a reflexive relation 10% | Holistic reflexive position 10% Situational reflexive attitude 30% Absence of a reflexive relation 60% |

According to the above parameters, significant differences in indicators were revealed in two groups of doctors. To assess the significance of differences in the parameters of the stability of the life world in the groups of respondents, the Student's t-test was applied for unrelated samples with a mandatory check of distribution norms and calculation of standard deviation.

The results presented in Table 2 allow us to state that there is a significant difference between the stability of the life world of the attending physicians and the doctors on duty. It can be assumed that changes in the lifestyle of doctors on duty in the context of a pandemic cannot yet be fully considered critical, but they indicate the alleged targets of psychological assistance at the end of this period.

Table 2. Assessment of differences in the characteristics of the doctors life-world stability of respondents by the t-test for related samples.

| First group | | Second group | | t-test | p |
|-------------|----------|--------------|----------|--------|------|
| μ | δ | μ | δ | | |
| 31,73 | 8,31 | 27,92 | 7,46 | 1,997 | 0,05 |

According to a number of authors who have previously described the psychological consequences of the pandemic of the respiratory syndrome epidemic in the Middle East, existing problems begin to be minimized four to six months after release from isolation, along with the provision of psychological support for people with vulnerable mental health, as well as the provision of accurate information [Jeong et al., 2016, p. e2016048].

5. Conclusions

The characteristics of the stability of the life world of doctors on duty, in contrast to attending doctors in a pandemic associated with COVID-19, are

- domination of the temporal mode "past - present";
- disrupted continuity of personal history;
- biography as a criterion for choosing the content of the described (significant) events;
- dominant negative emotional background of events;
- absent or situational reflexive attitude towards one's own life;

- significant events more often characterize the central line of development or the completion of the line of development, and in some cases, significant and important events do not hold the general line of development.

Thus, it can be stated that disturbed relations with the world in a pandemic, which impede the maintenance of the stability of the life world, are more pronounced among the doctors on duty. The specificity of the stability of the life world of people according to the above parameters is close to the state of stability of the life world in a crisis period for a person.

The materials presented will allow psychologists to take these results into account when working with doctors who have particularly experienced the period of the pandemic associated with COVID-19, keeping these parameters in focus as targets for psychological assistance. The obtained data actualizes the need to develop special psychological support programs when leaving the special epidemiological regime of a pandemic.

References

- Cai W., Lian B., Song X., (...), Deng G., Li H. A cross-sectional study on mental health among health care workers during the outbreak of Corona Virus Disease 2019 // *Asian Journal of Psychiatry*, 2020, Vol. 51, e102111. DOI: 10.1016/j.ajp.2020.102111
- Fiedorowicz Jess G. New challenges in the COVID-19 pandemic // *Journal of Psychosomatic Research*, 2020, Vol. 133, e110123. DOI: <https://doi.org/10.1016/j.jpsychores.2020.110123>
- Horesh, D., Brown, A.D. Covid-19 response: Traumatic stress in the age of Covid-19: A call to close critical gaps and adapt to new realities // *Psychological Trauma: Theory, Research, Practice, and Policy*, 2020, Vol. 12(4), P. 331-335. DOI: 10.1037/tra0000592
- Jeong H., Yim H.W., Song Y.-J., (...), Cho J., Chae J.-H. Mental health status of people isolated due to Middle East Respiratory Syndrome // *Epidemiology and health*, 2016, Vol. 38, P. e2016048. DOI: <https://doi.org/10.4178/epih.e2016048>
- Lai J., Ma S., Wang Y., Cai Z., Hu J., Wei N., ... Hu S. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019 // *JAMA Netw Open*, 2020, Vol. 3(3): e203976. URL: <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2763229>
- Lee A. M., Wong J. G., McAlonan G. M., Cheung V., Cheung C., Sham P. C., ... Chua S. E. Stress and psychological distress among SARS survivors 1 year after the outbreak // *Canadian Journal of Psychiatry. Revue Canadienne de Psychiatrie*, 2007, Vol. 52(4), P. 233–240. DOI: 10.1177/070674370705200405
- Loginova I.O. [The study of the human life-world stability: methodology and psychometric characteristics] // *Psihologicheskaja nauka i obrazovanie* [Psychological Science and Education]. – 2012. - № 3. – S. 18–28. URL: <https://psyjournals.ru/psyedu/2012/n3/54338.shtml> (In Russ.).
- Mackolil J., Mackolil J. Addressing psychosocial problems associated with the COVID-19 lockdown // *Asian Journal of Psychiatry*, 2020, Vol. 51, e102156. DOI: <https://doi.org/10.1016/j.ajp.2020.102156>
- Marques L., Bartuska F.D., Cohen J.N., Youn S.J. Three steps to flatten the mental health need curve amid the COVID-19 pandemic // *Depression and Anxiety*, 2020, Vol.1-2, e23031. DOI: <https://doi.org/10.1002/da.23031>
- Rajkumar R.P. COVID-19 and mental health: A review of the existing literature // *Asian Journal of Psychiatry*, 2020, Vol. 52, e102066. DOI: <https://doi.org/10.1016/j.ajp.2020.102066>
- Wang Y., Zhao X., Feng Q., (...), Yao Y., Shi J. Psychological assistance during the coronavirus disease 2019 outbreak in China // *Journal of Health Psychology*, 2020, Vol. 25(6), P. 733-737. DOI: 10.1177/1359105320919177

IMPACT OF THE CONFINEMENT ON THE USE OF VIDEO GAMES, GAMING-RELATED MOTIVATIONS: A QUANTITATIVE AND QUALITATIVE STUDY

Gaëlle Bodi, Célia Maintenant, & Valérie Pennequin
EA 2114, PAVeA Laboratory, University of Tours (France)

Abstract

The rapid spread of Coronavirus disease all over the world led to health and political measures in several countries such as spatial distancing, closures of institutions, and so ones. People were invited to stay home with limited outside activities and face-to-face interactions. To pass the time, and to cope with negative feelings, people had to find alternative activities like playing video games. The present study aims to investigate potential changes in gaming behaviors and the associated gaming motivations. To do so, 346 participants were invited to complete a questionnaire during the confinement and to answer the following question: “Why do you play and is there a link with confinement?” Contextual and social motivations seemed to be two of the most important motivations.

Keywords: *Video games, COVID-19, confinement, gaming disorder, motivations.*

1. Introduction

Coronavirus disease (COVID-19) pandemic officially started in March 2020 according to the World Health Organization (WHO, 2020). COVID-19 is a disease caused by a new coronavirus called SARS-CoV-2. The spread of the disease was unbelievably fast and affected more than 71 million of people all over the world. In order to control and slow down its spread, governments in numerous countries made some decisions such as spatial distancing, remote working when feasible, temporary closures of educational and cultural institutions, partial or total confinement, etc. In France, the virus affected more than 2 million of people since the pandemic has begun and the government imposed a total confinement from March to May 2020. All these measures resulted in increased time spent home, fear, stress, anxiety, depression and decreased well-being all over the world (Amin et al., 2020; Király et al., 2020; Pfefferbaum & North, 2020; WHO, 2020). Unfortunately, face-to-face interactions and means of stress relief had become limited or impracticable. People had to find other activities to cope with all these negative feelings, to change their mind and to pass the time. Playing video games was one of them. Actually, playing video games was one of the 20 most important activities that people preferred to carry out during confinement before watching TV or listening to music (Ortiz et al., 2020). Substantial increases in the sales of consoles and video games were observed in Europe. Studies also reported an increase of screen time, including gaming and other sedentary activities during confinement (Amin et al., 2020; Bhutani et al., 2020; Colley et al., 2020; Ortiz et al., 2020). In reality, playing video games can be an adaptive coping strategy on the short term (Amin et al., 2020; Király et al., 2020; Ko & Yen, 2020; Russionniello O’Brien & Parks, 2009) and such an activity had been supported during the pandemic by the World Health Organization with its hashtag *#PlayApartTogether*. Indeed, while COVID-19 pandemic calls for spatial distancing, video games allow social closeness. However, long periods of isolation, technology-based activities and limited face-to-face interactions might lead to maladaptive coping strategies and potential gaming disorder (Amin et al., 2020; King et al., 2020; Király et al., 2020; Ko & Yen, 2020; Mengin et al., 2020). Such a pathology was defined by the 11th International Classification of Diseases ([ICD-11]; WHO, 2018) including loss of control over the gaming activity, preoccupation, perseverance despite negative consequences and other different functional impairments in the player’s life. Actually, some authors confirmed that COVID-19 pandemic and political measures might lead to an increase of substance and behavioral addictions (Mengin et al., 2020; Pfefferbaum & North, 2020).

The present study aims to investigate any change in gaming habits and motivations to play in relation to the COVID-19 pandemic and the confinement. In this context, gaming-related motivations are more relevant than ever. Yee (2006) identified three main motivations: achievement, social and immersion. The achievement component is composed of advancement, mechanics and competition. The social

component includes socialization, relationships and teamwork. Finally, the immersion component is composed of discovery, roleplay, customization and escapism. Demetrovics et al. (2011) added the recreational and the competence motivations. Moreover, they distinguished the coping motivation from escapism. Considering the negative consequences and the limited face-to-face interactions caused by the COVID-19 pandemic, we assume that social and immersion motivations would be the most pregnant among players during confinement, especially socialization, coping and escapism motivations.

2. Methods

2.1. Participants and procedure

A total of 346 participants answered the questionnaire, including 186 women (53.76 %). Ages ranged from 18 to 68 ($M = 28.72 \pm 6.37$). The study was conducted in accordance with the Declaration of Helsinki during French total confinement: from the 16th of April to the 11th of May 2020. Participants were recruited on social networks. Before completing the questionnaire, designed using Sphinx Online, participants were given detailed information about the study (e.g. aims and background) and their rights (e.g. right to withdraw and confidentiality), and were then asked to give their informed consent. The questionnaire required about 10 minutes to complete and was anonymous.

2.2. Measures

Participants answered questions about their demographic characteristics and video gaming habits: age, gender, professional status, history of gaming activity (if one), weekly time spent on video games, current favorite game, preferences for online vs. offline gaming and for solo vs. social gaming. Reported gamers were then asked why they were playing video games and if their gaming activity was linked with the specific measure of confinement. On the contrary, non-gamers were invited to explain if the absence of gaming activity was regular or specific to the confinement. They then completed the following measures: the Game Addiction Scale (Lemmens, Valkenburg & Peter, 2009).

2.3. Statistical Analyses

We first conducted descriptive statistics using IBM SPSS 25. We then conducted a theoretical and semantic thematic analysis to assess the specific gaming motivations of players and their potential link with the confinement measure. We followed the step-by-step procedure of Clarke and Braun (2013): familiarizing with the data, generating codes, searching for themes, reviewing themes, defining and naming themes, and writing up.

3. Results

All demographic data, gaming habits and potential gaming disorder of the 346 participants whose 339 actual gamers are presented in Table 1. Concerning weekly gaming time we established normative zones based on the standard deviation ($M = 20.85$; $SD = 16.72$). Then, gaming time was distributed as follows: weak gaming time with less than 5 hours (10.03 %), normal gaming time from 5 to 37 hours (74.63 %), heavy gaming time from 38 to 54 hours (9.14 %) and finally extreme gaming time with more than 54 hours (6.19 %).

Table 1. Demographic information, gaming habits and gaming disorder of the participants ($N = 346$).

| | N | % | M | SD |
|------------------------------------|-----|-------|---------|-------|
| Demographic | | | | |
| Male participants | 160 | 46.24 | | |
| Female participants | 186 | 53.76 | | |
| Age | | | 28.72 | 6.37 |
| Presence of gaming activity | | | | |
| Yes | 339 | 97.98 | | |
| No | 7 | 2.02 | | |
| Gaming Habits* | | | | |
| Weekly time spent gaming | | | 20.85** | 16.72 |
| <i>Gaming history</i> | | | | |
| Less than 1 month | 14 | 4.13 | | |
| From 1 to 5 months | 4 | 1.18 | | |
| From 6 to 11 months | 2 | 0.59 | | |
| From 1 to 5 years | 33 | 9.73 | | |
| From 6 to 10 years | 36 | 10.62 | | |
| More than 10 years | 250 | 73.75 | | |

| | N | % | M | SD |
|------------------------|-----|-------|------|------|
| Gaming disorder | | | | |
| GAS score | | | 9.50 | 5.04 |
| Addicted | 12 | 7.40 | | |
| Problem | 89 | 26.37 | | |
| Highly engaged | 51 | 10.29 | | |
| Other players*** | 187 | 55.95 | | |

GAS = Game Addiction Score (Lemmens et al., 2009)

* Gaming habits were investigated among the actual 339 gamers

** Participants reported a weekly time spent on video games going from 1 to 85 hours

*** Other players are the non-addicted/non-problem/non-highly engaged players

Potential changes in gaming behaviors are presented in Table 2. Among non-gamers, two participants stopped playing because of the confinement measures. When asking why they stopped playing, the first participant reported the absence of gaming devices in the place he was confined to and the second one reported his family situation with a child to take care of and thus a lack of energy to play at the end of the day. On the contrary, a few participants started playing video games during the confinement (N = 16) which was in line with their gaming history (i.e. playing for less than 6 months; Table 1). During this specific period, the majority of gamers was playing video games more than usual (54.28 %).

Table 2. Potential changes in gaming behavior due to confinement among the participants (N = 346).

| | N | % |
|-------------------------------|------------|-------|
| Non-gamers | 9 | |
| Never played | 5 | 71.43 |
| Stopped with confinement | 2 | 28.57 |
| Gamers | 339 | |
| Started with confinement | 16 | 4.72 |
| Kept gaming but less | 16 | 4.72 |
| Kept gaming as much as before | 123 | 36.28 |
| Kept gaming but more | 184 | 54.28 |

Only 309 participants answered the question about the motivations for play and the potential link with the confinement measure. Among them 34.63 % did not mention the confinement at all, 20.39 % said there wasn't any link and finally, 44.98 % assured there was a link (N = 139). We only included the latter answers in our thematic analysis to investigate gaming motivations in the context of confinement exclusively.

Table 3. Final themes, codes, occurrences and their corresponding extracts (N = 309).

| Themes and codes | Extracts | N | % |
|------------------------------|---|------------|--------------|
| Recreational | | 105 | 33.98 |
| Pastime, hobby | <i>Video games allow me to pass the time</i> | 56 | 18.12 |
| Entertainment, fun | <i>Video games are fun and entertaining.</i> | 21 | 6.80 |
| Relaxation | <i>Video games relax me.</i> | 15 | 4.85 |
| Culture, habits | <i>I've been playing for years.</i> | 11 | 3.56 |
| Passion | <i>It's a true passion.</i> | 2 | 0.65 |
| Contextual | | 95 | 30.74 |
| More free time | <i>More time to play.</i> | 62 | 20.06 |
| No other possible activities | <i>I have nothing else to do.</i> | 20 | 6.47 |
| Lockdown in a small place | <i>I have a small apartment and I cannot go out.</i> | 7 | 2.27 |
| Equipment | <i>The video game came out during the confinement.</i> | 4 | 1.29 |
| Absence of obligations | <i>I can play late.</i> | 2 | 0.65 |
| Social | | 66 | 21.36 |
| Social gaming | <i>My boyfriend has time to play with me.</i> | 35 | 11.33 |
| Social ties | <i>To keep in touch with my friends.</i> | 19 | 6.15 |
| Availability of others | <i>I play more because my cousins are available to play.</i> | 7 | 2.27 |
| Online gaming | <i>I play more online.</i> | 5 | 1.62 |
| Immersion | | 25 | 8.09 |
| Escapism | <i>Escaping without leaving home.</i> | 20 | 6.47 |
| Coping | <i>Video games make me forget about my problems.</i> | 5 | 1.62 |
| Achievement | | 10 | 3.24 |
| Completion | <i>I have more time to play and end games.</i> | 4 | 1.29 |
| Competences | <i>Cognitive development.</i> | 4 | 1.29 |
| Mechanics | <i>For the scenario possibilities.</i> | 2 | 0.65 |
| Emotions | | 5 | 1.62 |
| Positive emotions | <i>It makes me feel good.</i> | 3 | 0.97 |
| Absence of culpability | <i>When playing I feel less guilty because I have nothing else to do.</i> | 2 | 0.65 |

The analysis resulted in 28 codes but 5 were not included in the final themes because they were mentioned once only (i.e. cooperation, competition, progression, meeting and avoidance of conflicts). Based on coding, themes were defined and named (Table 3). We noted three main gaming motivations each expressed by more than 20 % of the participants: recreational, contextual and social motivations.

4. Discussion

The principal aims of the study were first to investigate any change in gaming behaviors due to the confinement and second to analyze gaming motivations in relation to this specific period of time. We found out that almost all participants just kept playing during confinement and that the majority of them played more than usual. Based on normative gaming times, more than 15 % of participants were considered heavy or extreme gamers with more than 38 hours of gaming activity per week. However, *only* 7.40 % of the participants were considered addicted which was in line with usual prevalence rates (e.g., Fam, 2018). More than 36 % of the participants were either engaged or problematic gamers. Such gaming patterns might lead to future gaming disorder and called for vigilance. Recommendations for a healthy life staying at home made by the World Health Organization and other experts were then fully realized (Amin et al., 2020; King et al., 2020; Kiraly et al., 2020; WHO, 2020). Specific motivations in relation with the COVID-19 pandemic certainly played a key role in moderate to extreme gaming activities. The present study showed that two of the most important gaming motivations were contextual and social. Contextual motivations referred to the specific health and political contexts with (1) more free time to play, (2) no possibility to engage in other activities, (3) the lockdown in a small place always associated with a desire to escape from it and (4) the absence of constraints. All four contextual motivations were directly linked with closures of educational and cultural institutions, unemployment, remote working, and limited free movements inviting people to pass the time with other alternative activities. Another contextual motivation referred to the gaming equipment with material reasons to play: a new game and/or a new console during or just before confinement. Then social motivations, in line with Yee's work (2006), referred to the possibility to play with other people and so to keep in touch with them in order to compensate the limited face-to-face interactions. Another interesting motivation was the reported availability of people to play. Given that people had less constraints and more free time, they were more available than usual to play with friends or family members, encouraging then a more intense gaming activity. Social motivations illustrate the social closeness allowed by video games while spatial distancing is unfortunately required. Surprisingly, escapism and coping motivations were not as important as hypothesized. While 6.47 % of the participants reported to play in order to escape from real life, only a few of them reported playing to cope with negative feelings or with real-life problems (N = 5). Maybe social gaming is a good way to cope with negative feelings and to escape from real life and gamers only reported the explicit social motivation. Previous researches concluded that the most predictive motivations of gaming disorder were coping, escapism and achievement which were the less represented in the present study (Billieux et al., 2013; Moudiab & Spada, 2019; Plante et al., 2019). To conclude, playing for recreational and social reasons may be risky but not problematic *per se* which may explain why the prevalence rate here is not worrying in comparison with a normal context. However, vigilance remains essential and necessary on the development of gaming patterns and gaming disorder symptoms regarding the duration and number of confinements. And future researches could focus on the maintenance of such motivational and behavioral patterns on long-terms periods.

References

- Amin, K.P., Griffiths, M. D. & Dsouza, D. D. (2020). Online Gaming During the COVID-19 Pandemic in India: Strategies for Work-Life Balance. *Int J Ment Health Addiction*. <https://doi.org/10.1007/s11469-020-00358-1>
- Bhutani, S., Cooper, J. A., & Vandellen, M. R. (2020). Self-reported changes in energy balance behaviors during COVID-19 related home confinement: A Cross-Sectional Study. *medRxiv*. <https://doi.org/10.1101/2020.06.10.20127753>
- Billieux, J., Van der Linden, M., Achab, S., Khazaa, Y., Paraskevopoulos, L., Zullino, D., & Thorens, G. (2013). Why do you play World of Warcraft? An in-depth exploration of self-reported motivations to play online and in-game behaviours in the virtual world of Azeroth. *Computers in Human Behavior*, 29(1), 103-109. <https://doi.org/10.1016/j.chb.2012.07.021>
- Clarke, V., & Braun, V. (2013). Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. *Psychologist*, 26(2), 120-123.
- Colley, R. C., Bushnik, T., & Langlois, K. (2020). Exercise and screen time during the COVID-19 pandemic. *Heal. Reports*, 31, 3-11. <https://www.doi.org/10.25318/82-003-x202000600001-eng>

- Demetrovics, Z., Urbán, R., Nagygyörgy, K., Farkas, J., Zilahy, D., Mervó, B., Reindl, A., Ágoston, C., Kertész, A., & Harmath, E. (2011). Why do you play? The development of the motives for online gaming questionnaire (MOGQ). *Behavior Research Methods*, 43(3), 814-825. <https://doi.org/10.3758/s13428-011-0091-y>
- Fam, J. Y. (2018). Prevalence of internet gaming disorder in adolescents: A meta-analysis across three decades. *Scandinavian journal of psychology*, 59(5), 524-531. <https://doi.org/10.1111/sjop.12459>
- King, D. L., Delfabbro, P. H., Billieux, J., & Potenza, M. N. (2020). Problematic online gaming and the COVID-19 pandemic. *Journal of Behavioral Addictions*. <https://www.doi.org/10.1556/2006.2020.00016>
- Király, O., Potenza, M. N., Stein, D. J., King, D. L., Hodgins, D. C., Saunders, J. B., ... & Abbott, M. W. (2020). Preventing problematic internet use during the COVID-19 pandemic: Consensus guidance. *Comprehensive Psychiatry*, 152180. <https://doi.org/10.1016/j.comppsy.2020.152180>
- Ko, C. H., & Yen, J. Y. (2020). Impact of COVID-19 on gaming disorder: Monitoring and prevention. *Journal of Behavioral Addictions*, 9(2), 187-189. <https://doi.org/10.1556/2006.2020.00040>
- Lemmens, J. S., Valkenburg, P. M., & Peter, J. (2009). Development and Validation of a Game Addiction Scale for Adolescents. *Media Psychology*, 12(1), 77-95. <https://doi.org/10.1080/15213260802669458>
- Mengin, A., Alle, M., Rolling, J., Ligier, F., Schroder, C., Lalanne, L., ... & Brunault, P. (2020). Conséquences psychopathologiques du confinement. *L'encephale*. <https://doi.org/10.1016/j.encep.2020.04.007>
- Moudiab, S., & Spada, M. M. (2019). The relative contribution of motives and maladaptive cognitions to levels of Internet Gaming Disorder. *Addictive Behaviors Reports*, 9, 100160. <https://doi.org/10.1016/j.abrep.2019.100160>
- Ortiz, L., Tillerias, H., Chimbo, C., & Toaza, V. (2020). Impact on the video game industry during the COVID-19 pandemic. *Revista Athena en Ciencias de la Ingeniería*, 1(1), 5-13.
- Pfefferbaum, B., & North, C. S. (2020). Mental health and the Covid-19 pandemic. *The New England Journal of Medicine*. <https://doi.org/10.1056/NEJMp2008017>.
- Plante, C. N., Gentile, D. A., Groves, C. L., Modlin, A., & Blanco-Herrera, J. (2019). Video games as coping mechanisms in the etiology of video game addiction. *Psychology of Popular Media Culture*, 8(4), 385-394. <https://doi.org/10.1037/ppm0000186>
- Russoniello, C., O'Brien, K., & Parks, M. J. (2009). The effectiveness of casual video games in improving mood and decreasing stress. *Journal of Cyber Therapy and Rehabilitation*, 2(1), 53-66
- World Health Organization. (2020). Retrieved 16 December, 2020, from <https://www.who.int/fr/emergencies/diseases/novel-coronavirus-2019>
- Yee, N. (2006). The Psychology of Massively Multi-User Online Role-Playing Games: Motivations, Emotional Investment, Relationships and Problematic Usage. In R. Schroeder & A.-S. Axelsson (Éds.), *Avatars at Work and Play* (Vol. 34, p. 187-207). Springer-Verlag. https://doi.org/10.1007/1-4020-3898-4_9

THE LANDSCAPE OF ONE BREAST: EMPOWERING BREAST CANCER SURVIVORS THROUGH DEVELOPING A TRANSDISCIPLINARY INTERVENTION FRAMEWORK IN A JIANGMEN BREAST CANCER HOSPITAL IN CHINA

Yuk Yee Lee Karen¹, & Kin Yin Li²

¹*School of Social Work, Gratia Christian College /Assistant Professor (Hong Kong)*

²*School of Social Work, Gratia Christian College / HEAD (Hong Kong)*

Abstract

Breast cancer is a major concern in women's health in Mainland China. Literatures demonstrates that women with breast cancer (WBC) need to pay much effort into resisting stigma and the impact of treatment side-effects; they suffer from overwhelming consequences due to bodily disfigurement and all these experiences will be unbeneficial for their mental and sexual health. However, related studies in this area are rare in China. The objectives of this study are 1) To understand WBC's treatment experiences, 2) To understand what kinds of support should be contained in a transdisciplinary intervention framework (TIP) for Chinese WBC through the lens that is sensitive to gender, societal, cultural and practical experience. In this study, the feminist participatory action research (FPAR) approach containing the four cyclical processes of action research was adopted. WBC's stories were collected through oral history, group materials such as drawings, theme songs, poetry, handicraft, storytelling, and public speech content; research team members and peer counselors were involved in the development of the model. This study revealed that WBC faces difficulties returning to the job market and discrimination, oppression and gender stereotypes are commonly found in the whole treatment process. WBC suffered from structural stigma, public stigma, and self-stigma. The research findings revealed that forming a critical timeline for intervention is essential, including stage 1: Stage of suspected breast cancer (SS), stage 2: Stage of diagnosis (SD), stage 3: Stage of treatment and prognosis (ST), and stage 4: Stage of rehabilitation and integration (SRI). Risk factors for coping with breast cancer are treatment side effects, changes to body image, fear of being stigmatized both in social networks and the job market, and lack of personal care during hospitalization. Protective factors for coping with breast cancer are the support of health professionals, spouses, and peers with the same experience, enhancing coping strategies, and reduction of symptom distress; all these are crucial to enhance resistance when fighting breast cancer. Benefit finding is crucial for WBC to rebuild their self-respect and identity. Collaboration is essential between 1) Health and medical care, 2) Medical social work, 3) Peer counselor network, and 4) self-help organization to form the TIF for quality care. The research findings are crucial for China Health Bureau to develop medical social services through a lens that is sensitive to gender, societal, cultural, and practical experiences of breast cancer survivors and their families.

Keywords: *Gender sensitive, women with breast cancer, transdisciplinary intervention framework, empowerment, feminist participatory action research.*

1. Background to the study

Like other developing countries, for cancer patients in Mainland China "cancer" is not just a discourse regarded as a medical problem, they will be suffering from financial, social, psychological, and emotional problems as well. WBCs are suffering from psychological stress, self-stigma, and social exclusion. Wang (2014) reported that WBC received less social support and that at least one-third of WBCs in China suffer from higher psychological distress. Social support has also been connected with the quality of life of patients with breast cancer. Higher levels of social support have been associated with better adjustment for WBC (Simpson, Carlson, Beck, & Patten, 2002). The impact of bodily disfigurement on breast cancer survivors' experiences of change in personal and sexual relationships. Compared to Israeli husbands, Chinese husbands were also more dissatisfied with their sexual relationships and marital adjustment after their wives' breast cancer experience (Woloski-Wruble & Kadmon, 2002). According to a Consultant Medical Officer of breast cancer ward in JMCHCH, breast cancer doctors tend not to maximize the rights of breast cancer patients in choosing whether to have

breast reconstruction or a mastectomy. Owing to no formal helping profession, such as medical social workers and clinical psychologists for breast cancer patients or well-organized patient self-help organizations in Mainland China, there is an urge for more researchers in this area to advocate more appropriate and prompt medical care and social services for breast cancer patients and their families. Based on the above discussion, the objectives of this research are: 1. What are the Chinese WBC's treatment experiences, resistance to problems, meanings of their symptoms? 2. What kinds of services or support should be contained in a transdisciplinary intervention framework for Chinese WBC through a lens that is sensitive to gender, societal, cultural, and practical experiences of WBC for policymakers in a Breast Cancer Hospital in China to modify their health care support service for WBC?

2. Research design and methods

Health care researchers of Mainland China are still dominated by logical positivism (Yu & Liu, 2008) and its successors of medical hegemonism. This study was highly influenced by the concept of "an ethics of Care Epistemology" (Kim, 2006). The knowledge construction should include the voice of the patients and their carer. How does the medical system disregard the treatment process, construct the powerless, oppress or cause inferiority of the woman through socialization or distribution of power and privilege? In view of this, the feminist perspective is considered the most appropriate lens to understand the oppressed voices of WBC in medical settings in Mainland China. Therefore, this study was adopted the Feminist Participatory Action Research. This FPAR generally includes a spiral process of (a) planning for change, (b) acting and observing, (c) reflecting on the processes and consequences, and then (d) beginning the process again through re-planning (Mertler, 2017). As in many action research projects, these stages are not always linear and often overlap.

2.1. Sampling and data collection

The research project will cooperate with the Jiangmen Maternity and Child Health Care Hospital (JMCHCH). Six core action team members were recruited, 14 Participants and a carer (eligible women aged 18 or above) were outpatients with distress in receiving chemotherapy or radiation at JMCHCH. They were identified and invited through purposive sampling and referred by the hospital. As PAR is committed to anti-oppression, empowerment and takes the role of change. The results of action research are intended to directly benefit the situation of ordinary people and the collaborator, research findings are supposed to encourage interaction and self-reflection. For collecting the data, in action Stage I using oral history and participatory observation, and group materials such as expressive art products, drawings, themes songs, letter, poetry, handicraft as data in Stage II, storytelling and public speech content will be the data in action Stages III and IV. Reflection meetings notes in all action stages as a very important data.

3. Finding and discussion

3.1. Experiences of WBC at every treatment stage

We began our journey of oral history in early 2018, following discussion with the action team members, it was classified into the treatment stages could be divided into four stages. For stage 1: Stage of suspected breast cancer (SS), in the interview, the WBCs felt very stressed and helpless in this stage but both formal and informal networks are rare. It is vital if the health professionals' positive attitudes having a great influence on the willingness of the WBC to receive cancer treatment. WBCs and their families were well-informed about their illness, its treatment and prognosis, which could reduce refusal of cancer treatment. For stage 2: Stage of diagnosis (SD), the biggest impact for WBCs and their families is harmful to their lives, followed by the impact on livelihoods and their body image. Although compared with the other two factors, we found a negative impact on body image to be comparatively low. Nevertheless, body image is one of the biggest barriers to receive the breast cancer removal surgery of WBCs. At stage 3: Stage of treatment and prognosis (ST), the Risk factors for coping of the cancer is suffering from distressing and traumatizing treatment side effects, fear of being stigmatized/discriminated about the state of their health and the changes to their bodily appearance as well as lacking family personal care during hospitalization. For the Protective factors for coping, the caring responsibility of elderly parents and children would increase the resilience and optimistic thinking of WBC. Social support of spouse and peer support from those with the same cancer experience was greatly helpful. Support of health professionals, we found attitudes and communication skills crucial for supporting WBC to continue with cancer treatment. Stage 4: Stage of rehabilitation and integration (SRI), In this research, among the interviewees, were facing difficulties returning to the job market and social inclusion, they concerned about their livelihoods in the future and fears of finding employment, they worried about not finding a job and worry about their livelihoods was more important than the illness itself.

3.2. Relationships

On Changing in their Relationships with Others and community after Surgery, the current study supports previous literature in that these women experience changes in the whole of their life (Yusuf et al., 2013); from caregiver to care receiver; changes in their social role; changes in body and personal image, changes in personal relationships; either positive or negative. In this research revealed that breast cancer in Mainland China is perceived as a shameful disease. The dominant pathologizing and cultural discourses in Mainland China constructs them as “Bringing bad luck and disgrace to the family and village” and thus they are treated with negative stigmatizing attitudes. For WBC who choose to deceive their children until their death, only revealing the fact that their parents died of cancer at this time; making it difficult for children to accept that their parents died of cancer. Many children were not allowed or informed to see the “last face” of their parents, the right to grief should be advocated.

3.3. Body image

On Changing in body image, according to Schilder (1950), body image includes psychological, physical and social dimensions (Yang, 2003). We will examine it by using scars (body), self-concept (psychology), intimate sexual (social) contacts with WBC and consider how society understands how breast-conserving surgery may lead to barriers in social interaction and by understanding the changes in the psychological and physical status of women with cancer and their experience of gender issues.

3.3.1. Physical level - mastectomy scar. From the interviews, we found that seeing wounds is a very difficult moment for WBC. Some women are even more afraid of family members and even their husbands seeing or touching their wounds:

“I dared not look at the wound even when I was in the bathroom alone. It was quite disgusting indeed as part of the breast was removed....there was a bunch of things.” (Ah Xiu)

3.3.2. Psychological level - self-identity. WBC commonly avoid looking in the mirror and experience common sentiments including decreased self-worth and attractiveness and feeling deformed. WBC who had a mastectomy commonly has doubts about whether they are “real women”:

“Without the breasts, a woman seemed as unlike a woman. ... When going to swim or hot springs in the future, it would be so ugly/odd if there is no breast on one side.” (Ah Xiu)

3.3.3. Social level - intimate relationships. Decreased or lack of sexual desire after cancer treatment was a common problem for WBC couples:

“I did not think about having sex. Of course, he would have the thought (having sex) after abstinence for quite a while.” (Ah Xiu)

From the stories, it reflected that WBCs’ changes to their sexual identity was noticeable in the Chinese society. Doctor did not aware the importunateness to explain to breast cancer patients their rights to breast-conservation and non-breast conservation, as well as the related physically consequences of this operation, this is obviously further exploitation of the rights of women with breast cancer.

3.4. Beneficial findings of breast cancer survivors through the peer support network

WBC also benefitted from their fight with cancer and its empowering process, which increased their “individual sense of control, as well as enhancing positive coping and well-being” (Stang & Mittelmark, 2009). However, the benefit finding of WBC is seldom explored in Chinese research. In current study, through the empowering peer-support group which is an effective way to facilitate WBC to be transformed as peer counselors. One of the peer counselors, Ah Xia’s changes have been summarized in the following. They are:

1. Improvements in social relations- “Accompanied by a few good friends (with same cancer experience) to go out for a walk, sit down to take rest and chat.”
2. A greater appreciation for life- “I think that I'm different, I'm more optimistic.”
3. A changed sense of priorities- “I feel less burdened to view things and work now and things and work are not so important.”
4. Self-love- “I feel it’s a new me, I’ll treat myself good and to love myself more.”
5. Beneficial spiritual changes- “I think I am free... (now)”.
6. Sense of control- “Now I can say that I am free and there is nothing to worry about, I like to have fun and enjoy life whenever I want.”

Based on the powerful empowering experiences from the peer support network, the action team has proposed to conduct study tour in Hong Kong to learn peer support network, other supportive services for WBCs and study the intervention framework in the Breast Cancer Ward. They hoped to find out that what kinds of support would be helpful for WBC to better reintegrate them into the community, ease their embarrassment and self-stigmatize identity?

3.5. Construction of the Transdisciplinary intervention framework (TIF) using the participatory approach

Under collaboration with peer counselors, breast cancer doctor, psychologist, front-line social worker and social work teacher, researcher and the consultant by using the participatory approach, reflection in action. Every member has raised their ideas on service design and service-workflow, they also highlighted the urgency and feasibility to form the peer support system in Jiangmen. The TIF workflow was subsequently constructed and the crucial findings of the Role & functions of different parties are summarized in Table 1.

Table 1. Role & functions of different parties.

| Role & functions of the Health and medical care domains (doctors and nurses) | | |
|--|--|--|
| SS | Gatekeeper | 1.Preliminary medical consultation, 2.Make referral to the Medical Social Service Unit (MSSU) based on their willingness. |
| SD | Educator | Well-informed and explain the treatment plan, side effects and opportunities for cure for WBCs and family members. |
| ST | Therapist | 1.Standardized caring service, 2.On-going explanation of illness and its treatment plan, 3. Refer WBCs in need to MSSU. |
| SRI | Enabler and Advocator | 1.Community education, 2.Advocacy e.g. Reform of the MSSU in BC Ward, 3.Maximize the WBCs' rights in making medical decision. |
| Roles & functions of the Medical social work domains - social worker and clinical/counseling psychologist | | |
| SS | Broker | 1.Emotional supported, 2.Refer to welfare unit and/or Family and Patient Resource Centers(FPRC). |
| SD | Accessor | Assess the resources of the WBC |
| ST | Case manager, Broker and Therapist | 1.Provide case management (Encourage patients to continue treatment, provide the nonhospital-based home-help service for the WBCs in need), 2.Provide support to peer counselors, 3.Sustain the WBC's social support (e.g., home visit) for WBCs, 4.Carer support, 5.Refer the rehabilitation resources, 6. Therapeutic intervention (e.g. Sexual and hospice care. etc.) |
| SRI | Enabler, Advocator, Advisor, organizer and trainer | 1.Nurture the peer support network and the FPRC, 2.Provide carer support, 3. Facilitate the community integration of the WBCs, 4.Regularly organize community education to public, e.g. Anti-discrimination education, Employment opportunities for WBCs, Maximize the rights of WBCs, Provide illness information, Side effect's management, Symptoms management and its prevention and recurrence. |
| Roles & functions of the Peer counselor network - peer counselor | | |
| SS | Broker | 1.Encourage the WBCs to receive treatment, 2.Provide medical resources |
| SD | Accompanying person | 1.Pair-up peer counselor support network, 2.Share treatment experience in fighting cancer, 3.Provide emotional support and induce hope to the WBCs. |
| ST | Educator and supporter | 1.Share health care or healthy diet's information, 2.Share the road of fighting breast cancer, 3.Encourage the WBCs to maintain social support. |
| SRI | Accompanying person | Support and encourage breast cancer survivors to become peer counselors to help new breast cancer patients in fighting cancer. |
| Roles & functions of the self-help organization | | |
| SS | Broker | Linking the care and health resources |
| SD | Accompanying person | 1.On-going emotional support, 2. Report the situation of the WBCs to MSSU if any crisis |
| ST | Educator | Provide stress management actives to family members , carer and WBCs |
| SRI | Advocator and organizer | 1.Organize support service, e.g., Run the free Prosthesis Bra or Wig Programme, 2. Organize the consciousness-raising education program, such as gender and anti-discrimination educational program. 3. Advocacy, e.g. the rights of WBCs in making medical decision. |

*Stage of suspected of having breast cancer (SS), 2. Stage of diagnosis (SD), stage of treatment and prognosis (ST), and the stage of rehabilitation and integration (SRI). *

During the research process, our team members had different views and understandings on what transdisciplinary, multidisciplinary as well as interdisciplinary approaches were. This is why we adopted the TIF because it is neither a multidisciplinary nor interdisciplinary nor solely an intervention framework. The action team members considered that the needs of WBC in every treatment stage, which involved different professionals, family systems and health care systems. All systems had a great influence on breast cancer patients and their families to reduce the stigma and discrimination, to overcome the

psychological hardship and/or social problems. These systems are crucial for WBC to better re-integrated into their communities. Such consideration directed our action team to reflect that the “Transdisciplinary” approach should be promoted in medical social service settings in Mainland China.

4. Conclusion

In current research, we found that all stages of treatment, such as pre-treatment, diagnosis, and treatment (surgery, chemotherapy) as well as rehabilitation lack gender-centeredness in every treatment stage in hospitals in China. Caring is essential to the experience of WBC. The concepts of care and responsibility are primary to Chinese women’s construction of their moral domain (Gilligan, 1982) as demonstrated by the notion that women are the primary caregivers in the home, caring for children and other family members, such as the elderly (Walker & Thompson, 1983). It was inspiring that this current study revealed caring duties as one of the protective factors for WBC to continue treatment and fight cancer. When “caregivers” were very sick, who can replace their role in the family? These stories of WBCs revealed that in Chinese culture they do not allow their children to get involved in their treatment process and caring duties even when WBC faces death in the terminal stage of cancer. Do the children of WBC and their relatives have the right to grief (bereavement counseling for WBC’s children) and how can they get the children of WBC involved; this could be one arguable issue for providing counseling for a person who is dying because it is important to be able to say goodbye to their beloved which is crucial to health grief. Grief is a normal and natural response to loss and we often expect to grieve the death of a family member. These WBS’s stories revealed that the dominant cultural conception of breast cancer in Mainland China is “shameful”, such discrimination is unspoken, the suffering is wounded not just in the body, the breast scar, but in the voice. Why they need to treat disrespectful, why they need to bear the discrimination, for a WBC if, without structural changes, they may suffer in a triple way, the illness itself, the discrimination caused by the cancer stigma, and no chance to be given to say goodbye to the beloved that is the triple suffering and as triple oppressions.

References

- Gilligan, C. (1982). *In a Different Voice: Psychological Theory and Women's Development*. Cambridge, Massachusetts: Harvard University Press
- J.S. Simpson, L.E. Carlson, C.A. Beck, et al. (2002). Effects of a brief intervention on social support and psychiatric morbidity in breast cancer patients. *Psycho-Oncology*, 11 (4), 282-294
- Kim, H. S., & Kollak, I. (Eds.) (2006). *Nursing theories: Conceptual and philosophical foundations* (2nd ed.). New York: Springer Publishing Company.
- Mertler, C. A. (2017). *Action research: Improving schools and empowering educators*. Thousand Oaks, CA: Sage Publications.
- Nandu.com. (2014). Qī chéng shòu fāng zhě bù zhīdào shénme shì yīwù shèhuì gōngzuò. Southern Metropolis Daily. Retrieved 16th June from http://news.ifeng.com/gundong/detail_2014_03/21/34992506_0.shtml
- Schilder, P. (1950). *The image and appearance of the human body*. New York: International University Press.
- Stang, I., & Mittelmark, M. (2009). Learning as an empowerment process in breast cancer self-help groups. *Journal of Clinical Nursing*, 18(14), 2049-2057.
- Walker, A. J., & Thompson, L. (1983). Intimacy and intergenerational aid and contact among mothers and daughters. *Journal of Marriage and the Family*, 45, 841-849.
- Wang, F., Liu, J., Liu, L., Wang, F., Ma, Z., Gao, D., Zhang, Q., & Yu, Z. (2014). The status and correlates of depression and anxiety among breast-cancer survivors in Eastern China: A population-based, cross-sectional case-control study. *BMC Public Health*, 14, 326. <https://doi.org/10.1186/1471-2458-14-326>.
- Woloski-Wruble, A., & Kadmon, I. (2002). Breast cancer: Reactions of Israeli men to their wives' diagnosis. *European Journal of Oncology Nursing*, 6(2), 93-99.
- Yang, J. (2003). Fantastic costume: The female breast cancer patients, gender performance, and body image. *Taiwan: A Radical Quarterly in Social Studies*, 49-95.
- Yusuf, A., Ab Hadi, I., Mahamood, Z., Ahmad, Z., & Keng, S. (2013). Understanding the breast cancer experience: A qualitative study of Malaysian women. *Asian Pacific Journal of Cancer Prevention*, 14(6), 3689-3698.

COMMUNICATION STYLE: THE MANY SHADES OF GRAY

Shulamith Kreitler

School of Psychological Sciences, Tel-Aviv University (Israel)

Abstract

The major aspects of communication include the communicating individual, the addressee, and the style of communication which can be more objective or subjective. The present study examines the role of the communicator's motivation and the identity of the addressee of the communication in regard to the style of communication. The motivation was assessed in terms of the cognitive orientation approach (Kreitler & Kreitler) which assumes that motivation is a function of beliefs that may not be completely conscious. The motivation to communicate may be oriented towards sharing and self disclosure or towards withdrawal and distancing oneself from others. The style of communication was assessed in terms of the Kreitler meaning system which enables characterizing the degree to which the communication is based on means that are more objective and interpersonally-shared means (viz. attributive and comparative means) or more personal-subjective ones (viz. examples and metaphors). The hypothesis was that the style of communication is determined by one's motivation and by the recipient's characteristics, which in the present context was gender. It was expected that when the motivation supports sharing and the addressee is a woman the style would be mainly subjective, while when the motivation supports withholding information and the addressee is a man the style would be objective. The participants were 70 undergraduates. The tool was a cognitive orientation questionnaire. The experimental task was a story that had to be recounted. The narratives were coded in terms of the Kreitler meaning system. The data was analyzed by the Cox proportional hazards model. The findings supported the hypothesis of the study. Major conclusions referred to the motivational determinants of communication styles.

Keywords: *Communication, style, sharing, motivation, cognitive orientation.*

1. Introduction

Communication is a complex multi-functional process used in different contexts for an ever-increasing number of goals. The major aspects of communication include the communicating individual, the recipient of the communication, the contents of the communication and the style of communication (Barnlund, 2008; Littlejohn, Foss, & Oetzel, 2021). The interplay between the three mentioned factors turns communication into a dynamic complex which is almost continually changing. Within this complex, it may be possible to focus on one or another of the components in order to assess its relative contribution to the total effect in the final stage.

Communication styles have a strong impact on the outcomes of the act of communication. However, communication styles are not universal but are rather adapted to different contexts. For example, there are different communication styles in romantic relations and in the workplace (Kuria, 2019; Wegner, Roy, Gorman, & Ferguson, 2018). The communication styles dealt with in the present study were those characterizing social relations between acquaintances. These were the styles of sharing information or withholding it. These styles were identified by interviewing subjects about the goals of communication in neutral social contexts (see Kreitler, 2021, chapter 17).

Style is however a characteristic of the communication itself. The determinants of style reside in the communicator and in the addressee. In regard to the communicator, we focused on his or her motivation to communicate in the shared or withdrawal kind of style. The communicator's motivation was conceptualized and assessed in the framework of the cognitive orientation (CO) theory (Kreitler, 2004, 2014b; Kreitler & Kreitler, 1982), which assumes that motivation is a function of beliefs that may not be completely conscious and may differ from one's conscious intention. According to the CO approach, behavior is a function of a motivational disposition which is implemented by a behavioral program. The motivational disposition is a vector defined by four belief types: about oneself (i.e., one's habits, feelings), general beliefs about others and reality, beliefs about rules and norms (i.e., how thing

should be), and beliefs about goals and wishes (i.e., how one would like things to be). The four belief types do not refer directly to the behavior in question but to its underlying meanings which are identified by a systematic standard stepwise interviewing with pretest subjects. A previous study supported the validity of the described procedure for predicting expressive communicability in schizophrenics and healthy individuals (Kreitler, Schwartz, & Kreitler, 1987).

The major characteristic of the addressee that was studied was gender. The assumption was that the communicator's style of communication is affected to an appreciable extent by the gender of the addressee (e.g., Almushayqih, 2020).

The style of the communication was conceptualized and assessed in terms of the meaning system (Kreitler, 2014a, 2021; Kreitler & Kreitler, 1990) which enables characterizing narratives with respect to the meaning dimensions (i.e., contents, such as location, emotions), the types of expression (e.g., examples, comparisons), the forms of expression (e.g., positive or negative), and referent shifts (e.g., staying around the initial input or not). Types of relation are the major feature that distinguishes between objective interpersonally-shared communications and personal-subjective communications. The former include expressions in the form of propositions describing qualities or actions, and comparisons including descriptions of similarities, differences, relationalities and complementary relations. In contrast, persona-subjective types of relation include exemplifying-illustrative description of examples, situations or scenes, as well as interpretational, metaphoric (conventional or innovative) and symbolic. These differences are based on studies in which subjects were requested to communicate interpersonal or personal communications (Kreitler & Kreitler, 1990).

2. Objectives

The present study examines the role of the communicator's motivation and the identity of the recipient of the communication in regard to the style of communication.

The hypothesis was that the style of communication is determined by one's motivation and by the recipient's characteristics, which in the present context was gender. The major expectation was that when the CO of motivation orients towards sharing and the addressee is a woman the communication style would be subjective-personal, while when the CO motivation orients towards withholding and the addressee is a man the communication style would be interpersonal-objective.

3. Method

3.1. Method: Participants

The subjects were 70 undergraduates in the behavioral sciences, including an equal number of men and women.

3.2. Method: Design

The design of the study was a two factor design. One factor was the CO motivation of the communicator: sharing versus withdrawing, whereas the second factor was the gender of the address: male versus female.

3.3. Method: The experimental task

The communication referred to the description of a weekend excursion by a family of four in the course of which the 4-year old child fell and was badly hurt. The experimental task was to communicate the story to a hypothetical male or female.

3.4. Method: Tools

The motivation was assessed in terms of the CO approach (Kreitler & Kreitler, 1982) which assumes that motivation is a function of beliefs which may orient towards sharing and self disclosure or towards withdrawal and distancing oneself from others. The CO-based motivation was assessed by means of a CO questionnaire which included 40 statements: 10 for beliefs about self, 10 for general belief, 10 for norm beliefs and 10 for goal beliefs. Responses were to be given by checking one of four presented alternatives, ranging from Very true to Not true at all, scored as 4 to 1. In each belief type half of the items oriented towards withholding and half towards sharing. The subject got for each belief type only one score that represented the summed directions of the two kinds. The contents of the beliefs represented themes supporting sharing (e.g., expressing one's feelings has a relaxing effect, disclosing one's attitudes is important for making friends) or withholding information (e.g., trusting others may be dangerous, it is never helpful to let others know your real thoughts). Each subject got four scores: one for beliefs about

self, one for general beliefs, one for norm beliefs and one for goal beliefs. The reliabilities of each of the four scores in terms of alpha Cronbach ranged from .79 to .85. (Kreitler, 2021, chapter 17)

The style of communication was assessed in terms of the Kreitler meaning system which enables characterizing the degree to which the communication is based on types of relation characterizing the objective interpersonal-shared mode of communication or the personal-subjective one. The style of communication was based on scoring the narrative based on the experimental task (see 3.2). The following six types of relation define the objective interpersonal mode of communicating: attribute-describing qualities (e.g., he is a nice person), attributive describing actions (e.g., she helps others), comparative-similarity (e.g., love is like happiness), comparative-difference (e.g., helping differs from punishing), comparative-relational (e.g., a scratch is less than a wound), comparative-complementary (e.g., crying weakens through being comforted). The following six types of relation define the subjective personal mode of communicating: exemplifying instance (e.g., boy is for example a four-year old), exemplifying situation (e.g., pain – a person bent over with pain), exemplifying-scene (e.g., when you fall everyone comes to you to help you get up and the ask you how they can help), metaphoric-interpretation (e.g., pain is the unavoidable lesson of life), metaphor-conventional (e.g., to be happy is like being in the seventh heaven), metaphor-original (e.g., joy is like swimming in sweet light), metaphor-symbolic (e.g., love is like a beautiful flower with golden petals covering painful thorns). Each narrative of the task got first two scores: one for the number of types of relation of the objective style and one for the number of types of relation of the subjective style. Since in the beginning most subjects used a mixture of both kinds of styles, the major dependent variable of the study was defined as the time (in seconds) it took the subject to settle on the style which consisted in at least 75% of one style (i.e., either objective or subjective). (For the inter-rater reliability see Procedure).

3.5. Method: Procedure

Each subject related the story only once – to a female or a male. The recorded stories were analyzed by two independent judges in terms of the style of communicating. In cases in which differences in ratings between any two judges exceeded two points, a discussion between the raters was used for deciding on a concordant rating. Thus, the degree of correspondence between the two ratings for all recorded stories was high (see Tools). The mean correlation between two independent raters was .70.

4. Results

The data was analyzed by the Cox proportional-hazards model which is a regression model enabling studying the association between several predictor variables and the time it takes for a phenomenon to occur. In the present study the predictor variables were the scores in the four types of beliefs and the gender of the addressee. The dependent variable was the time it took for the subject in the study to get to the point of 75% of types of relation of one of the styles of communicating. It was expected that the subject whose CO scores indicate the motivation for sharing would settle sooner on the style of sharing, while the subject whose CO scores indicate the motivation for withholding would settle sooner on the style of withholding. The manifestation of the styles was expected to correspond also to the gender of the addressee.

The findings in Table 1 show that the following three predictors had significant contributions: beliefs about norms, beliefs about self and general beliefs. The highest contribution was by beliefs about self. The contribution of beliefs about goals was not significant. The effect of the gender of the addressee was significant. The whole model was found to be significant.

Table 1. Results of Cox proportional hazards model with motivation for communication and gender of the addressee as predictors and style of communication as dependent variable.

| Predictors | B | SE | Wald | Sig |
|--------------------------------|--------|------|--------|------|
| Motivation: norms | -.974 | .397 | 6.142 | .013 |
| Motivation: beliefs about self | -2.199 | .414 | 31.311 | .000 |
| Motivation: goals | -.096 | .224 | .147 | .681 |
| Motivation: general beliefs | -.918 | .398 | 5.321 | .021 |
| Gender of addressee | .522 | .219 | 5.608 | .030 |

Chi-square =8.664, df=4/1, p=.018

5. Discussion

The results showed that the belief types of the CO motivation for communication and the addressee's gender accounted for the communication style applied by the communicator. When the CO of motivation supported withholding and the addressee was a man the communication style was mainly of the objective kind, and when the CO of motivation supported sharing and the addressee was a woman, the communication style was mainly of the subjective kind. Other cases were matched by communication styles of mixed kinds, manifesting the different shades of gray.

The fact that only three belief types had significant contributions does not disconfirm the major tenet of the CO theory, according to which the support of only three belief types suffices for shaping a course of behavior (Kreitler & Kreitler, 1982).

Thus, the findings support the hypothesis about the role of CO predictors in regard to communication style. Also, the expected role of the gender of the addressee has been confirmed. However, it seems that the gender of the addressee fulfills in this context a relatively less significant role than the CO belief types.

Of the four belief types the most significant role in the prediction was played by the beliefs about oneself followed by beliefs about norms. The former reflect primarily the self-image, the latter one's norms in regard to communication in general and possibly in regard to the proper behavior in regard to the addressee. General beliefs fulfill in this context a relatively less important role.

6. Conclusions

The conclusion of the study is that style of communication is affected by the communicator's motivation. The findings show that applying objective and subjective communication styles is a function of one's beliefs about issues that do not refer directly to communication in general or degree of disclosure or withdrawal of information but only to the meanings underlying communication, disclosure and sharing. The communicator is not aware of the connection between one's beliefs and one's style of communication and there is no reason to assume that he or she try to adapt their communication style to their beliefs. The impact of the beliefs on the communication style is neither conscious nor under the communicators' voluntary control.

Another conclusion of the findings is that each communicator disposes of the two studied communication styles. The activation of one or another is determined among other factors by one's CO motivation supporting one or another of the communication styles. Hence, if one desired to affect the activation of these communication styles the recommended way is by enriching or enhancing the meanings underlying these styles. This procedure is likely to be much more effective than training one or another of the communication styles.

It may be assumed that the same conclusions apply also to other communication styles in which one may be interested. The recommended procedure of affecting them is the indirect way of dealing with their underlying meanings which is likely to be more effective in regard to most behaviors than reinforcing directly the behaviors themselves.

References

- Almushayqih, H. (2020). The role of the addressee and gender diversity in greeting behavior in the Saudi context. *English Language Teaching*, 13(6), 1.
- Barnlund, D. C. (2008). A transactional model of communication. In C. D. Mortensen (Eds.), *Communication theory* (2nd ed., pp. 47-57). New Brunswick, New Jersey: Transaction.
- Kreitler & T. Urbanek (Eds.) *Conceptions of meaning* (pp. 3-32). Hauppauge, NY: Nova Publishers.
- Kreitler, H., & Kreitler, S. (1982). The theory of cognitive orientation: Widening the scope of behavior prediction. In B. Maher & W. B. Maher (Eds.), *Progress in Experimental Personality Research* (Vol. 11, pp. 101-169). New York: Academic Press.
- Kreitler, S. & Kreitler, H. (1990). *The cognitive foundations of personality traits*. New York: Plenum.
- Kreitler, S. (2004). The cognitive guidance of behavior. In J.T. Jost, M. R. Banaji, & D. A. Prentice (Eds.), *Perspectivism in social psychology: The Yin and Yang of scientific progress* (pp. 113-126). Washington, DC: American Psychological Association.
- Kreitler, S. (2014a). Meaning and its manifestations: The Meaning System. In S.
- Kreitler, S. (2014b). Changing attitudes and beliefs. In C. Pracana (Ed.), *International psychological applications conference and trends (InPact)* (pp. 99-102). World Institute for Advanced Research and Science (WIARS). Lisbon: Portugal.

- Kreitler, S. (2021). *The construct of meaning*. New York: Cambridge University Press.
- Kreitler, S., Schwartz, R., & Kreitler, H. (1987). The cognitive orientation of expressive communicability in schizophrenics and normals. *Journal of Communication Disorders, 20*, 73-91.
- Kuria, G. N. (2019). Literature review: Leder communication styles and work outcomes. *International Journal of Scientific and Engineering Research, 10(1)*, 1956-1965.
- Littlejohn, S. W., Foss, K. A., & Oetzel, J. G. (2021). *Theories of human communication (11th ed.)*. Belmont, CA: Wadsworth Publishing.
- Wang, R., Roy, A. R. K., Gorman, K. R., & Ferguson, K. (2018). Attachment, relationship communication style and the use of jealousy induction techniques in romantic relationships. *Personality and Individual Differences, 129*, 6-11.

THE EXPERIENCE OF INFERTILITY AND QUALITY OF LIFE OF WOMEN UNDERGOING THE IVF PROCESS – A STUDY IN SERBIA

Jelena Opsenica Kostic, Milica Mitrovic, & Damjana Panic
Department of Psychology, Faculty of Philosophy, University of Nis (Serbia)

Abstract

Studies have shown that women facing infertility and undergoing the IVF process generally belong to the mentally healthy group of the population. However, their stress level and emotional reactions vary significantly. Besides, there are women who report higher anxiety and/or depression levels up to six months after an (unsuccessful) IVF process. The aim of this study is to determine the perception of the infertility experience and the functioning of domains particularly affected by overcoming infertility through IVF. Fourteen women were excluded from the study sample due to their secondary infertility: 9 women had already had a child conceived through IVF and 5 had conceived naturally – these respondents have a successful experience of overcoming infertility, as they do not face the possibility of remaining involuntarily childless. The final sample was comprised of 149 women, 23 to 45 years of age ($M=35,50$, $SD=4,48$). For 83,9% of the women, the ongoing IVF procedure was the first (38,3), the second (25,5) or the third (20,1) attempt, while the rest of respondents were going through IVF for the fourth to the eighth time. Infertility is considered the worst experience of their life by 67,8% of the respondents. 95,3% of the respondents in the study want psychological counseling, which is not an integral part of the IVF process in Serbia and thus not covered by the national health insurance. The “Fertility quality of Life” (FertiQoL; Boivin, Takefman and Braverman, 2011) Questionnaire was used for the assessment of quality of life. A one sample t-test shows statistically significant differences in experiencing difficulties in the observed domains. The respondents have the lowest scores on the Emotional subscale, meaning that the most pronounced feature is the impact of negative emotions (e.g., jealousy and resentment, sadness, depression) on quality of life. The score on the Social subscale is highest, which means that social interactions have not significantly been affected by fertility problems. In conclusion, the infertility experience is highly stressful for a significant number of women and they are in need of psychological support, especially for overcoming negative emotions. This can be done by defining a new way of life filled with contentment, one that is in accordance with their value systems, despite their experience of infertility.

Keywords: *Infertility, IVF, FertiQoL, psychological support.*

1. Introduction

Generally, undergoing in vitro fertilization (IVF) treatment is an emotional and physical burden for an infertile woman, which can impact the success of the IVF cycle – the pregnancy rates, and later even mental health (Frederiksen et al., 2015; Rockliff et al., 2014). Even though the earliest research into the psychological aspects of the IVF process indicate that infertile couples are mentally healthy in general (Edelmann, 1994; Mazure and Greenfeld, 1989), there results have also been obtained on the significant individual differences in emotional responses (An et al., 2013; Rockliff et al., 2014; Verhaak et al., 2005). Studies have shown that women, compared to men, have more pronounced symptoms of depression, state anxiety, infertility specific distress, and general perceived stress (Mahlstedt et al., 1987; Wichmann et al., 2011). A psychological evaluation of 200 couples preparing for IVF has indicated that one half of the women, compared to 15% of the men, stated that infertility is the most upsetting experience of their lives (Freeman et al., 1985). Even though most women adapt to an unsuccessful IVF cycle, there are still those who continue to experience anxiety and/or depression six months after the treatment (Verhaak et al., 2005; Verhaak et al., 2007).

1.1. Fertility quality of life

Considering that the negative reactions to infertility and the medical treatment can have effects not only on well-being, but also the outcome of the treatment and the readiness to continue with the treatment, it is necessary to monitor and improve the quality of life (QoL) of women involved in the IVF process. However, measuring instruments meant for the general population cannot be used for this purpose, as we are dealing with infertility-specific distress and QoL, as well as specific treatment reactions. A measuring instrument of QoL from the aspect of infertility – FertiQoL- has been developed by Boivin et al. (2011), and has been translated into 46 languages (<http://sites.cardiff.ac.uk/fertiqol/>). Numerous studies carried out using this instrument enable a comparison of fertility QoL between various countries (e.g., Li et al., 2019), prior to receiving and following psychological support such as mindfulness-based intervention (e.g., Li et al., 2016).

1.2. Objectives

The aim of this study is to obtain data on certain aspects of the infertility experience which may be significant for the counselling process (the severity of the experience, the need to receive psychological support), as well as for determining the scores on the FertiQoL subscales, which is also of considerable importance for any sort of counselling.

2. Methods

2.1. Sample and procedure

The study was carried out in the first half of 2019 in the Republic of Serbia, at a clinic for in vitro fertilization, an online via the website of an association fighting for improved conditions for in vitro fertilization. The initial subsample included 163 female respondents who were at the time undergoing IVF. Fourteen women were excluded from the initial sample due to their secondary infertility: 9 women had already had a child conceived through IVF and 5 had conceived naturally – these respondents have a successful experience of overcoming infertility, as they do not face the possibility of remaining involuntary childless. The final sample was comprised of 149 women, 23 to 45 years of age ($M=35,50$, $SD=4,48$). The respondents had not received any psychological support/counseling - that is not an integral part of the IVF process in Serbia, and only a few fertility clinics offer this option. All of the respondents were familiar with the purpose of the study and gave their consent. They were aware that they could choose not to participate at any moment.

2.2. Instruments

In addition to questions related to their current IVF process and their perception of the experience of infertility, the female respondents filled out the FertQoL questionnaire (Boivin et al., 2011; Core and Treatment items, with two additional FertiQoL questions aimed at an overall evaluation of their physical health and satisfaction with quality of life).

3. Results

At the time of the study, the female respondents were aged 23 to 45 ($M=35,50$, $SD=4,48$). The ongoing IVF procedure was the first for 38,8% of the women; the second for 25,5%; the third for 20,1%; and for the remaining 16,1% of women the number of times ranged from 4 to 8. In answer to the question “Would you say that the knowledge of you having a fertility issue (either you and/or your partner) is the most difficult/worst experience in your life?” received an affirmative response from 67,8% of the female respondents. For 32,2% of the female respondents the worst event most frequently was the death of someone close to them (a parent, a sibling), or someone they are close to contracting a severe illness (three female respondents mentioned having a miscarriage as the worst thing to happen to them in their life). Most of the female respondents wanted to have psychological counselling – 95,3%.

In order to obtain insight into the domains in which fertility QoL is the highest, or lowest, a one sample t-test was carried out, with a scaled Core FertiQoL score mean as the test value.

Table 1. One-Sample t-test.

| Test value = 48.88 (Scaled Core FertiQoL score Mean*) | | | | | | |
|---|--------|-----|------|-----------------|-------------------------|-------|
| Core FertiQoL | t | df | p | Mean difference | 95% Confidence Interval | |
| | | | | | Upper | Lower |
| Emotional | -6.129 | 148 | .000 | -8.40 | -11.11 | -5.69 |
| Mind Body | -.525 | 148 | .600 | -.81 | -.3,86 | 2.24 |
| Relational | -.767 | 148 | .445 | -.61 | -2.20 | .97 |
| Social | 8.458 | 148 | .000 | 9.94 | 7.62 | 12.26 |

Note. * Scaled Core FertiQoL score SD = 12.02

Table 1 shows that the scores were lowest for the Emotional, and highest for the Social subscale.

The significance of the correlation between all the FertiQoL subscales was also tested – Core, Treatment and two overall evaluations - physical health and satisfaction with quality of life.

Table 2. Correlations between all FertiQoL measures.

| | Core FertiQoL (+ Emotional subscale) | | | Treatment FertiQoL | | Two additional items, overall evaluations | |
|-------------------------------------|---|------------|--------|--------------------------|---------------------------|--|--|
| | Mind Body | Relational | Social | Treatment Environment | Treatment Tolerability | Evaluation of physical health | Satisfaction with quality of life |
| Emotional | .718** | .395** | .618** | .165* | .347** | .068 | .235** |
| Mind Body | | .382** | .626** | .048 | .428** | .144 | .265** |
| Relational | | | .368** | .200* | .426** | -.137 | -.014 |
| Social | | | | .144 | .396** | .125 | .260** |
| Treatment Environment | | | | | .314** | .126 | .121 |
| Treatment Tolerability | | | | | | .125 | .263** |
| Evaluation of physical health | | | | | | | .426** |

Note. * Correlation is significant at the 0.05 level (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed).

There are evident differences in the correlations between the Treatment subscale and Core subscale. There are low significant or even insignificant correlations between satisfaction with the treatment, the fertility clinic and staff (the Treatment environment) and the Core subscales. Contrary to that, there are more moderate correlations between Treatment tolerability and all the Core subscales.

What is interesting is that, in our sample, there is no statistically significant correlation between the evaluation of physical health and either one or the other FertiQoL measure, while a significant correlation was determined between satisfaction with quality of life and almost all the scores.

4. Discussion

The youngest female respondent in the sample was aged 23, and the oldest was aged 45; most of the sample (approximately 70%) is in the age range of 31 to 40 years. For most women (slightly over 80%) the IVF treatment they were undergoing was their first, second or third – this should be borne in mind since a study of the experience of infertility and the quality of life could give different results among women who had experienced several unsuccessful cycles. Of the 149 female respondents, 101 responded in the affirmative to the question “Would you say that the knowledge of you having a fertility issue (either you and/or your partner) is the most difficult/worst experience in your life?”. This clearly illustrates that the subjective experience of the burden of experiencing infertility. Life events which are estimated to be more difficult than the problem of infertility mostly referred to death or the severe illness of someone close to them. Almost all the women wanted psychological counselling to be available to them. Considering that infertility treatment is often a long and exhausting process in which women have very little control over the course and outcome of the process, it is necessary to offer support with the aim

of preserving their mental health. A study relying on the FertiQoL questionnaire specifically indicates the domains in which help is most needed.

The scores on the Core subscale were compared to the mean score of the sample (Table 1). The lowest results were obtained for the Emotional subscale. This subscale indicates the experience of negative emotions associated with the experience of infertility (e.g., jealousy and resentment, sadness, depression). For the female respondents, infertility is, above all, an emotional burden and assistance is needed to overcome any negative emotions. The highest scores, that is the least affected domain of functioning, are social interactions – the female respondents do not feel excluded or stigmatized regarding infertility. These are encouraging findings, since it is easier to offer individual support, that is support for a couple, than to change the attitudes of their environment. The scores of the Mind Body (negative physical, cognitive or behavioral disruptions) and Relational subscale (the effects of fertility problems on the marital relationship or partnership in multiple domains – sexual intercourse, communication, commitment) are found between these highest and lowest results. It is not possible to say that there are no problems in these domains, since the scores can be as high as those on the Social subscale, but the difficulties that the female respondents are facing here are estimated as less difficult than those regulating negative emotions.

Compared to the results obtained in other countries, it could be said that the female respondents from Serbia have very low FertiQoL scores. For a sample of female participants from China the mean score was 64.54 ± 16.90 ; in Turkey 66.97 ± 14.35 , in the Netherlands 70.80 ± 13.90 , in the United States 72.30 ± 14.80 , and in Germany 73.00 ± 12.00 (Li et al., 2019), which is quite high compared to the mean score of our sample – 48.88 ± 12.02 . Psychological counselling is not an integral part of the IVF process in Serbia, and if couples find themselves in need of it, they must finance it themselves. Our female respondents were not receiving any counselling – it could be that this is the source of their low scores. If we were to take into consideration that the state (only) finances three IVF procedures and that couples often have significant expenses during the procedure itself (for example, additional examinations or medication), the financial pressure accumulated during the treatment is not negligible. The Republic of Serbia is classified as an upper middle-income country, but the annual household income per capita of 2,813.399 USD in December 2019 (<https://www.ceicdata.com/en/indicator/serbia/annual-household-income-per-capita>) does not leave a lot of room for additional expenses, which psychological counselling represents. For that reasons it is necessary to provide free psychological support in all fertility clinics.

Finally, considering that the female respondents were actively undergoing IVF, we studied whether there were any possible linear connections between the Treatment subscale and the Core FertiQoL (Table 2). A significant, albeit low, positive correlation was determined only between satisfaction with the treatment itself (the accessibility and quality of the treatment and interactions with the medical staff) and the scores of the Emotional and Relational subscales. Contrary to that, there is a moderate significantly positive correlation between Treatment tolerability (experience of mental and physical symptoms and disruption in daily life due to treatment) and all the Core subscales. Even though it cannot be said that Treatment received from the environment is of no importance to the female respondents, what we are referring to are situations in which they find themselves on occasion, and which last a (relatively) short period of time, as opposed to tolerance to the treatment, which is long-term and more widespread. This finding serves to emphasize the importance of alleviating all the consequences that can be influenced – some physical symptoms can be an inevitable part of the treatment, but different experiences of the circumstances and the establishment of a satisfactory way of life despite infertility can certainly be influenced. The importance of general satisfaction with life is also supported by the fact that there is a significant positive correlation between this evaluation and almost all the FertiQoL measures (except the Relational and Treatment environment subscales), while evaluation of physical health is not statistically significantly related to any of the scores.

The results of this study indicate that the fertility QoL of women in Serbia undergoing IVF is not satisfactory, and that affordable/free psychological support is necessary in this process.

References

- An, Y., Sun, Z., Li, L., Zhang, Y., & Ji, H. (2012). Relationship between psychological stress and reproductive outcome in women undergoing in vitro fertilization treatment: Psychological and neurohormonal assessment. *Journal of Assisted Reproduction and Genetics*, *30*(1), 35–41. doi:10.1007/s10815-012-9904-x
- Boivin, J., Takefman, J., & Braverman, A. (2011). The Fertility Quality of Life (FertiQoL) tool: development and general psychometric properties. *Fertility and Sterility*, *96*(2), 409–415.e3. doi:10.1016/j.fertnstert.2011.02.046

- Edelmann, R. J., Connolly, K. J., & Bartlett, H. (1994). Coping strategies and psychological adjustment of couples presenting for IVF. *Journal of Psychosomatic Research*, 38(4), 355–364. doi:10.1016/0022-3999(94)90040-x
- Frederiksen, Y., Farver-Vestergaard, I., Skovgard, N. G., Ingerslev, H. J., & Zachariae, R. (2015). Efficacy of psychosocial interventions for psychological and pregnancy outcomes in infertile women and men: a systematic review and meta-analysis. *BMJ Open*, 5(1), e006592–e006592. doi:10.1136/bmjopen-2014-006592
- Freeman, E. W., Boxer, A. S., Rickels, K., Tureck, R., & Mastroianni, L. (1985). Psychological evaluation and support in a program of in vitro fertilization and embryo transfer. *Fertility and Sterility*, 43(1), 48–53. doi:10.1016/s0015-0282(16)48316-0
- Li, J., Long, L., Liu, Y., He, W., & Li, M. (2016). Effects of a mindfulness-based intervention on fertility quality of life and pregnancy rates among women subjected to first in vitro fertilization treatment. *Behaviour Research and Therapy*, 77, 96–104. doi:10.1016/j.brat.2015.12.010
- Li, Y. (2019). Resilience acts as a moderator in the relationship between infertility-related stress and fertility quality of life among women with infertility: a cross-sectional study. *Health and Quality of Life Outcomes*, 17-38. <https://doi.org/10.1186/s12955-019-1099-8>
- Mahlstedt, P. P., Macduff, S., & Bernstein, J. (1987). Emotional factors and the in vitro fertilization and embryo transfer process. *Journal of In Vitro Fertilization and Embryo Transfer*, 4(4), 232–236. doi:10.1007/bf01533762
- Mazure, C. M., & Greenfeld, D. A. (1989). Psychological studies of in vitro fertilization/embryo transfer participants. *Journal of In Vitro Fertilization and Embryo Transfer*, 6(4), 242–256. doi:10.1007/bf01132873
- Rockliff, H. E., Lightman, S. L., Rhidian, E., Buchanan, H., Gordon, U., & Vedhara, K. (2014). A systematic review of psychosocial factors associated with emotional adjustment in in vitro fertilization patients. *Human Reproduction Update*, 20(4), 594–613. doi:10.1093/humupd/dmu010
- Verhaak, C. M., Smeenk, J. M. J., Evers, A. W. M., Kremer, J. A. M., Kraaijmaat, F. W., & Braat, D. D. M. (2007). Women’s emotional adjustment to IVF: a systematic review of 25 years of research. *Human Reproduction Update*, 13(1), 27–36. doi:10.1093/humupd/dml040
- Verhaak, C. M., Smeenk, J. M. J., van Minnen, A., Kremer, J. A. M., & Kraaijmaat, F. W. (2005). A longitudinal, prospective study on emotional adjustment before, during and after consecutive fertility treatment cycles. *Human Reproduction*, 20(8), 2253–2260. doi:10.1093/humrep/dei015
- Wichman, C. L., Ehlers, S. L., Wichman, S. E., Weaver, A. L., & Coddington, C. (2011). Comparison of multiple psychological distress measures between men and women preparing for in vitro fertilization. *Fertility and Sterility*, 95(2), 717–721. doi:10.1016/j.fertnstert.2010.09.043

PERCEIVED SELF-REGULATORY SUCCESS IN DIETING AND ITS CORRELATES AMONG WOMEN WITH FOOD ADDICTION

Sarah El Archi¹, Paul Brunault^{1,2,3}, Nicolas Ballon^{2,3}, Christian Réveillère¹,
& Servane Barrault^{1,4}

¹Qualipsy, EE 1901, Université de Tours, 37041 Tours (France)

²CHRU de Tours, Service d'Addictologie Universitaire, Équipe de Liaison et de Soins en Addictologie, 37044 Tours (France)

³UMR 1253, iBrain, Université de Tours, INSERM, 37032 Tours (France)

⁴CHRU de Tours, Service d'Addictologie Universitaire, Centre de Soins d'Accompagnement et de Prévention en Addictologie d'Indre-et-Loire (CSAPA-37), 37000 Tours (France)

Abstract

Background: Several psychological features are implicated in the dieting success. Better understanding of these features may allow reducing dieting failure of both surgical and non-surgical weight loss interventions, especially for individuals with food addiction (FA). In non-clinical population, low perceived self-regulatory success (PSRS) in dieting is associated with higher BMI (body mass index), FA, food craving and impulsivity. PSRS could partially explain weight gain in FA, but no study investigated this association in the specific FA population. **Method:** To diagnose FA, 288 women recruited online completed The Yale Food Addiction Scale 2.0. They also completed the following self-administrated questionnaires: the French adaptation of the PSRS in dieting scale, the Food Craving Questionnaire Trait-Reduced, and the Barratt Impulsivity Scale-11. They specified their height, current and lifetime maximal weight, and if they were in a current diet. Mean age was 26.1±10.3 years. Mean current BMI was 23.4±5.5 kg/m². **Results:** 79 women met criteria for FA (27.4%), indicating significant less PSRS in dieting and higher probability to be in a current diet to lose weight. In the whole population (n=288), PSRS in dieting was negatively correlated with current and lifetime maximal BMI, food craving, FA, attentional and non-planning impulsivity. In a multiple linear regression conducted in the subgroup of women with FA, PSRS score was predicted by age, current BMI, food addiction and food craving. More, results suggested food craving enable the association between food addiction and PSRS. **Conclusion:** These results showed the high preoccupation about food intake and weight gain in the FA population. Psychological features associated with FA such as food craving and impulsivity, seem to impact the PSRS in dieting, increasing psychological vulnerability.

Keywords: Food addiction, perceived self-regulatory success in dieting, food craving, impulsivity, obesity.

1. Introduction

To prevent weight gain, individuals with overweight or obesity repeated several periods of dieting to lose weight. But according to Nguyen and Polivy (2014) current dieters are 1.7 times less likely to be considered successful dieters than non-current dieters. More, successful self-regulators had lower body mass index (BMI) than unsuccessful self-regulators. Some disordered eating behavior such as food addiction (FA) symptomatology or binge eating increase difficulty to success in dieting (Meule et al., 2012). Addictive-like eating behavior is indeed associated with higher BMI, higher lifetime BMI, greater likelihood of obesity and regain lost weight (Gearhardt et al., 2016). Development of the Perceived Self-Regulatory Success in Dieting Scale (PSRS) (Fishbach et al., 2003), a self-report of success in dieting, allowed to increase data about perceived success in weight control. Meule and colleagues investigated psychological and eating factors associated with PSRS in dieting. They conducted a study within a population of student women and reported that PSRS was negatively associated with higher BMI, concern for dieting, the use of rigid dieting strategies, food craving, food addiction symptoms, and binge eating frequency. Contrary to what was expected, they highlighted a small negative correlation between PSRS and cognitive impulsivity (Meule et al., 2012). More, they highlighted, through a longitudinal study conducted in female students, that food craving prospectively predicted decreased PSRS in weight regulation six months later (Meule et al., 2017). They suggested a serial mediation model

with an indirect effect of trait impulsivity on BMI via food cravings and PSRS in dieting (Meule & Bleichert, 2017). Individuals with addictive-like eating behavior who experience high food cravings struggle to control food consumption and maintain a steady weight. But as far as we know, no study investigated PSRS in dieting within the specific population of individuals with FA symptomatology.

In this way, the main purpose of this study was to investigate the factors associated with PSRS in dieting within a population of individuals with FA symptomatology, including BMI, FA severity, food craving and impulsivity. We expected (1) participants who screen positive for FA would show lower PSRS; (2) PSRS would be negatively correlated and predicted by BMI, FA severity, food craving and impulsivity, with stronger associations for FA participants; (3) FA and food craving is a mediator in the association between PSRS and these variables, even more for FA participants.

2. Methods

2.1. Procedure and participants

288 women recruited in a non-clinical population filled out the questionnaire, which was put online from January to March 2017. Participants were recruited in French-speaking web forums (varied topics of conversation or especially consecrated to eating behaviors). The questionnaire provided information about socio-demographic characteristics, height, weight, dieting behavior, food addiction, food craving and impulsivity. The Institutional Review Board of the University Hospital of Tours (France) approved this survey, conducted in accordance with the Helsinki Declaration (1989).

2.2. Measures

The survey began with some questions about the gender and the age. Participants indicated their current height and weight. More, they indicated their lifetime maximal weight and their ideal body weight. These data allowed to assess the current, maximal and ideal body mass indexes (=BMI), respectively noted $BMI_{current}$, BMI_{max} , BMI_{ideal} , and allowed calculating the BMI_{ideal} rate: $(BMI_{ideal}-BMI_{current})/BMI_{current}$. Then, participants answered to the following questions to interrogate their filling of weight control: (1) *Are you currently on a diet to control your weight?* (2) *If your answer is "yes", what is the goal of your diet: to lose or gain weight, or to stabilize your weight?* Then, the French adaptation of the **perceived self-regulatory success in dieting scale** (PSRS) was administered (Fishbach et al., 2003; Meule et al., 2012). The PSRS contains 3 items which interrogate how successful participants are in watching their weight (Cronbach alpha=.70). Higher PSRS scores indicate higher perceived success in controlling their weight.

Finally, the questionnaire involved filling out the French version of the following scales:

The Food Craving Questionnaire-Trait reduced (FCQ-T-r) is composed of 15 items (Brunault et al., 2018; Cepeda-Benito et al., 2000; Meule et al., 2014). This scale questions about food craving and preoccupations with food (Cronbach alpha: .94). Participants answered on a 6-points Likert scale from "1-never" to "6-always". The sum of the item scores provides the FCQ-T-r score, which increases with food craving severity.

The Yale Food Addiction Scale 2.0 (YFAS 2.0) assess food addiction and consists of 35 items questioning last 12 months eating behaviors (Brunault et al., 2017; Gearhardt et al., 2016). Each item refers to one of the 11 criteria of addictive-like eating behavior, by extrapolating to food the DSM-5 criteria for addictive disorders. Participants indicated on a 7 points Likert scale the frequency of this symptomatology (from "0-Never" to "7-Every day"). YFAS 2.0 provides 2 types of data: self-reported FA (at least 2 criteria and clinically significant distress or impairment) (Cronbach alpha=.97) and a total score indicating the number of FA symptoms.

The Barratt Impulsiveness Scale 11 (BIS-11) consists of 30 items assessing 3 impulsivity dimensions: cognitive (8 items, Cronbach alpha: .64), motor (11 items, Cronbach alpha: .65) and non-planning (11 items, Cronbach alpha: .65) (Balbinotti et al., 2015; Barratt, 1959). For each item, participants filled out a 4-points Likert scale scored from "almost never/never" to "almost always/always". BIS-11 scores increase with the impulsivity severity.

2.3. Data analysis

Results on the YFAS 2.0 allowed distinguishing individuals with FA from other participants. Logistic regression analyses assessed difference in terms of PSRS in dieting, $BMI_{current}$, BMI_{max} , BMI_{ideal} rate and current dieting between FA and non-FA participants. Spearman correlation highlighted factors associated with PSRS in dieting and partial correlations investigated the impact of control variables such as YFAS 2.0 and FCQ-T-r. Finally, simple and multiple linear regression analyses assessed the mediator role of food craving between PSRS and FA, the mediator role of FA between PSRS and impulsivity and identified the predicted factors of PSRS. All analyses were two-tailed and considered $p \leq .05$ as statistically significant.

3. Results

3.1. Sample description

The mean age of the participants was 26.1±10.3 years old. Seventy-nine participants (27.4% of the whole sample) met criteria for self-reported FA. Mean BMI_{current} was 23.4±5.5 kg/m² corresponding to normal weight. Mean BMI_{max} was 25.7±6.8 kg/m² corresponding to overweight. The mean BMI_{ideal} rate was -10.3±10.4%. So then, on average, participants estimated their current weight 10.3% higher than the ideal one. 40.6% of the whole sample was in a current diet to lose weight.

3.2. Factors associated with PSRS in dieting in the whole sample

PSRS in dieting was significantly negatively correlated with current, maximal BMI, FCQ-T-r, YFAS 2.0 and positively correlated with the BMI_{ideal} rate (details in Table 1). Moreover, there are slightly negative correlation between PSRS and cognitive and non-planning impulsivity. If YFAS 2.0 or FCQ-T-r was controlled, correlation between PSRS, current, maximal BMI, and the BMI_{ideal} rate were slightly lower and still significant, but correlation with BIS-11 was no longer significant (Table 1). It is notable that FCQ-T-r controlled, correlation between PSRS in dieting and YFAS 2.0 disappeared.

The linear regression analyses suggested food craving enable the association between FA and PSRS (in a simple linear regression, food craving was predicted with FA: B=3.77, t=14.37, p<.001; in a multiple linear regression, PSRS was predicted with food craving (B=-.09, t=-.37, p<.001), not with FA (B=-.04, t=-.45, p=.65)). And FA enable the association between PSRS and cognitive (FA was predicted with cognitive BIS-11: B=.30, t=6.29, p<.001; PSRS was predicted with FA (B=-.35, t=-4.78, p<.001), not with cognitive BIS-11 (B=-.04, t=-.69, p=.49) and motor impulsivity (FA was predicted with motor BIS-11: B=.30, t=6.29, p<.001; PSRS was predicted with FA (B=-.38, t=-5.23, p<.001), not with motor BIS-11 (B=.02, t=.32, p=.75)). More the variance of PSRS in dieting was explaining by the following variables: BMI_{current}, FCQ-T-r, BIS-non planning and BIS-motor (n=288, R²=.319. F(4, 283)=33.168, p<.001). Details in Table 2a.

Table 1. Spearman correlations between PSRS in dieting and various variables.

| Control variables | All participants (n=288) | | | Participants with FA (n=79) | | |
|---------------------------------|--------------------------|-----------|-----------|-----------------------------|-----------|-----------|
| | PSRS correlation | | | PSRS correlation | | |
| | None | YFAS 2.0 | FCQ-T-r | None | YFAS 2.0 | FCQ-T-r |
| Current BMI | -.445 *** | -.416 *** | -.394 *** | -.578 *** | -.524 *** | -.431 *** |
| Maximal BMI | -.339 *** | -.252 *** | -.220 *** | -.373 ** | -.256 *** | -.151 *** |
| BMI_{IDEAL} rate | .450 *** | .392 *** | .370 *** | .420 *** | .417 *** | .347 *** |
| YFAS 2.0 | -.294 *** | - | -.027 | -.086 | - | -.200 |
| FCQ-T-r | -.370 *** | -.273 *** | - | -.407 *** | -.451 *** | - |
| BIS-11 Total | -.129 * | -.064 | -.024 | -.137 | -.131 | -.025 |
| BIS-11 Cognitive | -.137 * | -.041 | -.009 | -.156 | -.132 | -.041 |
| BIS-11 Motor | -.023 | .019 | .072 | -.149 | .185 | .071 |
| BIS-11 Non-planning | -.120 * | -.120 * | -.106 | -.009 | -.006 | -.049 |

Note. *p<.05, ***p<.001; PSRS: Perceived Stress Regulatory Success in dieting scale; BMI: Body Mass Index; YFAS 2.0: Yale Food Addiction Scale 2.0; FCQ-T-r: Food Craving Questionnaire Trait reduced; BIS-11: Barratt Impulsiveness Scale 11.

3.3. Factors associated with PSRS in dieting in the sample participants with FA

Logistic regression analyses showed that FA participants had lower PSRS mean score (9.15±3.75 vs 11.37±3.90, odds ratio (OR)=.86, 95% confidence interval (CI): .80-.92, p<.001) than non-FA participants. They had higher current and maximal BMI (OR=1.07, 95% CI: 1.02-1.12, p=.006 and OR=1.11, 95% CI: 1.06-1.16, p<.001 respectively) and lower BMI_{ideal} rate (OR=.94, 95% CI: .91-.96, p<.001). Moreover, 60.8% and 33% respectively of the FA participants and non-FA participants declared be in a current diet to lose weight (p<.001). As for the whole sample, PSRS was correlated with BMI_{current}, BMI_{max}, BMI_{ideal} rate, and FCQ-T-r. It should be noted that correlation coefficients are higher in this group. But there was no correlation with YFAS 2.0 and BIS-11. YFAS 2.0 or FCQ-T-r controlled, correlation between PSRS and BMI_{current} and BMI_{max} were slightly lower. Moreover YFAS 2.0 controlled, correlation between PSRS and FCQ-T-r increase. Details in Table 1.

The linear regression analyses conducted with FA participants suggested food craving enable the association between FA and PSRS (in a simple linear regression, food craving was predicted with FA: B=3.03, t=5.79, p<.001; in a multiple linear regression, PSRS was predicted with food craving (B=-.14, t=-4.41, p<.001), not with FA (B=-.31, t=1.78, p=.08)). But contrary to the whole sample, FA

did not enable the association between PSRS and impulsivity. The multiple linear regression highlighted the variance of PSRS in dieting was explaining by the following variables: BMI_{current}, FCQ-T-r, Age and YFAS 2.0 (n=79, R²=.397, F(4, 78)=12.192, p<.001) (Table 2b).

Table 2a. Variables explaining the variance of PSRS through multiple linear regression in the whole participants (n=288).

| | B | t | p |
|------------------------------|----------|----------|----------|
| Constant | 21.806 | 15.355 | <.001 |
| BMI_{CURRENT} | -.277 | -7.559 | <.001 |
| FCQ-T-r | -.075 | -6.010 | <.001 |
| BIS-11 non-planning | -.152 | -3.292 | .001 |
| BIS-11 motor | .133 | 2.568 | .011 |

Table 2b. Variables explaining the variance of PSRS through multiple linear regression in FA participants (n=79).

| | B | t | p |
|------------------------------|----------|----------|----------|
| Constant | 20.791 | 10.727 | <.001 |
| BMI_{CURRENT} | -.196 | -3.907 | <.001 |
| FCQ-T-r | -.109 | -3.498 | .001 |
| Age | -.068 | -2.227 | .029 |
| YFAS 2.0 | .315 | 2.020 | .047 |

Note. PSRS: Perceived Stress Regulatory Success in dieting scale; BMI: Body Mass Index; FCQ-T-r: Food Craving Questionnaire Trait reduced; YFAS 2.0: Yale Food Addiction Scale 2.0; BIS-11: Barratt Impulsiveness Scale 11.

4. Discussion

The purpose of this study was to investigate the factors associated with perceived self-regulatory success in dieting, especially within a population of individuals with and without FA.

In the group of individuals with FA, PSRS in dieting and the BMI_{ideal} rate were lower, and the rate of individuals in a current dieting to lose weight was higher, suggesting specific difficulties to control body mass and many preoccupations about food intake and weight gain. Rate of FA among population of individuals with DSM-5 eating disorders is high (Fauconnier et al., 2020). Anorexia nervosa involves restriction of energy intake and intense fear of gaining weight, bulimia nervosa and binge eating disorder involve recurrent episodes of binge eating followed by compensatory behaviors or not. Thus, in these populations, preoccupations with food intake and weight gain, and resort to episode of dieting are high, explaining our results highlighted higher dieting rate, and lower PSRS in dieting and BMI_{ideal} rate in individuals with FA symptomatology. When FA involve episodes of overeating not associated with compensatory behaviors, it may lead to weight gain and obesity. Faced with many energy-dense food intakes dieting is an attempt to control negative repercussion of binge eating. Successful weight loss is more difficult for FA individuals because they usually have higher BMI (Gearhardt et al., 2016), more weight to lose, ideal weight very lower than current weight and FA involves severe struggle to control food intakes which increase difficulties to success in dieting. Without clinical care, dieting episodes are rarely successful in the long term. Dieting failures are high and increase difficulties with body mass control. The alternation of food intake deprivation and overconsumption causes disordered eating behaviors, lead to an addictive process, and considerably impact self-esteem.

As expected, among the whole sample, PSRS was negatively correlated with current and maximal lifetime BMI, food craving, food addiction and cognitive and non-planning impulsivity. These results are in line with the study of Meule et al. (2012), who suggested that PSRS in dieting is especially correlated with factors of self-regulatory failure in eating behavior. However, contrary to their study, correlation coefficients were slightly lower for the present study and we highlighted small negative correlation between PSRS and non-planning impulsivity. PSRS coefficient correlations with BMI and food craving increased when we considered only participants with FA self-administered diagnosis. But contrary to what was expected, correlation with FA and impulsivity disappeared. However, in this group, PSRS in dieting was predictable with current BMI, food craving, age, and food addiction severity. Results also suggested a mediator role of food craving between PSRS and FA, and a mediator role of FA between the association of PSRS and impulsivity, not reported by FA participants. According to these results, psychological interventions could target food craving to impact perceived body mass control, which could be further investigated by future studies. Current investigations are in line with the serial mediation model of Meule and Blechert (2017), suggesting an indirect effect of impulsivity on BMI via food craving and PSRS in dieting. Moreover, according to our results, we hypothesized food addiction is an additional factor which could be a mediator between impulsivity and food craving. But these results were not confirmed for individuals with FA symptomatology.

Because of some limitations, these results should be cautiously interpreted. Firstly, this study provides results from cross sectional design. That do not make it possible to establish causal links. Moreover, participants were recruited online, and all collected data were self-reported. We did not have any way to check information. Further study should plan clinical interview to verify the height, weight and FA diagnose. That would enable collecting reliable data. Finally, food addiction is still under debate.

There is no clear consensus on the concept of food addiction. Some authors are skeptical of the substance use disorder criteria translation to food intake, and question the pharmacological effect of food on the brain (Fletcher & Kenny, 2018). However, individuals with FA reported similar symptomatology such as craving, distress, difficulty to control their behavior and overconsumption despite negative repercussion (on health, sociability...). More, regarding the variety of eating disorders associated with food addiction is still difficult to provide a consistent vision of FA population (Fauconnier et al., 2020).

Although this study has some limitations, it provides several data about how individuals with FA symptomatology success in watching their weight and associated factors. We may suggest the key role of food craving associated with low PSRS in dieting involving weight gain and distress. Further studies should investigate the serial mediation model within FA clinical population and opt for longitudinal design providing causal links.

References

- Balbinotti, M. A. A., Gélinas, S., & Labonté, S.-H. (2015). Factor Analysis of French Translation of the Barratt Impulsiveness Scale (BIS-11). *Saúde e Desenvolvimento Humano*, 3(2). <https://doi.org/10.18316/2317-8582.15.5>
- Barratt, E. S. (1959). Anxiety and Impulsiveness Related to Psychomotor Efficiency. *Perceptual and Motor Skills*, 9(3), 191–198. <https://doi.org/10.2466/pms.1959.9.3.191>
- Brunault, P., Courtois, R., Gearhardt, A. N., Gaillard, P., Journiac, K., Cathelain, S., Réveillère, C., & Ballon, N. (2017). Validation of the French Version of the DSM-5 Yale Food Addiction Scale in a Nonclinical Sample. *Canadian Journal of Psychiatry*, 62(3), 199–210. <https://doi.org/10.1177/0706743716673320>
- Brunault, P., El Archi, S., Ballon, N., Réveillère, C., & Barrault, S. (2018). Validation of the French version of the Food Cravings Questionnaire-Trait-reduced: An easy-to-use and quick self-administered questionnaire to assess food craving. *Annales Medico-Psychologiques*, 176(8), 788–795. <https://doi.org/10.1016/j.amp.2018.08.002>
- Cepeda-Benito, A., Gleaves, D. H., Williams, T. L., & Erath, S. A. (2000). The development and validation of the state and trait food-cravings questionnaires. *Behavior Therapy*, 31(1), 151–173. [https://doi.org/10.1016/S0005-7894\(00\)80009-X](https://doi.org/10.1016/S0005-7894(00)80009-X)
- Fauconnier, M., Rousselet, M., Brunault, P., Thiabaud, E., Lambert, S., Rocher, B., Challet-Bouju, G., & Grall-Bronnec, M. (2020). Food Addiction among Female Patients Seeking Treatment for an Eating Disorder: Prevalence and Associated Factors. *Nutrients*, 12(6), 1897. <https://doi.org/10.3390/nu12061897>
- Fishbach, A., Friedman, R. S., & Kruglanski, A. W. (2003). Leading is not unto Temptation: Momentary Allurements Elicit Overriding Goal Activation. *Journal of Personality and Social Psychology*, 84(2), 296–309. <https://doi.org/10.1037/0022-3514.84.2.296>
- Fletcher, P. C., & Kenny, P. J. (2018). Food addiction: a valid concept? *Neuropsychopharmacology*, 43(13), 2506–2513. <https://doi.org/10.1038/s41386-018-0203-9>
- Gearhardt, A. N., Corbin, W. R., & Brownell, K. D. (2016). Supplemental Material for Development of the Yale Food Addiction Scale Version 2.0. *Psychology of Addictive Behaviors*, 30(1), 113–121. <https://doi.org/10.1037/adb0000136.supp>
- Meule, A., & Blechert, J. (2017). Indirect effects of trait impulsivity on body mass. *Eating Behaviors*, 26, 66–69. <https://doi.org/10.1016/j.eatbeh.2017.01.012>
- Meule, A., Hermann, T., & Kübler, A. (2014). A short version of the food cravings questionnaire-trait: The FCQ-T-reduced. *Frontiers in Psychology*, 5(MAR). <https://doi.org/10.3389/fpsyg.2014.00190>
- Meule, A., Papiés, E. K., & Kübler, A. (2012). Differentiating between successful and unsuccessful dieters. Validity and reliability of the Perceived Self-Regulatory Success in Dieting Scale. *Appetite*, 58(3), 822–826. <https://doi.org/10.1016/j.appet.2012.01.028>
- Meule, A., Richard, A., & Platte, P. (2017). Food cravings prospectively predict decreases in perceived self-regulatory success in dieting. *Eating Behaviors*, 24, 34–38. <https://doi.org/10.1016/j.eatbeh.2016.11.007>
- Nguyen, C., & Polivy, J. (2014). Eating behavior, restraint status, and BMI of individuals high and low in perceived self-regulatory success. *Appetite*, 75, 49–53. <https://doi.org/10.1016/j.appet.2013.12.016>

THE ASSIMILATION PROCESS OF PROBLEMATIC EXPERIENCES AND LONG-TERM OUTCOMES IN PSYCHOTHERAPY FOR DEPRESSION: COMPARING A RELAPSED AND A NON-RELAPSED CASE

Beatriz Viana^{1,2}, Ricardo Machado^{1,2}, William B. Stiles^{3,4,5} João Salgado^{1,2},
Patrícia Pinheiro^{1,2}, & Isabel Basto^{1,2}

¹University Institute of Maia (Portugal)

²Center of Psychology, University of Porto (Portugal)

³Department of Psychology, Miami University, Oxford, Ohio (USA)

⁴Appalachian State University, Boone, North Carolina (USA)

⁵Metanoia Institute, London (UK)

Abstract

Over the years, research has demonstrated that psychotherapy is an effective treatment in different psychopathological conditions. However, which are the mechanisms or processes involved in therapeutic change that could explain its efficacy are not yet clear. The Assimilation of Problematic Experiences Model describes change in therapy as a process that occurs through the gradual assimilation of problematic experiences in the self – higher levels of assimilation seem to be associated with a better outcome at the end of therapy. However, little is known about the contribution of this process to the maintenance of therapeutic gains after the end of therapy. In the current study we aimed to explore how the level of assimilation achieved throughout therapy is associated with relapse prevention after treatment. We analyzed two good outcome cases of Emotion-Focused Therapy, previously diagnosed with depression: one case that remained asymptomatic and another that relapsed one year and a half after the end of therapy. The Assimilation of Problematic Experiences (APES) was used to assess the assimilation levels achieved and the Beck Depression Inventory-II (BDI-II) was used to assess the intensity of depressive symptoms. Five therapeutic sessions and three follow-up sessions were rated using the APES. The results showed that higher APES levels were associated with lower intensity of symptoms at the end and after therapy termination, being associated with relapse prevention in depression. These results suggest that a complete assimilation of the problematic experiences may help clients to maintain therapeutic gains reducing the probability of relapsing in depression.

Keywords: *Depression, assimilation of problematic experiences, change.*

1. Introduction

The Assimilation Model of Problematic Experiences has been used in an attempt to explain how change occurs throughout the therapeutic process (Stiles, 2001, 2011). According to this model, change occurs through the integration of problematic experiences into the self, over eight stages, measured using the Assimilation of Problematic Experiences Scale (APES; Caro-Gabalda & Stiles, 2009). Previous studies demonstrated the relation between success in therapy and an increase in terms of assimilation of problematic experiences (Basto et al., 2018; Stiles, Shapiro, Harper & Morrison, 1995), but there are few studies analyzing the relation between assimilation and relapse prevention. In this sense, we aimed to understand how assimilation grows during and after the therapeutic process and consequently, to explore what is the relation between this therapeutic process and the maintenance of gains after the end of the therapy.

The Assimilation Model argues that self is composed by a community of voices that emerge as representative of the experiences lived by people throughout their lives (Stiles, 2001). Dominant voices from the self-community are assumed as habitual ways of being and thinking, guiding the people's behavior (Honos-Webb, Surko, Stiles & Greenberg, 1999). Experiences associated with uncomfortable or painful episodes arising from life events may result in the emergence of problematic voices, inconsistent with self-community dominant voices (Stiles, 2002). The emergence of problematic voices into the self is associated with the creation of an internal conflict between problematic and dominant self-voices, where

the problematic voice is rejected and ignored by the self (Honos-Webb et al., 1999). The inability to integrate these problematic experiences or voices into the self generates psychological suffering and, in some cases, psychopathological conditions, such as depression (Stiles et al., 1990).

To track the gradual assimilation of problematic voices into the self-community of voices, the APES was developed. This 8-points scale allows the moment-by-moment identification of the clients' assimilation level during psychotherapeutic sessions (Caro-Gabalda & Stiles, 2009; Stiles, 2001).

Across different therapeutic approaches and psychopathological conditions process-outcome research has pointed out a relationship between therapeutic outcome and the growth in terms of APES levels (Honos-Webb et al., 1999; Stiles et al., 1995). Specifically, with regard to Major Depressive Disorder cases (Basto, Pinheiro, Stiles, Rijo & Salgado, 2016; Basto et al., 2017), empirical studies highlight the association between higher levels of assimilation and positive therapeutic change. In this sense, the assimilation of problematic experiences has been proposed as a common factor for change in psychotherapy (Detert, Llewelyn, Hardy, Barkham & Stiles, 2006).

2. Method

2.1. Aims

The present study aimed to investigate the potential role of clients' assimilation of problematic experiences in preventing relapse in depression. Specifically, we investigated how assimilation level grows during and after the therapeutic process and what was the relation between such growth and the maintenance of gains after the end of therapy

2.2. Participants

The participants were part of the project "ISMAI Depression Study", which aimed to compare the effectiveness of Cognitive-Behavioral Therapy (CBT) and Emotion-Focused Therapy (EFT) on depression (Salgado, 2019). The two cases included in the current study were selected from the EFT good-outcome cases (N = 18). Cases were selected based on their therapist (same therapist, N= 6) and relapse status at 18 months follow-up assessment according to BDI-II scores (BDI-II > 13; BDI-II < 13). These were the only two cases that fitted such criteria: Elizabeth (non-relapsed case) and Helen (relapsed case). Both clients received 16 sessions of therapy and 6 follow up sessions. Elizabeth was diagnosed with a mild Major Depressive Disorder, moderate episode, recurrent. The client showed major difficulties managing her role as a mother and as a woman after her divorce. Helen was diagnosed with a single, moderate episode of Major Depression. The client suffered with pressure and guilt associated to the management of professional and familiar demands.

The therapist was a Portuguese woman in her early thirties. She was a PhD clinical psychologist with 9 years of clinical experience and 4 years of experience in Emotion-Focused Therapy.

2.3. Instruments

The BDI-II (Beck, Steer & Brown, 1996) is a self-reported questionnaire composed of 21 items to assess the intensity and severity of depressive symptoms. Each item is answered in a Likert scale from 0 to 3 points. The total score results from the sum of all items response, ranging from 0 to 63 points. Higher scores represent more severe symptoms. The adaptation to the Portuguese population by Coelho, Martins, and Barros (2002) has a good internal consistency (Cronbach's Alpha = 0.89).

The APES (Caro-Gabalda & Stiles, 2009; Stiles, 1999) is composed by eight stages representative of the assimilation of problematic experiences. These stages are numbered from 0 a 7, where 0 corresponds to the total avoidance of the problematic experience, and 7 corresponds to its complete integration into the self-community of voices (Stiles, 2001; Basto et al., 2017). When clients moved up to a higher APES level it is considered to be advance, while when they moved back to a lower level it was considered a setback (Stiles, 2001).

2.4. Procedures

BDI-II was used at the beginning of all therapeutic sessions. Three follow-up sessions were selected: 1, 6 and 18 months after therapeutic termination. These therapeutic and follow-up sessions were transcribed according to Mergenthaler and Stinson recommendations (1992).

Training (Basto et al., 2017; 2018) on the APES procedures lasted approximately four months, with weekly meetings of approximately one hour each. First, papers about the assimilation model were analyzed, as well as the coding manual. Then, training cases were independently coded until a good inter-judge agreement has been reached (ICC > 0.65; Cicchetti, 1994). After finishing the training period, the PhD researcher and the Master' students coded APES in each case, following the procedures described by Stiles and Angus (2001). The discrepancies between coders were solved by discussion until consensus

was reached. The agreement level was calculated using the Intraclass Correlation Coefficient (ICC). The ICC Elizabeth case was 0.973 (ICC [2, 3]), and in the Helen case it was 0.887 (ICC [2, 2]), both being considered good levels of inter-rater agreement (Cicchetti, 1994).

The longitudinal association between the client's assimilation levels and the intensity of clinical symptoms was computed using the Simulation Modeling Analysis Software (SMA; Borckardt & Nash, 2014). To explore multiple temporal associations between variables we computed Pearson rho tests based on SMA cross correlation models. On the other hand, to obtain mean APES level for each session, we averaged APES ratings across passages of themes within each session.

2.5. Results

In Elizabeth's case (non-relapsed case) was possible to identify a dominant voice that presents itself as self-demanding – "I have to live up to my idealization as a mother and woman" and a problematic voice – "My difficulties as a mother and woman". In an initial phase (session 1), lower levels of assimilation were identified (APES 2 and 3). Throughout the working phase of therapy (sessions 4, 8 and 12) higher levels of assimilation were identified: APES 3 to 6. In the final phase (session 16) the most frequent APES level was 5. After the end of the therapeutic process it was possible to verify the maintenance of the gains acquired during the therapy, namely Elizabeth maintained higher levels of assimilation of understanding regarding the problem and the strategies used to solve it. Throughout the follow-up sessions, the assimilation levels have increased to APES 6 and 7. In the last the follow-up (18 months), the most frequent APES level corresponded to 6, although, excerpts encoded with APES 7 were identified in this session. Elizabeth demonstrated a total resolution of the problem.

In Helen's case (relapsed case) it was possible to identify a recriminating and demanding voice (dominant voice) related to the need to be perfect – "I have to do everything perfect" – as well as a problematic voice that directly contacts the failure and that makes her feel vulnerable – "I'm a failure". In an initial phase (session 1) lower levels of assimilation were identified (APES 2). In the working phase of therapy (sessions 4, 8 and 12) there were several improvements to higher assimilation levels (APES 4 and 5), although the most frequent level corresponds to APES 2. In the final phase of the process (session 16) there was an improvement in assimilation level, being the most frequent level coded the APES level 4. After the end of the therapeutic process it was possible to verify a several advances and setbacks. Throughout follow-up sessions, the most frequent levels were APES 3 and 5. In the last follow-up (18 months), there was a sharp setback in terms of gains, although the problem was recognized. Despite the fact that problematic voice was heard, the dominant voice drowned out its expression. The client's needs were expressed but the gains are not consolidated and there was still a need to work on the problem.

In both cases it was possible to identify a significant negative relationship between assimilation levels and depressive symptoms: $Rho = -.71, p = .05$ (Elizabeth's) and $SMA Rho = -.92, p = .002$ (Helen's; Borckardt & Nash, 2014). In the Elizabeth's case it was possible to see a gradual increase of depressive symptoms along with a decrease in the APES levels. The analysis of the follow up sessions showed that the assimilation levels remained high (average values above 5), with a slight increase over time, while the depressive symptoms intensity remained low. In the Helen's case, during the acute phase of treatment, as well as in the follow-up sessions, the increase in assimilation levels appears accompanied by a decrease in depressive symptoms. Helen started the process with lower levels of assimilation (around APES 2), showing a vague awareness of problematic experiences. Throughout the process, it was possible to identify a growth in terms of assimilation. After the end of the process, it was possible to observe a growth to average levels (APES 3 and 4), followed by a setback in the last follow-up (18 months).

2.6. Discussion

Elizabeth presented a gradual positive growth through the therapeutic process, as well as in the follow-up sessions. There was a more linear growth reaching higher levels (APES 5 and 6). The existence of these levels (APES 6) during the final phase and, subsequently, throughout the follow-up sessions seems to be an indicator of change realization, as well as of the consolidation of the gains acquired during the therapy. This result is congruent with the assimilation model: as the experience is assimilated into the existing community it no longer has as much impact on the client's life, leading to a decrease in depressive symptoms. The stability founded in the final phase appears to be indicative of the problem resolution. Although there was some reticence, initially, in confronting the dominant voice, the client managed to do it successfully, having evidenced a constant effort to achieve and maintain a solution to the problem she brought to the therapy. After the end of the therapeutic process it was possible to see the gains obtained throughout the process. Elizabeth showed higher assimilation levels over the 18 months after the end of therapy, reaching a total resolution of the problem (APES 7). This means that the problematic voice has been integrated into the community.

Helen showed a growth in terms of assimilation and symptomatologic improvement resulting from the work on the problem and the awareness of it. Despite achieving higher assimilation levels, APES 6 weren't achieved, neither during the acute phase of treatment or after the end of process. In her case, a set of setbacks were evident throughout the assimilation process. This may indicate the existence of new understandings and some application of these in daily life, but not a structured and sustained change that would be evident in the presence of higher levels (APES 6 and 7) of assimilation. In general, it was possible to verify that as the experience is worked on and integrated, the depressive symptoms decrease. On the other hand, it was evident that the presence of setbacks in assimilation appears to be associated with increased intensity of depressive symptoms. Subsequently, it was possible to verify the presence of average levels of assimilation (APES 4) in the final phase of the process, as well as throughout the first follow-ups, in which the client remains with depressive symptoms below the cut-off point. Despite this, the analysis of the last follow-up session showed the presence of lower assimilation levels, accompanied by an increase in symptomatology, with a therapeutic setback.

Comparing the two cases, it was possible to verify the existence of a negative relationship between the intensity of depressive symptoms and the APES levels identified. The association of results in terms of assimilation of problematic voices in the self with the reduction of depressive symptoms confirms the existing studies (Basto et al., 2016; Leiman & Stiles 2001). In this sense, it is possible to affirm that the gradual integration of the problematic voice with the community of voices appears to be directly associated with the reduction of clinical symptoms and consequently with the return of psychological well-being. On the other hand, both cases showed improvements and setbacks throughout the process, although these were more significant in Helen. This may indicate that, in her case, the change process was still in an active phase of the assimilation process, that is, the complete assimilation of the problematic voice with the existing community has not yet been achieved. These are consistent with previous studies confirming the irregularities throughout any therapeutic process. Despite this, they don't imply therapeutic failure (Caro-Gabalda & Stiles, 2009), as can be seen in this study, both cases were therapeutic successes. The setbacks seem to corroborate this idea: the client appears to be in a change phase, where the problematic voice assimilation and consequent reorganization of the community of voices has not yet been finalized. The setbacks arise as a result of the voices confrontation and it doesn't result as a problem for the process, indicating that the client is in the active phase of the assimilation process (Basto et al., 2018; Caro-Gabalda & Stiles, 2016).

Levels equal to or greater than APES 4 seem to be related to therapeutic success and to a decrease in terms of symptoms (Goodridge & Hardy, 2009). Our results are consistent with this idea, once both cases reached levels equal to or higher than APES 4, being possible to relate the assimilation progression with change in therapy. Despite this, only Elizabeth managed to reach levels above APES 5 during the acute phase of treatment. On the other hand, in Helen's case, the maximum levels identified correspond to APES 5. Elizabeth corresponds to a successful case during and after the end of therapy, having APES 6 levels have been identified either in the acute phase of treatment or during follow-up sessions. This may indicate that APES 6 may be associated with a more structural and sustained change, as reflected by the maintenance of gains after the end of the therapeutic process (Basto et al., 2017, 2018). An explanatory hypothesis for the present results may be related to the fact that reaching level 6 in terms of assimilation can act as an important mark in preventing relapse and allowing the maintenance of gains. This seems more evident when, after the end of the therapy, APES 7 is achieved, synonymous with a complete integration of the problematic experience, as in Elizabeth.

In Elizabeth's case, there was a complete resolution of the problem, resulting from the implementation of concrete resolution strategies. Thus, level 7 seems to be associated with therapeutic success, in cases where the client can fully assimilate the problem and use it as a resource. At the same time, this means that the problematic voice is fully integrated within the community of voices, being accepted in the self.

3. Conclusions and limitations

The main conclusions are essentially related to: 1) any therapeutic process presents advances and setbacks, in terms of APES levels and symptoms; 2) higher APES levels appear associated with lower intensity of symptoms; 3) assimilation is characterized as a gradual process; and 3) levels equal to or greater than APES 4 appear to be associated with a good prognosis regarding the outcome at the end of therapy; 4) levels equal to or higher than APES 6 may be related to a good prognosis in terms of maintaining the therapeutic gains and preventing relapse.

This study presents as main limitation the impossibility of analyzing all sessions of both cases. Despite this, this study contributed to the enrichment of the assimilation model.

Regarding clinical practice, the identification of specific levels associated with therapeutic success may act as a facilitator in terms of preventing relapse. The identification of specific APES levels can act as a facilitator for the process, as well as for the therapist, to move their interventions in order to make it possible to obtain these same levels.

References

- Basto, I., Pinheiro, P., Stiles, W., Rijo, D. & Salgado, J. (2016). Changes in symptom intensity and emotion valence during the process of assimilation of a problematic experience: A quantitative study of a good outcome case of cognitive-behavioral therapy. *Psychotherapy Research, 27(4)*, 437-449.
- Basto, I., Salgado, J., Stiles, W. B. & Rijo, D. (2017). Does assimilation of problematic experiences predict a decrease in symptom intensity? A study of clinically depressed sample. *Clinical Psychology and Psychotherapy, 25(1)*, 76-84.
- Basto, I., William, S., Bento, T., Pinheiro, P., Mendes, I., Rijo, D. & Salgado, J. (2018). Fluctuation in the Assimilation of Problematic Experiences: A Case Study of Dynamic Systems Analysis. *Frontiers in Psychology, 9(1119)*, 1-10.
- Beck, A., Steer, R. & Brown, G. (1996). *Manual for the Beck Depression Inventory II*. Psychological Corporation.
- Borekardt, J., & Nash, M. (2014) Simulation modelling analysis for small sets of single-subject data collected over time. *Neuropsychological Rehabilitation, 24(3-4)*, 492-506.
- Caro-Gabalda, I. & Stiles, W. (2016) Elaborating the assimilation model: Introduction to a special section on case studies of setbacks within sessions and therapeutic collaboration, *Psychotherapy Research, 26(6)*, 633-637.
- Caro-Gabalda, I., & Stiles, W. (2009) Retrocessos no contexto da terapia linguística de avaliação. *Análise Psicológica, 2(27)*, 199-212.
- Cicchetti, D. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment, 6(4)*, 284-290.
- Coelho, R., Martins, A. & Barros, H. (2002). Clinical profiles relating gender and depressive symptoms among adolescents ascertained by the Beck Depression Inventory II. *European Psychiatry: The Journal of the Association of European Psychiatrists, 17(4)*, 222-226.
- Detert, N., Llewelyn, S., Hardy, G., Barkham, M. & Stiles, W. (2006). Assimilation in good- and poor-outcome cases of very brief psychotherapy for mild depression: An initial comparison. *Psychotherapy Research, 16(4)*, 393-407.
- Goodridge, D., & Hardy, G. (2009). Patterns of change in psychotherapy: An investigation of sudden gains in cognitive therapy using the assimilation model. *Psychotherapy Research, 19(1)*, 114-123.
- Honos-Webb, L., Surko, M., Stiles, W. & Greenberg, L. (1999). Assimilation of voices in psychotherapy: The case of Jan. *Journal of Counseling Psychology, 46(4)*, 448-460.
- Leiman, M. & Stiles, W. (2001). Dialogical sequence analysis and the zone of proximal development as conceptual enhancements to the assimilation model: the case of Jan revisited. *Psychotherapy Research, 11(3)*, 311-330.
- Mergenthaler, E. & Stinson, C. (1992). Psychotherapy transcription standards. *Psychotherapy Research, 2(2)*, 125-142.
- Salgado, J. (2019). ISMAI Depression Project: Final results of a comparative randomized clinical trial of psychotherapy treatments (EFT vs CBT) for major depression. Paper presented at the 35th Annual Meeting of the Society for the Exploration of Psychotherapy Integration, Lisbon, Portugal.
- Stiles, W. (1999). Signs and voices in psychotherapy. *Psychotherapy Research, 9(1)*, 1-21.
- Stiles, W. (2001). Assimilation of problematic experiences. *Psychotherapy: Theory, Research, Practice, Training, 38(4)*, 462-465.
- Stiles, W. (2002). Assimilation of problematic experiences. In J.C. Norcross (Ed.), *Psychotherapy Relationships that Work* (pp. 357-365). Oxford University Press.
- Stiles, W. (2011). Coming to terms. *Psychotherapy Research, 21(4)*, 367-384.
- Stiles, W. B., & Angus, L. (2001). Qualitative research on clients' assimilation of problematic experiences in psychotherapy. *Psychologische Beiträge, 43*, 570-585.
- Stiles, W., Elliott, R., Llewelyn, S., Firth-Cozens, J., Margison, F., Shapiro, D. & Hardy, G. (1990). Assimilation of problematic experiences by clients in psychotherapy. *Psychotherapy, 27(3)*, 411-420.
- Stiles, W., Shapiro, D., Harper, H. & Morrison, L. (1995). Therapist contributions to psychotherapeutic assimilation: An alternative to the drug metaphor. *British Journal of Medical Psychology, 68(1)*, 1-13.

THE POLISH ADAPTATION AND FURTHER VALIDATION OF THE COVID STRESS SCALES (CSS)

**Monika Frydrychowicz, Julia Pradelok, Kinga Zawada, Dominika Zyśk,
& Katarzyna Adamczyk**

Faculty of Psychology and Cognitive Science, Adam Mickiewicz University in Poznań (Poland)

Abstract

The scientific need to recognize the impact of the COVID-19 pandemic on human psychosocial functioning requires reliable and valid research tools to assess this impact. Therefore, we designed a study to create and further validate a Polish version of a research instrument assessing stress, anxiety, and fear related to the pandemic – *the COVID Stress Scales* (CSS; Taylor et al., 2020). This paper presents the specific research steps designed to develop and validate the Polish-language version of CSS (Taylor et al., 2020). These steps are as follows: 1) the translation of the original CSS into the Polish language by three independent translators and the back-translation by three other independent translators; 2) the assessment of the equivalence of the Polish translation of CSS in a study involving a sample of 30-60 bilingual people, fluent both in English and Polish languages; 3) the pilot study employing the pre-final Polish version of CSS; 4) the validation study involving a sample 600-900 participants in which the following instruments will be used: the Fear of COVID-19 Scale, the Patient Health Questionnaire-9 Scale, the Short Health Anxiety Inventory, the Social Desirability Scale, the Obsessive-Compulsive Inventory-Revised Scale, the Xenophobia subscale of the Questionnaire of Political Beliefs and the subscale Sensation seeking from the Impulsive Behavior Scale.

We expect that the Polish version of CSS will be widely used by Polish researchers in their studies concerning the impact of the COVID-19 pandemic and other epidemiological threats on mental health. At the same time, we hope that our study will provide results that will help foreign researchers understand the COVID-19 pandemic in other countries.

Keywords: *COVID-19, coronavirus, the COVID Stress Scales, stress, anxiety, fear.*

1. Introduction

According to the World Health Organization's data, on January 5, 2021, over 84 million coronavirus cases have been confirmed, and 1.8 million deaths have been reported worldwide, and pandemic spreads to all countries of the world. Poland, where the presented project proposal is intended to be implemented, has reported over 1.3 million cases and over 29 thousand deaths.

In response to the need of recognizing how people feel when an epidemic or a pandemic situation occurs (such as H1N1 in 2009 or the SARS outbreak) and currently the COVID-19 pandemic, Taylor and colleagues in the 2020 year created an instrument to measure stress, anxiety, and fear related to the COVID-19 pandemic, i.e., *the COVID Stress Scales* (CSS). This instrument was designed in such a manner that would allow researchers to adapt CSS in the assessment of future pandemics.

The CSS was developed and initially validated in population-representative samples from Canada (N = 3479) and the United States (N = 3375). The study was conducted during the early stages of the pandemic in the United States and Canada when many people experienced emotional distress.

Previous research by one of the authors of CSS - Taylor (2019) - suggested that when people face a pandemic mostly fear becoming infected, coming into contact with contaminated objects or surfaces, foreigners who may be infected, and the socio-economic consequences of the pandemic (Taylor, 2020). People may also present compulsive and reassurance seeking behaviors and symptoms of traumatic stress (Taylor 2019).

In the original study, CSS was correlated with the following research instruments:

1. Patient Health Questionnaire-4 (PHQ-4; Kroenke et al., 2009) which measures current anxiety and depression;

2. Short Health Anxiety Inventory (SHAI; Salkovskis et al., 2002) only the main subscale was used which measures health anxiety independently of physical health status;
3. Obsessive-Compulsive Inventory-Revised (OCI-R; Foa et al., 2002) which measures symptoms of obsessive-compulsive disorder (OCD);
4. Xenophobia Scale (XS; van Zalk et al., 2013) which measures negative attitudes towards immigrants;
5. Marlowe Crowne Social Desirability Scale Short Form (MCSD-SF; Reynolds, 1982) which measures the tendency to respond in socially desirable ways.

The performed analyses revealed that CSS consists of five scales that measure symptoms of stress and anxiety caused by COVID-19: 1) Danger and contamination fears; 2) Fears about economic consequences; 3) Xenophobia; 4) Compulsive checking and reassurance seeking and 5) Traumatic stress symptoms about COVID-19.

In the original study, all the correlations between the CSS subscales and the pre- COVID trait measures of health anxiety and obsessive-compulsive (OC) contamination and checking symptoms were significant; the correlations between the five CSS subscales and social desirability were statistically significant. Further, all the CSS subscales were intercorrelated.

The authors of CSS recommend using their instrument to identify people in need of mental health services and predict which people are most likely to engage in safety behaviors. They also pointed out the need to include structured diagnostic assessments (i.e., DSM-5 or ICD-11 diagnoses) in future research, which would have been useful in evaluating criterion-related (known-groups) validity of the CSS.

In Poland, there is a deficit to assess stress, anxiety, and fear related to COVID-19. Therefore, the research performed by Taylor and colleagues (2020) encouraged us to design an investigation aimed at developing and validating the Polish version of the COVID Stress Scales (CSS).

The Polish version of the CSS scale will enable researchers to investigate the impact of the COVID-19 pandemic on Polish women and men's stress and anxiety. Due to the lack of standardized tools, such research is more challenging to be performed. Moreover, as the original CSS, the Polish version of CSS will also allow researchers to investigate the COVID-19 pandemic and other epidemiological threats.

In subsequent parts of the paper, we will present the specific research steps to develop and validate the Polish version of CSS.

2. Method

The designed research will be conducted according to the standards and recommendations for research aimed at cultural adaptation of research tools and their validation (e.g., Brzeziński & Hornowska, 2007). The study will consist of the following four steps:

Step 1: Translation

The translation procedure will involve translating the original CSS in the English language into the Polish language by three independent translators and the back-translation of the Polish experimental version of the CSS Scale into English by the other three independent translators.

Step 2: The equivalence of the Polish version of CSS

The Polish version of CSS's equivalence will be assessed in a study in which 30-60 bilingual participants will be enrolled.

Step 3: Pilot study

The pilot study with a pre-final Polish version of CSS will involve 60 participants.

Step 4: Final validation study with two measurements

The final validation study will involve two measurements to assess the stability of CSS scores in time.

In the first measurement, we predict that about 300-500 will take part, whereas in the second measurement, four weeks after the first measurement, around 250-450 participants will take part.

In order to avoid the excessive burden of our participants, the validation study will be divided into three separate studies employing randomized packages of research instruments.

3. Measures

The selection of tools in this study was determined by the desire to extend knowledge on the Polish version of CSS's validity.

The plan to use other tools, i.e., the Fear of COVID-19 Scale (FCV-19S; Ahorsu et al., 2020), was based on the CSS scale's future directions authors. Specifically, the authors of the CSS scale indicated that in further research, it would be essential to use tools that also measure fears related to the COVID-19 pandemic, such as the *Fear of COVID-19 Scale* (FCV-19S; Ahorsui in, 2020) that was not available during the research by Taylor and colleagues (2020).

Further, the Sensation seeking subscale that is a part of the *Impulsive Behavior Scale* (Lynam et al. 2007) will be used to extend an assessment of the discriminant validity of the CSS.

Finally, due to the lack of Polish adaptations of three scales that were used in the original study, the following instruments will be replaced in this investigation: PHQ-4, MCSD-SF and XS, The PHQ-4 scale by the PHQ-9 scale, the Marlowe Crowne Social Desirability Scale Short Form (MCSD-SF; Reynolds, 1982) by the Social Desirability Scale (SDS-17; Stöber, 2001), and the Xenophobia Scale (XS; van Zalk et al., 2013) by the Xenophobia subscale of the Questionnaire of Political Beliefs (Czarnek et al., 2017).

As a result, in the designed study, the following tools will be used:

The COVID Stress Scales (CSS; Taylor et al., 2020). This tool measures stress related to the COVID-19 pandemic, and it is the subject of our adaptation and validation. It consisted of 36 items that are rated using a 4-point Likert scale from 0 (*not at all*) to 4 (*extremely*) and from 0 (*never*) to 4 (*almost always*).

The Fear of COVID-19 Scale (FCV-19S; Ahorsu et al., 2020). This instrument measures the fear associated with the COVID-19 pandemic. In this study, we will use our Polish translation of FCV-19S. The scale consists of 7 items, to which the examined person responds on a 5-point Likert scale from 1 (definitely disagree) to 5 (definitely agree). The authors of this project proposal will translate the scale.

The Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001) (Polish translation - MAPI Research Institute). This questionnaire measures anxiety and depression. It includes nine items rated on a 4-point Likert scale from 1 (not annoying at all) to 4 (almost daily).

The Short Health Anxiety Inventory (SHAI; Salkovskis et al., 2002) (Polish adaptation - Kocjan (2016)). This tool assesses cognitive factors related to hypochondria. This inventory consists of 18 items rating by choosing answers marked with letters from A to D. The original study includes the subscale measuring health-related anxiety regardless of health status and consists of 14 items. In this study, this subscale will be used.

The Social Desirability Scale (SDS-17; Stöber, 2001) (Polish adaptation - Ciecuch et al. 2013). This scale measures social approval. The scale consists of 16 items rated by choosing the answer true/false.

The Obsessive-Compulsive Inventory-Revised (OCI-R; Foa et al., 2002) (Polish translation - Jeńska, 2012). This instrument assesses the symptoms of obsessive-compulsive disorder. The scale consists of 18 items rated on a 5-point scale from 0 (*not at all*) to 4 (*very often*). The original study includes two subscales to measure checking and washing. In this study, these two subscales will be used.

The Political Beliefs Questionnaire (Czarnek et al., 2017) is an instrument created by Polish researchers to assess political beliefs. In this study, the Xenophobia subscale (three items) will be used. Respondents rate statements using a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

The 20-item Impulsive Behavior Scale (UPPS-P; Whiteside & Lynam, 2001) (Polish adaptation - Poprawa, 2019). In this study, the Sensation Seeking (PD) subscale (four items) will be used. The respondents rate statements using a 4-point Likert scale ranging from 1 (*completely agree*) to 4 (*completely disagree*).

Demographic data. Demographic data will include questions concerning age, gender, place of living, education, employment, and experiences related to the COVID-19.

The assessment of the Polish version of CSS's equivalence, pilot study, and final validation study will be conducted as online research. Access to the survey will be possible through a link sent in the recruitment advertisement through e-mail and a link on social networks.

Gratifications in shopping vouchers to the EMPIK stores are planned for people participating in the research. These gratifications will be awarded in the form of a lottery.

4. Desired results description

The adaptation and validation of the CSS scale to Polish conditions will allow researchers in Poland to investigate the impact of the COVID-19 pandemic on stress and anxiety among Poles.

Due to the need for standardized tools in this research area, the Polish adaptation of the CSS will enable the successful performance of such research in Poland.

Furthermore, as the CSS authors emphasized, CSS has been designed to be also employed in research concerning other pandemics (Taylor et al., 2020). Therefore, the Polish adaptation of CSS will enable research on the COVID-19 pandemic and other epidemiological threat situations in Poland.

Acknowledgments

The presented project proposal is financed in the scope of the Adam Mickiewicz University in Poznań project's "Excellence Initiative - Research University" (Application number 009/34/UAM/0003). The Principal Investigator of the project is Julia Pradelok, a fourth-year psychology student at the Faculty of Psychology and Cognitive Science at Adam Mickiewicz University in Poznań.

The project's supervisor is Katarzyna Adameczyk, Ph.D., Associate Professor at the Faculty of Psychology and Cognitive Science at Adam Mickiewicz University in Poznań.

References

- Ahorsu, D. K., Lin, C. Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2020). The Fear of COVID-19 Scale: Development and initial validation. *International Journal of Mental Health and Addiction*, 1-9. doi: 10.1007/s11469-020-00270-8
- Brzeziński, J. & M., Hornowska, E. (2007). Adaptacja kulturowa testów psychologicznych. [*Cultural adaptation of psychological tests*]. In J. Strelau (Ed.), *Psychologia. Podręcznik akademicki. [Psychology. Academic Textbook.]* (Vol. 1, pp. 415-426). Gdańsk: GWP.
- Cieciuch, J., Davidov, E., Gasiul, H., Strus, W., Rowiński, T., & Fronczyk, K. (2013, July). *Common factor in measurement of values – pure method or social desirability factor?* Oral presentation at the 5th Conference of the European Survey Research Association, Lublana, Slovenia.
- Czarnek, G., Dragon, P., Szwed, P., & Wojciszke, B. (2017). Kwestionariusz przekonań politycznych: własności psychometryczne [Political Beliefs Questionnaire: Psychometric properties]. *Psychologia Społeczna*, 12(2), 205-222. doi: 10.7366/1896180020174108
- Foa, E. B., Huppert, J. D., Leiberg, S., Langner, R., Kichic, R., Hajcak, G., & Salkovskis, P. M. (2002). The Obsessive-Compulsive Inventory: Development and validation of a short version. *Psychological Assessment*, 14(4), 485. doi: 10.1037/1040-3590.14.4.485
- Jeśka, M. (2012). Narzędzie do pomiaru zaburzenia obsesyjno-kompulsyjnego (zastosowanie, właściwości, wady i zalety). [Tools for measuring the symptoms of obsessive - compulsive disorder (application, properties, advantages and disadvantages)]. *Neuropsychiatria. Przegląd Kliniczny. [Review of Clinical Neuropsychiatry.]*, 4(3), 138-142.
- Kocjan, J. (2016). Short Health Anxiety Inventory (SHAI)-Polish version: Evaluation of psychometric properties and factor structure. *Archives of Psychiatry and Psychotherapy*, 3, 68-78.
- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: validity of a brief depression severity measure. *Journal of General Internal Medicine*, 16(9), 606-613. doi: 10.1046/j.1525-1497.2001.016009606.x
- Poprawa, R. (2019). Research on the Polish short version of the Impulsive Behavior Scale UPPS-P. *Alcoholism and Drug Addiction/Alkoholizm i Narkomania*, 32(1), 35-62. doi:10.5114/ain.2019.85767.
- Reynolds, W. M. (1982). Development of reliable and valid short forms of the Marlowe-Crowne Social Desirability Scale. *Journal of Clinical Psychology*, 38(1), 119-125. doi: 10.1002/1097-4679(198201)38:1%3C119::AID-JCLP2270380118%3E3.0.CO;2-I

- Salkovskis, P. M., Rimes, K. A., & Warwick, H. M. C. (2002). The Health Anxiety Inventory: Development and validation of scales for the measurement of health anxiety and hypochondriasis. *Psychological Medicine, 32*(5), 843. doi: 10.1017/S0033291702005822
- Stöber, J. (2001). The Social Desirability Scale-17 (SDS-17): Convergent validity, discriminant validity, and relationship with age. *European Journal of Psychological Assessment, 17*(3), 2001, 222-232. doi: 10.1027//1015-5759.17.3.222
- Taylor, S. (2019). *The psychology of pandemics: Preparing for the next global outbreak of infectious disease*. Newcastle upon Tyne, UK: Cambridge Scholars Publishing.
- Taylor, S., Landry, C., Paluszek, M., Fergus, T. A., McKay, D. & Asmundson, G. J. (2020). Development and initial validation of the COVID Stress Scales. *Journal of Anxiety Disorders, 72*, 102232, doi: 10.1016/j.janxdis.2020.10223
- van Zalk, M. H. W., Kerr, M., Van Zalk, N., & Stattin, H. (2013). Xenophobia and tolerance toward immigrants in adolescence: Cross-influence processes within friendships. *Journal of Abnormal Child Psychology, 41*(4), 627-639. doi: 10.1007/s10802-012-9694-8
- Whiteside, S. P., & Lynam, D. R. (2001). The five factor model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences, 30*(4), 669-689. doi: 10.1016/S0191-8869(00)00064-7

THE EFFECT OF COVID-19 PANDEMIC ON THE EMOTIONS OF NURSES IN ISRAEL

Orly Zelevich¹, Gadi Navon², Halit Kantor³, & Shulamith Kreitler⁴

¹Department of Public Health, Ariel University (Israel)

²Department of Social Sciences, The Open University (Israel)

³Department of Communication studies, Tel-Aviv University (Israel)

⁴School of Psychological Sciences, Tel-Aviv University (Israel)

Abstract

The Covid-19 pandemic, which originally spread in China in late 2019 and then affected the entire world including Israel, has thrown into the battle numerous medical teams, including physicians, nurses and other para-medical teams, both in hospitals and in the community. The medical personnel embarked on a variety of new tasks and challenges, which required them to manifest extraordinary strength. Healthcare providers and caregivers are one of the vital resources in each and every country. Their health and safety are important and crucial parameters not only for the continuous and safe care of patients, but also for controlling the outbreak of epidemics. Working in the medical field is known to bear implications for the mental health of healthcare providers and anxiety, depression, insomnia and stress are not a rare occurrence (S. Liu et al., 2020). Therefore, there is a need to consider the well-being of medical staff and to provide support where needed.

Keywords: Covid-19, nurses, emotions, fear, indispensability.

1. Introduction

Many studies have researched and are still researching the immense impact of the Covid-19 pandemic on our lives. Studies conducted among the general population, regardless of occupation, examined the psychological impact of the spread of the virus on the mental health of the general population. In Israel, too, the issue has been studied among the general population and a direct link has been found between fear of the virus and demographic variables such as gender, socio-demographic status, the existence of a chronic illness and having a close relative who has been severely affected by the virus (Tzur Bitan et al., 2020). On the one hand, nursing staff have the professional knowledge and mental strength to deal with critical health issues and, therefore, may fear the virus less when compared to the general public. On the other hand, nursing staff are exposed daily to many patients, some of whom may be carriers of the virus, which puts staff and their families at increased risk of infection, and therefore may result in increased negative impact on their mental health (Lai et al., 2020; Chidiebere et al., 2020,; El-Hage et al., 2020).

Nurses have been and continue to be at the forefront of this epidemic, and nursing personnel provide a wide range of essential services to patients, families and the community at large. The irony of the Corona plague now occurring during the International Nurses Year has not affected the teams, who have risen fearlessly and whose contribution to global health has never been clearer (Treston, 2020). During the Covid-19 pandemic, there has been a higher incidence of anxiety and stress among the medical staff. Medical institutions need to place emphasis on strengthening the psychological skills of medical personnel. Special attention should be paid to the mental health of nurses (Huang, Han, Luo, Ren, 2020 & Zhou).

2. Objectives

The goal of the study was to investigate the psychological and emotional impact of the Covid-19 pandemic on nursing staff in Israel, with emphasis placed on feelings of fear.

The main research question, according to which the research hypotheses have been constructed, was whether there would be differences between nurses working in the community and nurses working in

hospitals in terms of positive and negative emotions and the feeling of fear of Covid-19. The study takes into account the demographic variables and sense of indispensability among nurses.

Accordingly, there were four hypotheses.

1. High seniority of nursing staff in the community will be in a positive correlation with positive factors such as affection, joy and satisfaction and in a negative correlation with fear of Covid-19. The higher the seniority the less fear there will be.
2. There will be differences between nurses who work in hospitals and nurses who work in the community in terms of negative and positive emotions. However, it is hypothesized that both research groups will manifest an increase in feelings of indispensability and positive feelings of curiosity during the Corona period.
3. There will be no significant differences in the Corona Fear Questionnaire between the two groups.
4. There will be differences between nurses working in hospitals and nurses working in the community in terms of being indispensable at work, with the community nurses gaining a lower score on the feeling of "being seen" by the workplace.

3. Design

The study is a two-group descriptive quantitative study.

4. Method

4.1. Method: Participants

The target population of the study was nurses working in hospitals and in the community with similar age and educational characteristics. The sample included 203 participants, of whom 86 were hospital nurses and 117 were nurses working in the community setting.

4.2. Method: Research tools

Four research tools were used in the research: Demographic questionnaire, indispensability questionnaire, POMS (profile of mood states) questionnaire, and the Fear of COVID-19 Scale questionnaire, which was translated from English to Hebrew and back before submission to participants.

4.3. Method: Research procedure

After receiving the approval of the Ethics Committee, the questionnaires were made available to hospital and community nurses online, using the snowball method. Participants were asked to complete the questionnaire after they had received an explanation of the purpose of the study and given informed consent to participate in the research anonymously. The data obtained was then submitted for statistical analysis.

5. Results

The study compared negative and positive emotions and the feeling of fear of Covid-19 with reference to demographic variables such as seniority, education, type of contract (full-time or part-time), sense of indispensability and job satisfaction. A factor analysis showed that the Fear of Covid-19 scale included two factors. One included four items referring to physical symptoms (Mean=40.84, SD=11.76, eigenvalue=3.58), while the second included 3 items referring to fears of the virus (Mean=47.450, SD=17.26, eigenvalue=1.017). There were no significant differences in these two factors between nurses in the hospitals and in the community. Significant and inverse relationships have been found between negative emotions and age; as age increases so does the level of negative emotions during routine as well as during the Covid-19 pandemic (with this relation being stronger during the pandemic). Similarly, a weak inverse relationship was found between age and fear of Covid-19— as age increases fear of Covid-19 decreases. In both groups of nurses there was a significant decline in positive emotions during the pandemic period ($F(1,201)=93.24, p=0.000$). Comparing settings, a significant difference has been found in the level of negative emotions, with nurses working in hospitals having more negative emotions compared to nurses working in the community, whereas positive emotions were more common among nurses working in the community compared to nurses working in hospitals. During the pandemic there was an increase in negative emotions, in particular sadness and difficulty to concentrate.

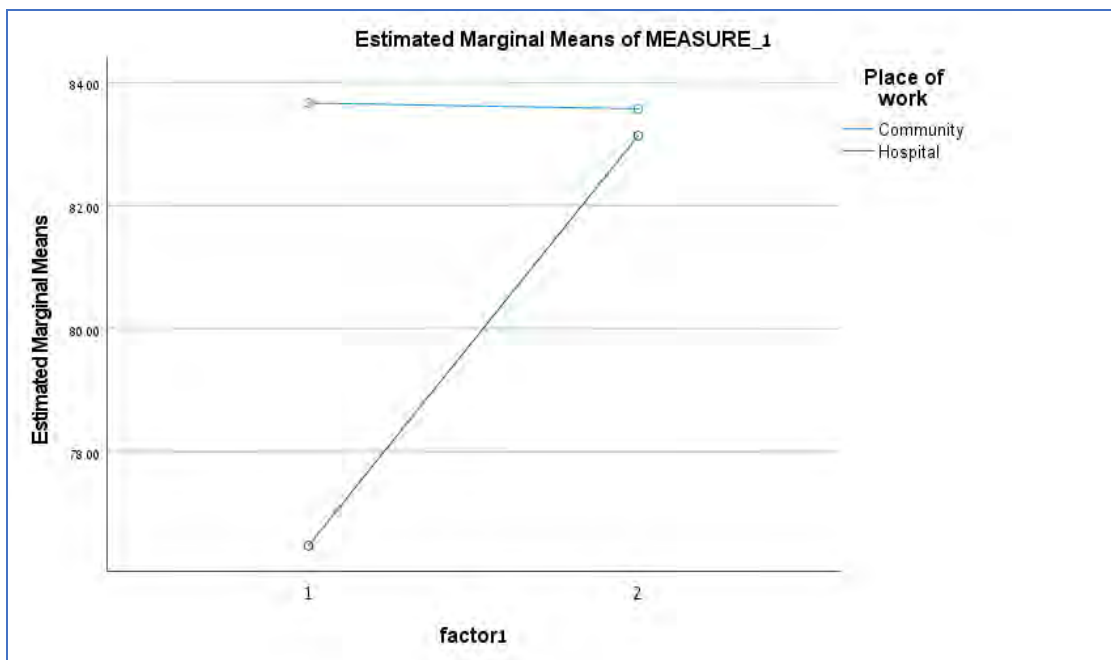
Table 1. Regression analysis of variables contributing to Satisfaction with one's work at present.

| Variable | R ² | T | B | F |
|--|----------------|----------|------|-----------|
| (1,155) Indispensability1 | .092 | 3.968*** | .304 | ***15.746 |
| (2,154) Indispensability.1 | .161 | 4.721*** | .355 | ***14.786 |
| Exploiting vacation days .2 | | 3.556*** | .267 | |
| (3,153) Indispensability.1 | .193 | 4.304*** | .323 | ***12.221 |
| Exploiting vacation days .2 | | 3.464*** | .257 | |
| Appreciation of the/3 public under normal conditions | | 2.472* | .182 | |

Note: * $p \leq 0.05$. ** $p \leq 0.01$. *** $p \leq 0.001$

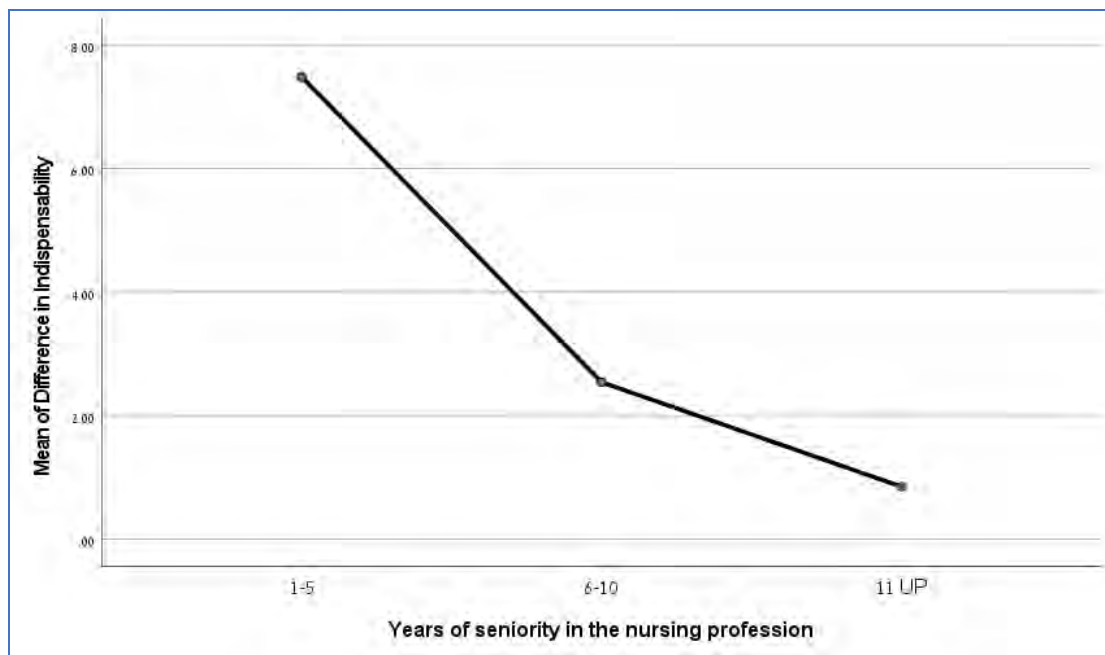
As for sense of indispensability and satisfaction, nurses felt that their needs during the Covid-19 period have not gained sufficient attention from the employer compared to the routine period, and this difference was also found to be significant both in the hospital and in the community settings. Table 1 shows that in addition, nurses in both settings felt a significant increase in public appreciation for their work during the Covid-19 period compared to routine. Figure 1 shows that there was a difference in the sense of indispensability between nurses in the community and hospital nurse. The former felt more indispensable.

Figure 1. Comparison between community nurses and hospital nurses in indispensability.



A comparison was made between the period before the pandemic and during the pandemic in the sense of indispensability between nurses differing in seniority. The difference was significant $F(2,199) = 5.879, p = .003$. In those with longer seniority (over 11 years) the mean gap between before and during the pandemic was small (Mean = .845, SD = 10.49) while in those with shorter seniority (less than 5 years), the gap was larger (Mean = 7.48, SD = 13.49). Figure 2 shows clearly this effect of seniority.

Figure 2. The effect of seniority on the feeling of indispensability of nurses.



Regarding gender, no significant differences in emotional reaction have been found between men and women (Lasalvia et al., 2020).

6. Discussion and conclusions

Nurses working in the community experience more positive feelings compared to nurses working in hospitals, who in turn experience significantly more negative emotions in routine and during the Covid-19 pandemic. The findings of the study suggest that community nurses have more joy and enjoyment at work, while nurses working in hospitals have a greater sense of commitment and indispensability. Thus, there are gaps in feelings and emotions between the two settings and, accordingly, different measures are required (Pollock et al., 2020; Tracy et al., 2020): As for the hospital setting, intervention programs should be considered to reduce negative feelings among nurses and to intensify positive emotions; In the community setting, an effort should be made to raise the sense of indispensability that exists among hospital nurses. The current study entails practical implications and its significance lies in raising awareness to the needs of nurses – in both settings – in urgent and routine times.

References

- Chidiebere Okechukwu E, Tibaldi L, La Torre G. The impact of COVID-19 pandemic on mental health of Nurses. *Clin Ter.* 2020 Sep-Oct;171(5):e399-e400. doi: 10.7417/CT.2020.2247. PMID: 32901781.
- El-Hage, W., Hingray, C., Lemogne, C., Yroni, A., Brunault, P., Bienvenu, T., ... & Aouizerate, B. (2020). Health professionals facing the coronavirus disease 2019 (COVID-19) pandemic: What are the mental health risks?. *Encephale*, S73-S80.
- Huang, J. Z., Han, M. F., Luo, T. D., Ren, A. K., & Zhou, X. P. (2020). Mental health survey of 230 medical staff in a tertiary infectious disease hospital for COVID-19. *Zhonghua lao dong wei sheng zhi ye bing za zhi= Zhonghua laodong weisheng zhiyebing zazhi= Chinese journal of industrial hygiene and occupational diseases*, 38, E001-E001.
- Lasalvia A, Bonetto C, Porru S, Carta A, Tardivo S, Bovo C, Ruggeri M, Amaddeo F. Psychological impact of COVID-19 pandemic on healthcare workers in a highly burdened area of north-east Italy. *Epidemiol Psychiatr Sci.* 2020 Dec 17;30:e1. doi: 10.1017/S2045796020001158. PMID: 33331255; PMCID: PMC7804082.

- Liu, Q., Luo, D., Haase, E.J. et al. (2020) The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. *The Lancet*, volume 8, issue 6, e790-e798, JUNE 01. Open access: April 29, DOI: [https://doi.org/10.1016/S2214-109X\(20\)30204-7](https://doi.org/10.1016/S2214-109X(20)30204-7).
- Pollock, A., Campbell, P., Cheyne, J., Cowie, J., Davis, B., McCallum, J., ... & Maxwell, M. (2020). Interventions to support the resilience and mental health of frontline health and social care professionals during and after a disease outbreak, epidemic or pandemic: a mixed methods systematic review. *Cochrane Database of Systematic Reviews*, (11).
- Tracy, D. K., Tarn, M., Eldridge, R., Cooke, J., Calder, J. D., & Greenberg, N. (2020). What should be done to support the mental health of healthcare staff treating COVID-19 patients?. *The British Journal of Psychiatry*, 217(4), 537-539.
- Treston, C. (2020). COVID-19 in the Year of the Nurse. *J Assoc Nurses AIDS Care*. Apr 21. doi: 10.1097/JNC.000000000000173.
- Tzur Bitan, D. T., Grossman-Giron, A., Bloch, Y., Mayer, Y., Shiffman, N., & Mendlovic, S. (2020). Fear of COVID-19 scale: Psychometric characteristics, reliability and validity in the Israeli population. *Psychiatry Research*, 289, 113100.

CONTEMPLATION: THE RATIO OF CONSCIOUS AND UNCONSCIOUS

Garnik V. Akopov

Samara State University of Social Science and Education (Russia)

Abstract

In psychological science, the concept of contemplation is not included in the most important categories of psychology, such as activity, consciousness, personality. The dictionary meanings of the term “contemplation” are ambiguous. In psychology, in addition to the categorical analysis of contemplation (S.L. Rubinstein) and its attribution to fundamental concepts (A.V. Brushlinsky), there are also interpretations of contemplation, which are synonymous to intuition (A. Bergson) and meditation (V.F. Petrenko, Han F. De Wit), insight (preconceptual thinking - T.K. Rulina), mystical states (W. James, P.S. Gurevich). Contemplation, unlike intuition, meditation and insight, does not have a previous reportable history.

In our studies, contemplation is considered as an unconscious mental phenomenon that exists in the forms of a process, state, and also the properties of an individual (contemplative personality). Not coinciding with the processes of attention, memory, perception, thinking, etc., contemplation, however, is activated on their basis. The difference lies in the uncontrollability of this process, since its contents are not presented to consciousness. Therefore, contemplation is also different from dreams, experiences, intentions and other internally substantive mental phenomena. Despite the fact that consciousness does not have access to the content of contemplation (access-consciousness), the process itself is realized by man. In this we see the difference between contemplation as unconscious activity and Freudian understanding of the unconscious. Other differences are: involuntary entry and random exit from the state of contemplation; emotional equipotentiality of contemplation, i.e. the invariability of the emotional background of contemplation from the beginning to the exit from it. In ontogenesis, contemplation is most clearly represented in infancy, in youth, and in old age, as well as during periods of age and other life crises. Reminiscences of students record the age range from 11 to 17 years as the most saturated with contemplation; least at the age of 6-8 years (L.S. Akopian). Contemplation as an unconscious activity periodically replaces purposeful activity, contributing to the maturation, correction, transformation of the person's life meanings in their micro-, meso- and macro-macro dimensions.

Contemplation also fulfills the function of partially liberating oneself from an excess of affairs, concerns, plans, aspirations, and other forms of conscious activity. The development of practice-oriented forms of actualization of contemplation will expand the range of psychotherapeutic methods.

Keywords: *Contemplation, consciousness, unconsciousness, method.*

1. Introduction

Modern high technology has actively taken over nearly all spheres of human life. The boundaries between natural and man-made environments, natural and artificial, conscious and unconscious have been blurred. The phenomenon of the unconscious, mastered by science, art, and utilized in the practice of therapy in the versions of Sigmund Freud, Karl Jung, and Paul Diel, among others, is acquiring a different outline today. In this context, contemplation can be compared to a stone, which has remained aloof from the so-called construction site of the unconscious. At the same time, the theme of contemplation is widely represented in esoteric and religious publications. Scientific interest in the problem of contemplation in Samara was initially realized in the format of the Volga Seminar (2011), and then at the All-Russian Conference. On this basis, the prospects for overcoming the well-known opposition of consciousness and the unconscious by means of the category of contemplation were determined [Contemplation ... 2013; Akopov, 2014; Rulina; Shestun, Podorovskaya].

In the system of human knowledge, the concept of contemplation is clearly represented in philosophy, art, religious teachings and practices, as well as social and humanitarian sciences. In narrow scientific research, such as the sciences of consciousness, neuroscience, and cognitive science, contemplation may be associated with the problem of reciprocity of phenomenal and cognitive (psychological) consciousness [Chalmers; Honderich; Revonsuo; Akopov, 2010, etc.]. Most often,

contemplation is associated with perceptual (visual) consciousness; much less often - with low-order thinking [Genaro] and other mental processes. The phenomenology of contemplation as a partially conscious process can be revealed in subjective reports, i.e. in representations from the First-person perspective. A group of students is favourable for this in terms of procedural possibilities, in comparison with other age groups.

2. Background

Earlier, in research carried out jointly with L.S. Akopyan [Akopyan, Akopov], the emotional equi-potentiality of contemplation as a mental state was shown among psychology students 18-19 years old, who provided textual descriptions of their reminiscences about the experience of contemplation, in the age period from the moment of first self-awareness ("I remember myself from.. years,;" as a rule from 5-6 years to their current age). Content analysis of the diverse content of students' reminiscences in the category of "experience" and others, showed that the state of contemplation does not carry any strong emotional manifestations, despite the fact that the participants do not remember (do not recall) the original experience, i.e. emotional state before the onset of the process of contemplation. The very state of contemplation was characterized by the survey participants as calm, pacifying, evenness in mood; that is, without significant changes in the "potential" of emotions in the process of contemplation.

3. Survey Results

3.1. Preliminary

Based on the results of the pilot study, a contemplative activity questionnaire was designed. The structure of the questionnaire makes it possible to determine the respondents' ideas about contemplation and personal experience of experiencing this state. Participants were 18-19 year old students studying the pedagogical issues of inclusive education. In a group of 11 people, 37 descriptions of contemplation were observed: 42% of them define this state as "immersion in oneself" ("in their own world", "in their thoughts, feelings, dreams", "withdrawal into oneself", detachment from the external the world", "being in your world", "experiencing in your world ", "experiencing in yourself ", etc.); somewhat more - 46% of respondents define contemplation as a state of calm ("humility"; "pleasure", including - aesthetic, "pacification", "unity with the world", "with the surrounding space", "openness to the world", etc.); the rest - 12%, identify contemplation as "pensiveness", which, apparently, can also be attributed to states.

3.2. Deeper analysis

In the aggregate of students' answers to clarifying questions about the peculiarities of activity during contemplation and its content, we managed to identify the following aspects of the individual's immersion in contemplation: 1). The procedural aspect is characterized by "immersion or withdrawal into oneself", "stopping the internal dialogue", "calmness", "spiritual harmony", "enjoying what is happening", "feeling like a third person", "observer", etc .; 2). The content aspect is determined by the following statements of the participants: "you think about important things in life", "about love for nature and people, about fate", "you look at beauty, nature, contemplate it and immediately thoughts about your life, about the past begin to creep into your head. , future, present", "something that has not been analyzed unconsciously emerges", "the situation is assessed without feelings and emotions "; 3). Situational aspect: "contemplation comes in nature", "when alone", "when you look or listen to something beautiful or something calm, beautiful", etc .; 4). Functional (effective) aspect: "contemplation helps to correctly analyze what is happening", "gain experience", "sometimes we do not have enough time to stop, contemplate beauty and think", "harmony with oneself is achieved", "internal clamps go away", "Perception changes", "calming the mind", "reevaluation of events without emotions, without regret, as an observer from the outside", "after contemplation, lightness and joy", etc.

Choosing the conditions specified in the text of the questionnaire that stimulate the process of visual contemplation, the survey participants in approximately the same way recognized as such: "view from the height of a mountain peak", "sea distance", "clouds floating in the sky", "horizon distance", "burning bonfire ", "a flowing river". To this list, some students added "starry sky", "a view of a bright moon." Auditory contemplation is equally stimulated by the "sound of the sea" and "birdsong", a little less - by a "lingering song"; very rarely - by the "ticking of the clock" and "an audible quiet conversation." Psychomotor activity that promotes contemplation, according to the choice of the participants, consists of the processes of walking and monotonous actions. The quantitative distribution of the selected visual, auditory and kinesthetic stimuli of contemplative states in 11 participants is as follows: 71, 36 and 21 stimulating situations.

3.3. Excerpts of reflection

In the representations of the experience of contemplation, the survey participants identified a significant variability in the content of contemplation: "thoughts themselves come and you think about everything and nothing", "at one moment - thoughts and memories, and at another - just emptiness", "someone is in the state of absence of any thoughts, while others, at the moment of contemplation, there is a reassessment of the life situation, but without emotions and regret", "sometimes, when you think about a situation or question for a long time, you yourself drive yourself into this state", "in contemplation, internal activity is carried out unconsciously, unperceived" and so on.

Participants attribute approximately the same emotional colouring in the process of contemplation. These are mainly states such as: calmness, happiness, satisfaction, freedom, warmth, or a sense of unity. Quite often there are answers that deny any emotional accompaniment to contemplation: "without feelings and emotions", "disconnection from the whole world", "feeling like a third person, an observer." It is interesting to note that in the descriptions of the moment in time prior to contemplation, the participants do not record any emotions. At the same time, after contemplation, they feel calmness, relaxation, "a pleasant aftertaste from the process", "everything falls into place in thoughts", a feeling of harmony, lightness, and joy are attributed. Single statements attributing to an active post-contemplative state: "the feeling that something needs to be changed or some action to be performed right now", or "there is a feeling of irritation if interrupted."

Assessing the frequency of experiencing moments of contemplation, the majority of students chose the mid-position in the proposed scale (very often, often, from time to time, rarely, very rarely). Those who notice the state of contemplation in other people describe the following external signs: "a person looks out with concentration at one point, and does not react to the environment", "looks at something, but is immersed in himself"; thoughtful, peaceful. The ability to evoke a state of contemplation at will, to manage it, was recognized by very few participants. At the same time, as a means of immersion in contemplation, a very limited range of possibilities is noted ("choose a quiet place", "in nature", "alone", "after reading a book", "looking out the window", "at an uninteresting lecture", "You go somewhere for a long time," "I think for a long time over some question."

Most of the participants state that contemplation almost always comes spontaneously. In the final stage of the survey, the participants compared contemplation with such mental states as drowsiness (dreaming), thoughtfulness, inspiration, insight, remembering, concentration, meditation, observation, and imagination. The comparison had to be carried out according to three criteria: a) complete coincidence (identity); b) a certain similarity; c) absolute dissimilarity. The participants attributed a high degree of similarity of contemplation (more than 80%) to states of thoughtfulness and observation; a certain similarity - with inspiration and meditation; complete dissimilarity - with drowsiness and recollection.

4. Discussion

Our results, paradoxically, largely coincide with the results obtained in studies on samples of schoolchildren (16-17 years old) and students (20-21 years old), in previously published works [Akopyan, 2013; 2014]. The paradox lies in the independence of the results from the various instruments used and the time distance of 7-8 years. Such reproducibility of the phenomenon of contemplation speaks of it as an important, non-random mental property of a person. At the same time, contemplation cannot be attributed to any of the well-known classes of human mental properties, be it processes (attention, memory, etc.), states, features (factors) of a person. So, the process of attention (direction and concentration of mental activity) cannot be identified with contemplation, which is characterized only by concentration in the absence of an object of direction (excluding preconception). Contemplation can carry traces of memory, but it is not a purposeful process in remembering, reminiscing, memorizing, etc.

More broadly, it can be argued that contemplation also does not coincide with the phenomena of consciousness, in particular, with sensory, perceptual, affective and cognitive consciousness. As likely known, one of the generally accepted criteria for the awareness of one or another human activity is the ability to give an account of one's actions, deeds, experiences, and one's states. The phenomenology of contemplation presented above does not allow for speaking about the complete accountability of the process of contemplation to the individual. Only the state of contemplation itself, an immersion in it, is clearly realized. What is being contemplated (excluding pre-contemplative objects of mental activity) is not explicitly conscious, while in sensory, perceptual and other types of consciousness, the object is directly represented in the field of consciousness.

In non-classical psychology [Vygotsky], consciousness is identified by the attributes of arbitrariness, generalization, and mediation. On these grounds, it also cannot be argued that contemplation is a fully conscious process. If one tries to attribute contemplation to unconscious, mental phenomena, then it is also clear that this is not a Freudian libido, nor a Jungian archetype, nor Diel's vanity, etc. At the same time, it is similar to the manifestations of the Ego according to Freud, the Self according to Jung, etc.

Turning to modern studies of consciousness, one can pay attention to such identification of consciousness as “qualia” [Revonsuo]. Of the “five leading ideas” that make it possible to identify consciousness [Honderich], the idea of qualia, in our opinion, allows us to assign the status of consciousness to contemplation. At the same time, qualia belongs to the category of phenomenal consciousness, which, in contrast to perceptual, cognitive and other types of consciousness, defines the so-called “Hard Problem” of consciousness [Chalmers; Honderich; Revonsuo and others]. Difficulty, i.e. the unsolved problem of the scientific explanation of phenomenal consciousness, again does not allow for the inclusion of contemplation in the categorical space of consciousness.

5. Conclusion

Thus, contemplation appears to be an important component of the known mental processes, states, and personality traits. A feature of the process of contemplation is its awareness by the individual as a special state, despite the fact that the object of contemplation and the very “flow” of the process are not perceived. The functional feature of contemplation is an internal, hidden processing, or correction or transformation of micro- and macro-meanings of human life. It is also important that this process of rethinking is meaningfully hidden and emotionally positive for the individual. Based on the foregoing, the process of contemplation can be qualified as spontaneous psychological self-therapy of the individual.

Acknowledgements

This article was prepared as part of a scientific project No. 19-013-00816, supported by a grant from the Russian Foundation for Basic Research, on the topic “Multidimensionality of consciousness as a problem of modern psychology: typology of approaches and design of a system of categorical spaces”.

References

- Акопов Г.В. *Психология сознания: Вопросы методологии, теории и прикладных исследований*. – М.: Изд-во «Институт психологии РАН», 2010.
- Акопов Г.В. *Созерцание в категориальной системе современной психологии: теоретические и прикладные аспекты* / Под ред. Член-корреспондента РАН, доктора психологических наук, профессора В.Ф. Петренко. – Самара: Издательство ВЕК 21. - 2014.
- Акопян Л.С., Акопов Г.В. *Эмоциональная эквипотенциальность созерцания как психического состояния // Психология психических состояний: актуальные теоретические и прикладные проблемы*. Казанский федеральный университет, 14-16 ноября 2013 г. Часть 1. Казань: Изд-во «Отечество», 2013. С. 3-8.
- Акопян Л.С. *Представления о феномене созерцания у студентов // Созерцание как современная научно-теоретическая и прикладная проблема: материалы Всероссийской конференции / под ред. Г.В. Акопова, Е.В. Бакшутовой*. Самара, 21 мая 2013 г – Самара: ПГСГА, 2013, с.144-147.
- Акопян Л.С. *Определение понятия «созерцание» и роль опыта переживания в личностном самоопределении учащихся // Личностная идентичность: вызовы современности: материалы Всерос. науч.-практ. конф. (с иностранным участием) / под ред. З.И. Рябикиной и В.В. Знакова*. – Краснодар: Кубанский гос. Ун-т, Майкоп: Адыгейский гос. ун-т; М.: Институт психологии РАН; 2014, с. 96-97.
- Рулина Т.К. *Созерцание: познание категории. Учебное пособие к спецкурсу по истории психологии / под ред Г.В. Акопова*. – Самара. ПГСГА, 2013.
- Созерцание как современная научно-теоретическая и прикладная проблема: Материалы Всероссийской конференции / под ред. Г.В. Акопова, Е.В. Бакшутовой*, Самара, 21 мая 2013 г. Самара: ПГСГА, 2013.
- Шестун Е.В., Подорожская И.А. *Созерцание в теоретическом осмыслении и практиках мистических религий / под ред. Г.В. Акопова*. – Самара: СамРУПС, 2014.
- Chalmers, D.J. (2010). *The Character of Consciousness*. New York, NY: Oxford University Press.
- Genaro, R.J. (2012). *The Consciousness Paradox: Consciousness, Concepts and Higher Order Thoughts*. Cambridge, Massachusetts: The MIT Press.
- Honderich, T. (2014). *Actual Consciousness*. Oxford, UK: Oxford University Press.
- Revonsuo, A. (2018). *Foundations of Consciousness*. New York, NY/Oxon, UK: Routledge.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA (USA): Harvard University Press.

UNDERSTANDING NEW ZEALAND ADULTS' ATTITUDES TOWARDS DIGITAL INTERVENTIONS FOR HEALTH

Holly Wilson, & Liesje Donkin

Department of Psychological Medicine, University of Auckland (New Zealand)

Abstract

E-health has transformed healthcare by improving access and reach of health services, which is now more critical than ever given the COVID-19 pandemic. One aspect of e-health is the delivery of health interventions via the internet or through smartphone apps, known as digital interventions (DI). These DI can improve physical and mental health for people, by modifying behaviour and improving illness management. Despite, the benefits of DI use remains low. One explanation for this low usage is people's attitudes towards DI. Indeed, having a positive attitude towards DI is associated with an increased likelihood of wanting to engage with DI. Therefore, people's attitudes towards digital interventions are important in understanding if people are willing to engage with them. To date, limited research exists about attitudes and much of this varies based on region and population. Along, with understanding people's attitudes it is important to understand what shapes people's attitudes towards these interventions. Therefore, this study sought to determine New Zealand (NZ) adults' attitudes towards DI and what shapes these attitudes. In order to address these questions a cross-sectional survey was used. Results indicate that NZ adults have neutral to somewhat positive attitudes to DI and their attitudes are influenced by common factors including: beliefs about accessibility of DI and the COVID-19 experience. These findings suggest that some NZ adults have a positive attitudes to DI, but overall people's attitudes needed to be addressed to ensure people are ready to use DI.

Keywords: *Digital interventions, attitudes, e-health, telehealth.*

1. Introduction

E-health has transformed healthcare, by making healthcare safer and more accessible (Eden, Burton-Jones, Scott, Staib, & Sullivan, 2018; Keasberry, Scott, Sullivan, Staib, & Ashby, 2017). Moreover, healthcare has been transformed dramatically due to the COVID-19 pandemic (Hassounah, Raheel, & Alhefzi, 2020) as healthcare delivery needed to rapidly shift to minimal face-to-face contact in a situation of unprecedented demand on resources. Thus bringing e-health to the forefront of healthcare (Hassounah et al., 2020; Isautier et al., 2020; Peine et al., 2020). As such, e-health has become a major tool in the fight against COVID-19.

One component of e-health is delivering health interventions via smartphone or internet, termed digital interventions (DI). DI transform people's health by preventing the development of disease (Oosterveen, Tzelepis, Ashton, & Hutchesson, 2017) and supporting the management (Parks et al., 2020) of health conditions. Such improvements in health are achieved by several mechanisms, including promotion of healthy behaviours (Oosterveen et al., 2017) and improving people's mental wellbeing (Linardon, Cuijpers, Carlbring, Messer, & Fuller-Tyszkiewicz, 2019). What is more, DI have been utilised in the fight against COVID-19 (Hassounah et al., 2020). For instance, Saudi Arabi has used DI throughout the pandemic to support people who were distressed (Hassounah et al., 2020). The potential of DI during COVID-19 is endless, with DI having the potential to keep people healthy, reduce the demand on already strained health recourses and help manage people's distress. Given this, it is clear that DI are now more important than ever yet people's actual use of DI is poor (Baumel, Muench, Edan, & Kane, 2019; Fleming et al., 2018).

Poor attitudes to DI are one explanation for this poor usage. Attitudes are an individual's complete appraisal of the situation or thing (Fishbein & Ajzen, 1975). Positive attitudes are associated with an increased likelihood of behaviour and behavioural intentions (Davis, 1989; Fishbein & Ajzen, 1975; McEachan, Conner, Taylor, & Lawton, 2011; Rosenstock, Strecher, & Becker, 1988). Such as in the case of DI, people with more favourable attitudes to DI are more likely to have positive intentions to use DI, and

this is supported by research (Askari, 2020; Patel et al., 2020; Wangberg, Gammon, & Spitznogle, 2007). Therefore, people's attitudes are crucial to understanding people's readiness to engage with DI.

To date, little is known about people's attitudes to DI as research has found substantial variation in people's attitudes to DI (Baumeister et al., 2015; March et al., 2018; Proudfoot et al., 2010). Moreover, there is substantial variation across countries; for instance, people in Iran have more positive attitudes to DI compared to people in Australia (Clough, Zarean, et al., 2019).

It is also essential to consider what shapes these attitudes to DI to provide insight into how people come to have these attitudes and potential avenues of modification. Several factors shape people's attitudes to DI including knowledge (Mayer et al., 2019), confidence using DI (Davis, 1989, 1993) and perceptions of accessibility (Patel et al., 2020).

To date, no studies have examined NZ adults' attitudes to DI. This gap is surprising, given COVID-19 and the NZ government is incorporating e-health technologies into healthcare delivery (Ministry of Health, 2016). So, the NZ government is likely to utilise DI, but it is unclear what NZ adults think about DI. Therefore, this study sought to understand NZ adults' attitudes to DI. Overall, there are two main purposes of this study: 1) to understand NZ adults' attitudes to DI and 2) what shapes these attitudes. In order to answer these questions, a cross sectional survey was conducted with NZ adults.

2. Method

A cross-sectional survey of NZ adults was conducted. Several recruitment methods were used, both online and offline, aiming to gain a representative sample.

2.1. Ethics approval

Ethical approval was granted by The University of Auckland Human Participants Ethics Committee.

2.2. Study sample

An ideal sample size of 400 was determined with the aim of gaining a representative sample of NZ adults. Participants were NZ citizens or residents over the age of 18. Data collection began in October 2020 and is still ongoing.

2.3. Survey procedure

The survey was completed either online or by paper and pen. The first section collected basic demographic, internet access, and health information. Questions for this section were drawn from the NZ census, previous research and in some instances were generated by the researchers. The second section collected information on people's attitudes about DI. This section determined people's exposure to DI and their current attitudes to DI. People's attitudes were measured on a series of items, drawn from previous studies (Clough, Eigeland, Madden, Rowland, & Casey, 2019; Ebert et al., 2015; Lin, Faust, Ebert, Krämer, & Baumeister, 2018; Schröder et al., 2015) and some generated by the researchers. For each item participants responded on either a 5- or 7-point Likert scale consistent with the original format of the questions. The final section, examined what shaped people's attitudes to DI. This section examined the role of factors by using items drawn from previous studies (Clough, Eigeland, et al., 2019; Ebert et al., 2015; Lin et al., 2018; Liu et al., 2015; Schröder et al., 2015) and some generated by researchers. For each item people responded on 5-point Likert scales.

2.4. Data analysis

Data analysis used SPSS version 26. Data was cleaned, by removing participants (9% n=22) who did not reach the cut-off point of 29% completion. Data was then analysed by looking at descriptive statistics and frequencies of each item. Pearson correlation analysis was used to understand how factors influenced people's attitudes.

3. Results

3.1. Sample

This preliminary analysis includes 230 participants who ranged in age from 18-86, $Mdn = 44.00$, $M = 44.08$, $SD = 17.40$. Twenty-one percent identified as male, 76% as female and <1% (1 person each) as gender-neutral and nonbinary; 88% were NZ citizens, and 12% were residents, all living in NZ. The majority (99%) of participants had access to the internet at home were frequent users of the internet with 78% using the internet five or more times daily and 70% spending more than 60 minutes on the internet daily. In addition, 96% had an internet-capable phone, 3% did not and <1% were unsure.

3.2. NZ adult’s attitudes to DI

In order to determine people’s attitudes, each item was examined individually to indicate people’s attitudes. As seen in Figure 1., NZ adults had neutral to somewhat positive attitudes to DI for mental and physical health. The majority of NZ adults reported neutral attitudes to each item, with more people being positive than negative views, indicating that NZ adults have somewhat positive attitudes to DI.

3.3. How factors shape people’s attitudes toward DI

To examine the effect of factors supported by the literature on people’s attitudes Pearson’s correlations were conducted. As seen in table 1, several factors were significantly correlated with people’s attitudes. Specifically, having greater knowledge, higher confidence using and higher perceived value of the accessibility of DI were associated with weak to moderate positive or negative correlations with people’s attitudes. Also, people’s experience with COVID-19 influenced their attitudes to DI. More specifically, 41% of participants reported that were more likely to use a DI as a result of COVID-19 and 5% less likely to use DI. Fifty-four per cent reporting no change in intentions to use DI, due to their experience of COVID-19.

4. Discussion

The purpose of this study was to understand NZ adults’ attitudes to DI and what shapes these attitudes. Based on the findings of this study, NZ adults appear to have neutral to somewhat positive attitudes to DI. Moreover, people’s knowledge, confidence, perceptions of accessibility, and experience with COVID-19 have shaped these attitudes to DI. This finding suggests that the people of NZ are somewhat ready to engage with DI, but that there may need to be work to improve people’s attitudes towards DI.

This study fits with previous research which shows that people’s knowledge (Mayer et al., 2019), confidence using DI (Davis, 1989, 1993), perceptions of accessibility (Patel et al., 2020) of DI shape people’s attitudes to DI. This study adds to this literature by demonstrating that people’s experience with COVID-19 also, shapes people’s attitudes to DI. Perhaps, people’s experience with COVID has increased their exposure to DI, which results in more positive attitudes to DI.

One limitation of this study is the sample it is not representative of NZ adults. The study sample is predominantly female, highly educated and have internet access, which does not accurately provide a representative sample of NZ adults. Therefore, this study may not actually reflect NZ adults’ attitudes to DI, but rather those that are willing to participate in research.

The findings of this study have important implications. Practically, this study suggests that NZ adults are somewhat ready to engage with DI. These DI could be used in NZ to help aid the fight against COVID-19, with people being somewhat ready to engage with these interventions. In addition, this study highlights key factors that contribute to people’s attitudes, which could be used to improve people’s attitudes. Future, research could look at the effect of manipulating these factors on people’s attitudes. Theoretically, this study further expands the understanding of what shapes people’s attitudes by outlining the importance of people’s experience with COVID-19.

Overall, this study demonstrates that NZ adults have somewhat positive attitudes to DI, suggesting that NZ adults are somewhat ready to engage with DI. Further, this study outlines that people’s knowledge, perception of effectiveness, accessibility, confidence using DI and experience with COVID-19 shape people’s attitudes to DI.

Figure 1. Mean attitude score for attitude items. Error bars represent standard deviation.

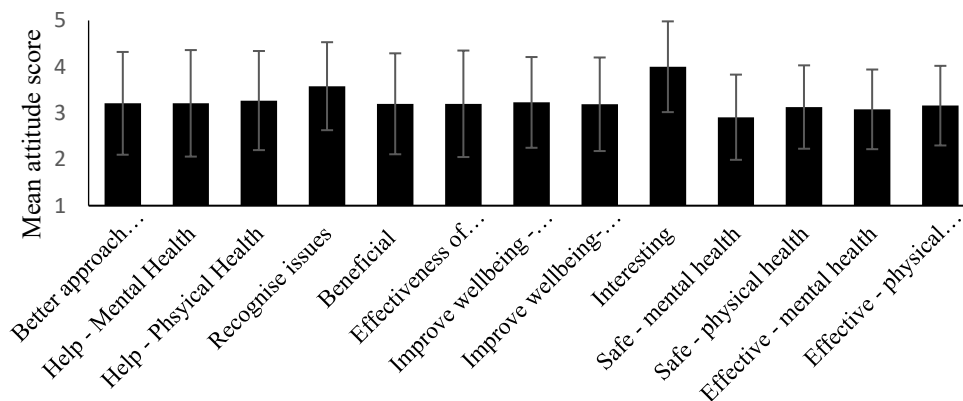


Table 1. Persons correlations between attitude measures and factors which shape these attitudes.

| Factor | Item | Attitude Measures | | | | | | | | |
|---------------------|--------------------------|----------------------|----------|-----------------|----------|-------------------------------|----------|-----------------|----------|--|
| | | Receive help from DI | | | | Believe that DI are effective | | | | |
| | | Mental Health | | Physical Health | | Mental Health | | Physical Health | | |
| | | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | |
| Knowledge | Mental Health | | | | | | | | | |
| | Physical Health | 0.283 | <.001 | 0.15 | <.05 | 0.233 | <.001 | 0.183 | <.05 | |
| | | 0.249 | <.001 | 0.327 | <.001 | 0.297 | <.001 | 0.316 | <.001 | |
| Internet Confidence | Find DI easy to use | 0.403 | <.001 | 0.309 | <.001 | 0.407 | <.001 | 0.321 | <.001 | |
| | Using DI would be simple | 0.37 | <.001 | 0.266 | <.001 | 0.345 | <.001 | 0.278 | <.001 | |
| Accessibility | Complete in own time | 0.371 | <.001 | 0.329 | <.001 | 0.366 | <.001 | 0.427 | <.001 | |
| | Value the privacy | 0.371 | <.001 | 0.329 | <.001 | 0.366 | <.001 | 0.427 | <.001 | |
| | | 0.33 | <.001 | 0.352 | <.001 | 0.448 | <.001 | 0.484 | <.001 | |

References

- Askari, M., Klaver, N. S., van Gestel, T. J., Klundert, J. V. D. (2020). Intention to use medical apps among older adults in the Netherlands: Cross-sectional study. . *Journal of Medical Internet Research*, *22*, e18080. doi:10.10.2196/18080
- Baumeister, H., Seiffert, H., Lin, J., Nowoczin, L., Lüking, M., & Ebert, D. (2015). Impact of an acceptance facilitating intervention on patients' acceptance of internet-based pain interventions: A randomized controlled trial. *The Clinical Journal of Pain*, *31*, 528 - 535 doi:10.1097/AJP.000000000000118
- Baumel, A., Muench, F., Edan, S., & Kane, J. M. (2019). Objective user engagement with mental health apps: systematic search and panel-based usage analysis. *Journal of Internet Research*, *21*, e14567. doi:10.21996/14567
- Clough, B. A., Eigeland, J. A., Madden, I. R., Rowland, D., & Casey, L. M. (2019). Development of the eTAP: a brief measure of attitudes and process in e-intentions for mental health. *Internet Interventions*, *18*, 100256. doi:10.1016/j.invent.2019.100256
- Clough, B. A., Zarean, M., Ruane, I., Mateo, N. J., Aliyeva, T. A., & Casey, L. M. (2019). Going global: do consumer preferences, attitudes, and barriers to using e-mental health services differ across countries? *Journal of Mental Health*, *28*, 17-25. doi:10.1080/09638237.2017.1370639
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS Quarterly*, *13*, 319 - 339
- Davis, F. D. (1993). User acceptance of information technology: system characteristics, user perceptions and behavioural impacts. *International Journal Man-Machine Studies*, *38*, 465 - 487
- Ebert, D. D., Berking, M., Cuijpers, P., Lehr, D., Pörtner, M., & Baumeister, H. (2015). Increasing the acceptance of internet-based mental health interventions in primary care patients with depressive symptoms. A randomized controlled trial. *Journal of Affective Disorders* *176* 9-17 doi:10.1016/j.jad.2015.01.056
- Eden, R., Burton-Jones, A., Scott, I., Staib, A., & Sullivan, C. (2018). Effects of eHealth on hospital practice: synthesis of the current literature. *Australian Health Review*, *42*, 568-578. doi:10.1071/AH17255
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*: Reading Mass: Addison Wesley Publishing Company.
- Fleming, T., Bavin, L., Lucassen, M., Stasiak, K., Hopkins, S., & Merry, S. (2018). Beyond the trial: Systematic review of real-world uptake and engagement with digital self-help interventions for depression, low mood, or anxiety. *Journal of Medical Internet Research*, *20*, e199. doi:10.2196/jmir.9275
- Hassounah, M., Raheel, H., & Alhefzi, M. (2020). Digital response during the COVID-19 pandemic in Saudi Arabia. *Journal of Medical Internet Research*, *22*, e19338. doi:10.2196/19338

- Isautier, J. M. J., Copp, T., Ayre, J., Cvejic, E., Meyerowitz-Katz, G., Batcup, C., ... McCaffery, K. J. (2020). People's experiences and satisfaction with telehealth during the COVID-19 pandemic in Australia: Cross-sectional survey study. *Journal of Medical Internet Research*, *22*, e24351. doi:10.2196/24531
- Keasberry, J., Scott, I. A., Sullivan, C., Staib, A., & Ashby, R. (2017). Going digital: a narrative overview of the clinical and organisational impacts of eHealth technologies in hospital practice. *Australian Health Review*, *41*, 646-664. doi:10.1071/AHI6233
- Lin, J., Faust, B., Ebert, D. D., Krämer, L., & Baumeister, H. (2018). A web-based acceptance-facilitating intervention for identifying patients' acceptance, uptake and adherence of internet-and mobile-based pain interventions: randomized controlled trial. *Journal of Medical Internet Research*, *20*, e244. doi:10.2196/jmir.9925
- Linardon, J., Cuijpers, P., Carlbring, P., Messer, M., & Fuller-Tyszkiewicz, M. (2019). The efficacy of app-supported smartphone interventions for mental health problems: a meta-analysis of randomized controlled trials. *World Psychiatry*, *18*, 325-336.
- Liu, L., Cruz, A. M., Rincon, A. R., Buttar, V., Ranson, Q., & Goertzen, D. (2015). What factors determine therapists' acceptance of new technologies for rehabilitation—a study using the Unified Theory of Acceptance and Use of Technology (UTAUT). *Disability and Rehabilitation*, *37*, 447-455. doi:10.3109/09638288.2014.0923529
- March, S., Day, J., Ritchie, G., Rowe, A., Gough, J., Hall, T., . . . Ireland, M. (2018). Attitudes towards e-Mental health services in a community sample of adults: online survey. *Journal of Medical Internet Research*, *20* e59. doi:10.2196/jmir.9109
- Mayer, G., Gronewold, N., Alvarea, S., Burns, B., Hilbel, T., & Schultz, J. (2019). Acceptance and expectations of medical experts, students, and patients toward electronic mental health apps: cross-sectional quantitative and qualitative survey study. *JMIR mental health*, *6* e14018. doi:10.2196/14018
- McEachan, R. R. C., Conner, M., Taylor, N. J., & Lawton, R. J. (2011). Prospective prediction of health-related behaviours with the theory of planned behaviour: a meta-analysis. *Health Psychology Review*, *5*, 97-144. doi:10.1080/17437199.2010.521684
- Ministry of Health. (2016). *New Zealand Health Strategy: Future direction*. Retrieved from Wellington:
- Oosterveen, E., Tzelepis, F., Ashton, L., & Hutchesson, M. J. (2017). A systematic review of eHealth behavioral interventions targeting smoking, nutrition, alcohol, physical activity and/or obesity for young adults. *Preventive Medicine*, *99*, 197-206. doi:10.1016/j.ypmed.2017.01.009
- Parks, A. C., Williams, A. L., Kackloudis, G. M., Stafford, J. L., Boucher, E. M., & Honomichl, R. D. (2020). The effects of a digital well-being intervention on patients with chronic conditions: observational study. *Journal of Medical Internet Research*, *22*, e16211. doi:10.2196/16211
- Patel, S., Akhtar, A., Malins, S., Wright, N., Rowley, E., Young, E., ... Morriss, R. (2020). The acceptability and usability of digital health interventions for adults with depression, anxiety, and somatoform disorders: qualitative systematic review and meta-synthesis. *Journal of Medical Internet Research*, *22*, e16228. doi:10.2196/16228
- Peine, A., Paffenholz, P., Martin, L., Dohmen, S., Matx, G., & Loosen, S. H. (2020). Telemedicine in Germany during the COVID-19 pandemic: multi-professional national survey. *Journal of Medical Internet Research*, *22*, e19745. doi:10.2196/19745
- Proudfoot, J., Parker, G., Pavlovic, D. H., Manicavasagar, V., Adler, E., & Whitton, A. (2010). Community attitudes to the appropriation of mobile phones for monitoring and managing depression, anxiety and stress *Journal of Medical Internet Research*, *12*, e64. doi:10.2196/jmir.1475
- Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1988). Social learning theory and the health belief model. *Health Education Quarterly*, *15*, 175-183
- Schröder, J., Sautier, L., Kiriston, L., Berger, T., Meyer, B., Späth, C., ... Motritz, S. (2015). Development of a questionnaire measuring attitudes towards psychological online interventions-the APOI. *Journal of Affective Disorders*, *187*, 136-141. doi:10.1016/j.jad.2015.08.044
- Wangberg, S. C., Gammon, D., & Spitznogle, K. (2007). In the eyes of the beholder: exploring psychologists' attitudes towards and use of e-therapy in Norway. *Cyberpsychology and behavior*, *10*, 418-423. doi:10.1089/cpb.2006.9937

THE ROLE OF MUSIC IN PSYCHOLOGICAL AND EMOTIONAL DEVELOPMENT

Shveeta Mishra¹, & Ina Shastri²

¹Music Therapist, Music Psychologist & Research Supervisor, Banasthali Vidyapith, Rajasthan (India)

²Head of Department of Music, Banasthali Vidyapith (University), Rajasthan (India)

Abstract

It is widely believed that a truly “whole” person is one whose intellectual and emotional responses are normally developed; yet our patterns in education tend to stress the intellectual and ignore the emotional. The arts, because of their emotional demands, make for a stronger bond between persons who can share in the art experience. This is especially so of music which has long been termed the universal tongue. It is a form of communication in which every human being can participate. Many studies have shown that it is not by accident that we find minimal behaviour problems among the students who are involved with music study. It is now believed that the child who becomes involved in expressing himself/herself through the media of music takes on new dimensions in his or her psychological, behavioural and sociological relationships. It is this paper, we shall draw upon the experiences of music educationists from various countries, and as a consequence, it is reaffirmed that for a holistic and balanced development of students personalities music study should be mandatory in school curricula.

Keywords: *Art, communication, emotional development, music, musical development, personality, psychological development, psychology of music.*

1. Introduction

A programme of music rests on the assumption that if members of society are to achieve a sense of dignity and worth they must have access to a variety of forms of cultural expression. Psychological appraisal of the field of music emphasise the importance of artistic expression and validate its importance for the development of the whole human being. A truly whole person is one whose intellectual and emotional responses are normally developed. It is the duty of the educators, therefore to develop the entire range of human capabilities. Yet, our patterns in education tend to stress the intellectual and ignore the emotional.

The arts because of their emotional demands, make for a stronger bond between persons who can share in the art experience. This is specially so of music which has long been termed the universal tongue. It is a form of communication in which every human being can participate. It follows that music educators have the responsibility to make their students capable of sharing to the highest degree in this art form, and music should enter the educational scene.

2. Music and psychological and emotional development

Many studies have shown that it is not by accident that we find minimal behaviour problems among the students who are involved with music study. It is now believed that the child who becomes involved in expressing himself through the media of music takes on a new dimension in his or her behavioural and sociological relationships. It would appear that the creativity which is latent in the human being brings out a deeper sense of responsibility and therefore a better introspective understanding of the student.

The re emphasise the importance of music in the all around development we shall draw upon the experiences of various music educators in different social, political and economical contexts.

3. Experiences from across the globe

In this section we draw upon the experiences of various music educators from countries as diverse as Soviet Union, Hungary, Germany, Canada, Britain, USA.

Soviet Union - About 90 years ago when asked by a critic what he thought about the future of music education in Russia, P.I. Tchaikovsky said: Schools must be started in our capital cities and towns. The purpose of these schools would be to train young people for the conservatoire. Choir singing should spread and become a fixture in all the primary schools of our land. To the next question - "Can all this be accomplished by private initiative alone?" - Tchaikovsky replied: Hardly. It would be the greatest blessing for Russian art if the government assumed patronage over all its branches; only the government has the means, strength and power needed for this great undertaking.

Tchaikovsky's wish came true only after the Great October Socialist Revolution. And not at all because the young Soviet Government had more means, strength and power than the house of Romans of which had pompously celebrated its tercentenary shortly before the revolution. On the contrary we know what tremendous hardships confronted the young Soviet Republic from the first day of its existence.

In 1918 when Soviet Union was in the stranglehold of foreign intervention, counter revolution, hunger, cold economic dislocation and epidemics when the country's very life seemed to hang by a hair, the Soviet Government adopted a number of decrees in full measure to professional and mass music education.

With the very first decree on general schools, music and the fine arts were included in the curriculum as compulsory subjects for all school children from the first from up. The task of providing all pupils with an aesthetic education was made the responsibility of schools supplying a general education.

there can be no doubt that this task would have been accomplished by now, were it not for the great losses inflicted upon in all fields of life by the last war. Alas, these losses were too heavy, and after the war much has to be begun from scratch. In the Soviet Union today there are close to a quarter of a million secondary schools and providing them with all the necessary equipment and most important of all with able and gifted teachers, is indeed a formidable task.

But these difficulties differ essentially from the difficulties of those countries where the responsibility for providing a general musical education has not yet been assumed by the state. Enormous efforts are already directed towards implementing with the utmost efficiency the very clear cut state programme.

3.1. Hungary

Let us remember the eminent composer and teacher, Zoltan Kodaly whose chosen path deserves our deep respect. All his life he fought for a general music education for the Hungarian people, but it was only after Hungary was set free in 1945 that he was able to implement his educational ideas.

Let us take a good look at the position of music education in some of the greatest countries of the world whose governments have the means strength and power but do not express the interests of the people. Their teachers are still only dreaming of general music education for all.

So there you are- all the evidence goes to show that this is not the matter of means strength and power. For a government to provide education including music education for the entire population it must be a government of the people embodying, promoting and wholeheartedly serving the interests of the people.

3.2. Germany

The aims and objective of music education in the schools in Federal Republic of Germany are as follows:

1. Show the way to the understanding of music for each child
2. Prepare young people to find their bearings in the world of music that will surround them in later life
3. Introduce music to the pupils as an art in its own right
4. Be the basis of a general musical culture i.e. one that embraces the whole population

GDR

Though the country lost its existence due to German reunification the experiences of the erstwhile East Germany are noteworthy as it highlights the significance of music as perceived in the socialistic thought.

In a socialist society, steadily raising the cultural level of the people as a whole is one of the most important components of the development of the society. The character and pace of social progress, whether it is in terms of the technological revolution or of the people's notions, depends to a considerable degree on

the way their process; the one decisive factor is the future development of our national culture, which a now really be said to belong to the people as a whole.

This article of the constitution is devoted to defining the character of the personality in a socialist society. The main trait of this character is a deeply humanist conception of man as the active, creative maker of his life, man who can overcome the constantly increasing demands on him of the scientific technological revolution combined with the demands of the socialist cultural revolution and at the same time be able to affirm himself as a self-conscious personality. This kind of man is a justification of the fundamental claim of our socialist society to educate the personality. This view of man is relevant not only in terms of educating the individual today, but also in terms of the characteristics and qualities common and innate to all men, which will be just as much part of human being of the third millennium as of our contemporaries. And so, when we speak of the problems of education, the most important thing for us is to aim for all man's infinite capabilities: the development of the individual in its totality and universality (Karl Marx).

The educational system of GDR was designed precisely to this end. It aims at the knowledge of the mother tongue, of mathematics, of the natural and social sciences, technology, of foreign languages, physical training and the different arts. Spiritual, technical, physical and aesthetic development are combined into one streamlined system.

This is why we do not today regard instilling an aesthetic sense into the growing generation as an educational luxury which we can allow ourselves only when we have seen other, more basic, educational needs. On the contrary, if this irreplaceable sphere of aesthetic education were neglected, we could no longer speak of our educational system as fostering all-round development. We take as our starting position the view that in the years to come no spiritual moral or ethical teaching could exist without corresponding aesthetic instruction and vice versa.

The task of art is of course to develop our awareness of beauty and stimulate the positive sides of the man's character and his creative powers. That is why within the educational system of the GDR music education is closely connected with aesthetic education. A formative emotional awareness of the strength of music can be an exceptionally important factor in the making of an individual, for it is music that brings out in man a wide range of feelings and thoughts and lends wings to his mind.

The moulding of the individual cannot be left to simplify a rational education. It must also contribute to the development of human emotions and develop a breadth of feelings as the expression of, and a creative element of man's practical and psychological attitudes, and it must bring out an equilibrium between his feelings, thoughts and actions. Thanks to the fact that it acts in a specifically emotional manner, music is the art which really can create a oneness of human awareness and human behaviour. Lenin shows us the scale of this problem when he says that without human feelings man would never have sought truth and that there can never be such search in the future either. And so it is in music education that great stress must be laid on the activating of man's emotional strength and the awakening of his intellectual and moral resources.

3.3. Canada

G. Little spoke of the reorganisation of the music education system that was undertaken in accordance with recommendations of the commission of inquiry into the Teaching of the Arts in Quebec, headed by Marcel Rioux. The Commission's aim was to study the state of affairs in art education and to work out proposals for its improvement. G Little said that under conditions of the new open culture education as a whole is a system of mutual exchanges established between teacher and pupil with the aim of developing and forming the pupil and art education is a general social phenomenon a component part of general education not a luxury or something extraneous designed for the elite.

Art is more a subject of character development than of education. Art education is fundamental personality development and not simply the transmission of certain techniques. The aim of this education is to promote the development of creative abilities, emotionality of perception, and social consciousness through aesthetic experience. Thus, there arises the need for a two-sided orientation in art education the pre-professional and the non-professional that is it is both a question of teaching art (teaching specific techniques and conveying knowledge) and of teaching through art, that is of developing the human personality with the help of art. The isolation of the arts disciplines from the rest of education is being broken down. In particular music is ceasing to be a special separate world.

To avoid replacing one rigid system with another and to ensure open pedagogy as much as possible programme plans instead of programme catalogue are proposed. It is recommended that these programmes be reviewed every five years. G. Little then spoke of the organisation of art and in particular music education in Quebec according to the principles worked out in the report of M. Rioux's Commission.

All children receive music education beginning from the preschool period until the end of the first cycle of secondary school that is from 5 to 14 years old. At the preschool age at least half of the lessons scheduled are devoted to various kinds of art activity: rhythmic, theatrical games, imitative arts and

music. In primary grades no less than seven hours a week are devoted to art education, including half an hour a day to music. A teacher that has no special training in this area is aided greatly by records and radio and television programmes organised by the Ministry of Education's technical teaching aids services.

In secondary school the following art forms are offered: music, fine arts, theatre, photography and as far as possible radio television and the cinema, dancing and rhythmic. At the beginning of this stage music studies are compulsory (three hours a week) Later they are elective: The pupil may choose from among the forms of art activity he had been previously engaged in and go through a higher level course offering pre professional training. On the college and university level, the weekly programme of every student must include one or another art discipline.

The commission's report also provides for teacher training and upgrading: every teacher no matter what field he specialises in, receives a basic art education. On the other hand, teachers specialising in art must have a fundamental knowledge of other disciplines.

Thanks to an open and flexible system, the report says that art education will embrace all children without exception. Children and youth will acquire more than knowledge and experience in the field of art: art will help them to develop their personality, to take their place in today's world and take part in building the future.

In the case of any radical change, obstacles inevitably arise, but despite such obstacles, the reform is being successfully implemented through the efforts of many accomplished and dedicated music teachers. We are moving towards the future along the irreversible path of progress; this path is inevitably leading us to an open society in which the information media are turning the entire human experience, including music into a universal social phenomenon.

3.4. Britain

D. Hamilton, based on his own experience as a music teacher in using contemporary music, points out that he makes considerable use of contemporary music in teaching even the youngest and most elementary pupils while most of his fellow teachers insist that children like nothing better than a decent melody and a tune they can sing. He thinks that it would be almost impossible to explain to such people that his pupils old and young do not suffer pain from continual discrepancies that their appreciation of a melody, is frequently heightened not inhibited by harmony unknown to Hummel and Czerny; that regular bar lines are perhaps not a prerequisite of rhythmic well being.

D. Hamilton is sure that the young will accept modern music if it is seen to be really accepted by their teachers. He emphasises that it is no use to merely resent a child with an occasional piece in contemporary style, one has to be enthused about its structure, its harmony, its economy not only its novelty and to lead a novice into another branch of music. He feels it is necessary to define the term modern music and he underlines that it cannot mean any music written within the last two decades He is of the opinion that modern music can include music written since about 1920 and which employs harmony rhythm or structure which differ radically from that used in the nineteenth century. There is modern romantic music modern sophisticated music modern uncompromising music. There is above all a wealth of small pieces based on folk song or folk dance in which simple melodies are made exquisite by the addition of a counter melody suggesting remote harmony or are made vital by expected often syncopated rhythms.

Speaking about music for beginners which was written during this century by composers of great ability such as Bartok, Bennett Ibert Kabalevsky, Lutoslawski, Prokofiev and many others, D. Hamilton stresses that the music is not only easy but it is of high quality, and it impresses beginners as real music not merely as learners music.

Many teachers wrongly introduce their pupils to modern music when they are no longer beginners, and have acquired a little knowledge of traditional harmony. At the age of 12 or 13 and after playing for 3 or 4 years children begin to feel that they know what music is all about and are often resentful towards a new kind of music. Antagonism is almost certain to be engendered towards composers who not only break all the rules, but who seem to make up a new set of rules for every piece and this antagonism may last for a lifetime.

From his point of view a great advantage is that young people who are reared in 20th century music tend to be less dogmatic in their preferences, their ability to criticise objectively rarely being impaired by the strangeness of new sounds. Meanwhile those who are brought up entirely on music based on the major/minor key system have great difficulty in appreciating the vast amount of music written before that system appeared or after it had been superseded.

4. The Indian experiences

The experiences about the power of music from the world over continue to baffle. Its influence often is far beyond the domain of emotions. A recent study has shown that elderly people with dementia

answered. questions about their personal history better when there was music playing in the background than when it was quiet. Whether the music was familiar or new didn't seem to matter. The music probably aroused the participant and helped them focus. Music is increasingly being used for treatment as it has a simultaneous calming and energising effect. Our system of Mathematics teaching at elementary school level through rhymes has attracted the attention of the entire world for its effectiveness.

5. Conclusion

Despite all this, a review of the courses of study, which a student of music takes for general academic training, shows that now the subject of music is peripheral. It doesn't enjoy the same level of intensive teaching as the other courses. Even the best of educators do not regard the study of music as a vital and integral part of a student's development. It is as if they are bent in developing all the intellectual resources of the student and are not cognisant of the crippling emotional limitations of an education that is devoid of music. Besides youth must be prepared to have identification with his fellows on a global basis.

He/she must find areas in human relations that will associate him/her with peoples of all countries. Notwithstanding the varied culture of the world, people do find a common denominator through the expression of music. Music can prepare youth for this kind of reciprocal understanding.

To achieve this is not an easy task. It requires dedicated mature musicians to evolve a musical environment where the student expands in a positive manner. It requires a course of study in which the student is an active participant in musical expression. Passive techniques have little impact. Sitting and listening to music must not become the basic technique for music studies. The excitement of doing the reward of an accomplished performance and the equally important reward of listening with a depth of understanding.

The foremost factor is the role of parental influence because it can spell success or failure in a student's music education. Too often the parents dispose of what they believe is their parental obligation by allowing the child to study music but then completely abrogate their responsibilities by permitting the child discontinue studying music if she is so inclined. In good measure the parental attitude is a reflection of their own limited understanding of music and its influence on a child's development.

It is important to seek techniques whereby a child's affiliation with music is serious in nature - profound in depth and dedicated to make the child a total human being. By making music study an extracurricular activity is a denial of serious educational principals that music study should be mandatory in school curricula, that the student's school day should include time for instrumental and theoretical training in music.

References

- Mishra, S. (2019). *Musically Inclined Personality and Behaviour – The Unknown Connection*. Chennai, Notion Press, 2019.
- Misra, S. and Shastri, I. (2014). Paper published in *International Journal of Research and Scientific Innovation (IJRSI)* titled: Empirical Study: Impact of Music on Personality and Behaviour of Children: ISSN: 2321-2705.
- Misra, S. and Shastri, I. (2014). Paper published in *Asian Journal of Multidisciplinary Studies* titled: The Role of Music in Psychological and Emotional Development: ISSN: 2321-8819
- Misra, S. and Shastri, I. (2014). Paper published in *Journal of International Academic Research for Multidisciplinary (JIARM)* titled: Reflection of Music on the Personality from Infancy to Childhood: ISSN: 2320 -5083
- Misra, S. and Shastri, I. (2016). Perceptual Experience and Auditory Inclination of Music According to the Sexuality. *Psychology and Behavioral Sciences*. Vol. 5, No., 2016, pp-7-11. Doi: 10.11648/j.pbs.20160501.12

PERCEPTIONS PERTAINING TO STIGMA AND DISCRIMINATION ABOUT DEPRESSION: A FOCUS GROUP STUDY OF PRIMARY CARE STAFF

Ayesha Aziz¹, & Nashi Khan²

¹Centre for Clinical Psychology, University of the Punjab, Lahore (Pakistan)

² Prof. Dr., Project Director, RLMC, Dean FSSH, Rashid Latif Medical Complex (RLMC), Lahore (Pakistan)

Abstract

The present study was conducted to explore the perception and views of primary care staff about Depression related Stigma and Discrimination. The Basic Qualitative Research Design was employed and an In-Depth Semi-Structured Discussion Guide consisted of 7 question was developed on the domains of Pryor and Reeder Model of Stigma and Discrimination such as Self-Stigma, Stigma by Association, Structural Stigma and Institutional Stigma, to investigate the phenomenon. Initially, Field Test and Pilot study were conducted to evaluate the relevance and effectiveness of Focus Group Discussion Guide in relation to phenomena under investigation. The suggestions were incorporated in the final Discussion Guide and Focus Group was employed as a data collection measure for the conduction of the main study. A purposive sampling was employed to selected a sample of Primary Care Staff (Psychiatrists, Medical Officers, Clinical Psychologists and Psychiatric Nurses) to elicit the meaningful information. The participants were recruited from the Department of Psychiatry of Pakistan Medical and Dental Council (PMDC) recognized Private and Public Sector hospitals of Lahore, having experience of 3 years or more in dealing with patients diagnosed with Depression. However, for Medical Officers, the experience was restricted to less than one year based on their rotation. To maintain equal voices in the Focus Group, 12 participants were approached (3 Psychiatrist, 3 Clinical Psychologists, 3 Medical Officers and 3 Psychiatric Nurses) but total 8 participants (2 Psychiatrists, 2 Medical Officers, 3 Clinical Psychologists And 1 Psychiatric Nurse) participated in the Focus Group. The Focus Group was conducted with the help of Assistant Moderator, for an approximate duration of 90 minutes at the setting according to the ease of the participants. Further, it was audio recorded and transcribed for the analysis. The Braun and Clarke Reflexive Thematic Analysis was diligently followed through a series of six steps such as Familiarization with the Data, Coding, Generating Initial Themes, Reviewing Themes, Defining and Naming Themes. The findings highlighted two main themes i.e., Determining Factors of Mental Health Disparity and Improving Treatment Regimen: Making Consultancy Meaningful. The first theme was centered upon three subthemes such as Lack of Mental Health Literacy, Detached Attachment and Components of Stigma and Discrimination. The second theme included Establishing Contact and Providing Psychoeducation as a subtheme. The results manifested the need for awareness-based Stigma reduction intervention for Primary Care Staff aims to provide training in Psychoeducation and normalization to reduce Depression related Stigma and Discrimination among patients diagnosed with Depression.

Keywords: *Stigma and discrimination, depression, primary care staff, mental health literacy, detached attachment.*

1. Introduction

Among psychological disorders, Depression is a debilitating mood disorder causing major burden of disease with a worldwide prevalence estimated at 4.4% and 22% to 60% in Pakistan alone (Ahmed et al., 2016; Charara et al., 2017). Mascayano et al. (2016) and Pescosolido et al. (2013) concluded that the high rates of Depression can be attributed to the factors like Stigma and Discrimination, which is even experienced in health settings too, for example, being provided with insufficient information to the patients, being regarded as lacking the capacity for responsible action, and being patronized or humiliated. Even though, Stigma attached to Depression is to certain extent, less severe than other mental health problems like Schizophrenia, HIV or Tuberculosis, yet, high prevalence of Depression makes addressing Depression related Stigma and Discrimination is an important public health concern in Pakistan (Peluso & Blay, 2009). Therefore, this study was designed to conduct a situational analysis to explore the social and cultural dynamics of Stigma and Discrimination about

Depression in local context from the perspective of the Primary Care Staff to address the emerging needs of health-care problems of the country i.e., Depression related Stigma and Discrimination to promote the health and well-being of individuals diagnosed with Depression.

2. Objective

This research aimed to investigate Primary Care Staff perspective, opinions and views about Depression related Stigma and Discrimination about the people diagnosed with the Depression.

3. Qualitative inquiry

The Basic Qualitative Research has been employed in the current study (Merriam, 2009), having overtones with Epistemology i.e., the construction of the reality (Creswell, 2013). This approach is based on Social Constructivism, aimed to elicit a rich description of the phenomenon under investigation. The Epistemological approach (Moustakas, 1994) was framed in a central research question as follows:

- What are the opinions and views of the Primary Care Staff about people suffering from Depression about experienced Depression related Stigma and Discrimination?

4. Method

4.1. Sample

A sample of (n=8) Primary Care Staff i.e., Psychiatrists, Medical Officers, Clinical Psychologists and Psychiatric Nurses were selected from Pakistan Medical and Dental Council (PMDC) recognized Private and Public Sector hospitals and Fountain House, Lahore. Only those participants were recruited who had experience of 3 years or more in dealing with patients suffering from Depression. The General Physicians and Homeopathic were excluded. The details of the sample are given below:

Table 1. Demographic Characteristic of Study Participants (n=8).

| Sr. No | Age | Gender | Education | Occupation | Income | Hospital Setting | Job Experience |
|--------|----------|--------|------------------------------|-----------------------|-------------|--------------------|----------------|
| 1 | 55 years | Male | MBBS and FCPS | Psychiatrist | 1 lac above | Private and Public | 28 years |
| 2. | 59 years | female | MBBS and DPM | Psychiatrist | 1 lac above | Private | 6 years |
| 3. | 28 years | female | MBBS | Medical Officer | 50 thousand | Private | 3 years |
| 4. | 28 years | female | MBBS | Medical Officer | 50 thousand | Private | 3 years |
| 5. | 59 years | female | Ph. D in Clinical Psychology | Clinical Psychologist | 1 lac above | Public Sector | 33 years |
| 6. | 58 years | Female | Ph. D in Clinical Psychology | Clinical Psychologist | 1 lac above | Public Sector | 32 years |
| 7. | 33 years | male | MS in Clinical Psychology | Clinical Psychologist | 1 lac above | Public Sector | 10 years |
| 8. | 60 years | Male | F. Sc. | Male attendant | 15000 | Private | 3 years |

4.2. Procedure

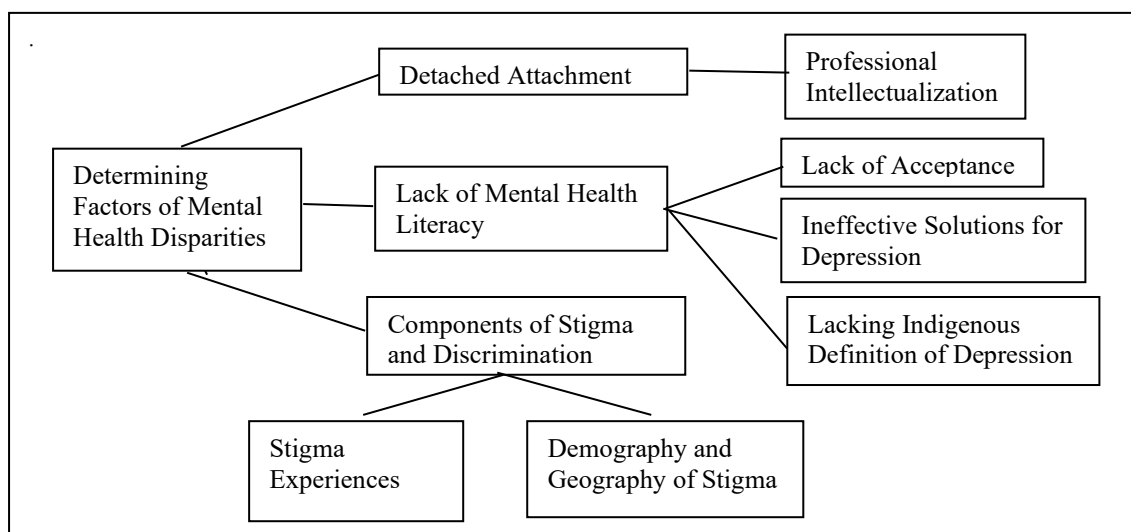
The procedure was consisted of three interdependent activities such as Field Test, Pilot Study and the Main Study. Initially, permission was sought for data collection from relevant authorities. The field tests were conducted to improve Focus Group Discussion Guide (Giorgi, 1998; Merriam, 2009); Ismail et al., 2017). Then, Pilot study was conducted to refine the research methodology before conducting main study (Ismail et al., 2017). For conducting main study, an appropriate location according to the mutual accessibility of the participants, adequate parking and near to public transport was decided. For Assistant Moderator, a Clinical Psychologist was hired, who was a Research Assistant in local university by profession and had a prior experience of conducting Focus Group with different

Professionals (Hampson, et al., 2020). The focus group was conducted for approximately 90 minutes and commenced through introduction, explaining ground rules and exploring the Focus Group Discussion Guide, consisted of 7 open-ended questions, developed on the basis of Pryor and Reeder Model of Stigma and Discrimination (2011). Filed notes were taken in a section reserved for notes in the Focus Group Discussion Guide. The data was managed through source ID, data labels, in a separate folder. The data was transcribed based on the recommendations of Kvale and Brinkmann (2009); Oliver et al. (2005); Davidson (2009); and the transcriptions were verified by two pass verification method (Hagens et al., 2009; Davidson, 2009).

4.3. Results

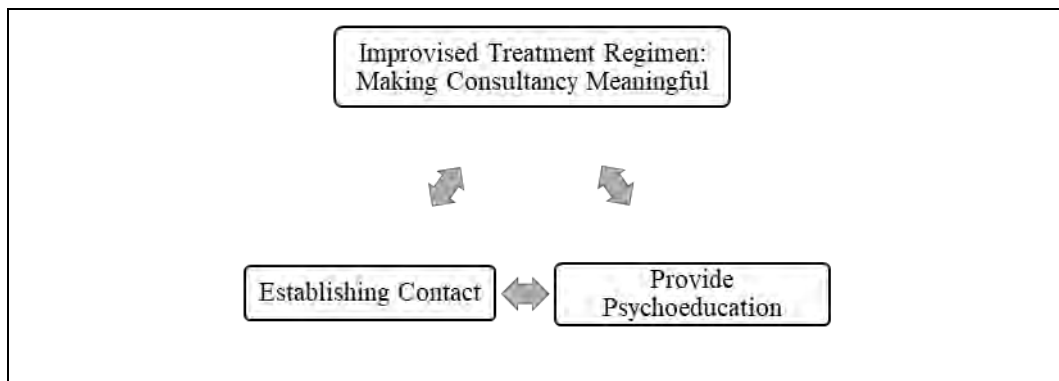
The Reflexive Thematic Analysis was employed and each step was diligently followed such as Familiarization with the Data, Coding, Generating Initial Themes, Reviewing Themes, Defining and Naming Themes. The findings indicated two main themes i.e., Determining Factors of Mental Health Disparity and Improving Treatment Regimen: Making Consultancy Meaningful. The depiction of theme 1 is as follows:

Figure 1. Thematic Map 1.



The first theme centered upon exploring factors i.e., determining mental health disparities among people diagnosed with Depression. The Focus Group participants shared that people diagnosed with Depression experienced detached attachment with primary care staff. The Professionals related this perception to professional intellectualization and believed that the Professional maturity required the primary care staff to respond to the patient objectively i.e., through mental disengagement while physically involving at the same time. Further, this theme was further organized into two subthemes as lack of mental health literacy and components of Stigma and Discrimination. According to their perspective, initially, majority of the participants suffered from physical symptoms but due to lack of knowledge about the true nature of their disorder, these symptoms were considered as a routine muscular problem in most of the cases. The Professionals believed that the reason behind it was that Pakistani culture was lacking in indigenous definition of Depression. As in Pakistan, the culture is heavily influenced by magical and superstitious beliefs, the symptoms of depression were commonly perceived as drama, attention seeking behaviors, effect of possession, supernatural causes and black eye. Further, lack of financial resources also increases the popularity of seeking alternative treatments for mental health. This might have driven the people's choice not to see a Psychiatrist or mental health specialist and to visit general practitioners. In a hierarchy of preferred solutions about Depression, mental health Professional were standing in last step. Owing to the importance given to various beliefs held across cultures, much of these disparities in care is attributed to another important factor that were components of Stigma and discrimination such as self-Stigma, Stigma by Association Public Stigma and structural Stigma. Further the geography, demography of Stigma and Discrimination such as low educational background, role in the family and female gender, along with different elements such as myths of dangerousness, controllability, personal weakness and social avoidance creating a hindrance in problem management. Further, the Professionals reported that inadequate information provided by the doctor resulted in early discontinuation of treatment.

Figure 2. Thematic Map 2.



According to Professionals, the above mentioned mental health disparities of Depression, Primarily Stigma and Depression can be managed in primary care through two steps i.e., providing Psychoeducation and establishing contact. As providers of care, Professionals assumed that primary care staff has the knowledge and experience that patient and their families did not know. The only way to bridge the treatment gap created through Stigma and Discrimination was to share the information in a comprehensible and structured way i.e., Psychoeducation, which includes considering patient as a model, explaining the purpose of Psychoeducation, establishing rapport, fundamental importance of diagnosis, explaining the etiology of the Depression, elucidating strategies to reduce Stigma and Discrimination and addressing regular follow-up and medicine adherence. The Professionals further argued that Stigma and Discrimination was also due to lack of meaningful contact of patient with their primary care taker. A continuous effective contact aided in interpersonal divide and facilitate positive interaction and connection between the patient, family and the Primary Care Staff.

5. Discussion

The findings of this study have been supported by Dalky et al. (2020), who found that the causal factors such as lack of knowledge, and cultural dynamics played a vital role in initiating and maintaining Stigma and Discrimination. Shafiq (2020) have validated the current findings that people living in Pakistan have little to no knowledge about Depression. The perceptions, superstitions and misconceptions were shaped by the specific culture of Pakistan in which Mental Illnesses were neglected and have been a disadvantaged domain due to lack of indigenous definitions. In terms of treatment or help-seeking, alternative measures are considered more effective and people consulted traditional or spiritual healers in times of help which were believed to be the ineffective solutions for Depression. These findings have been supported by theoretical dimensions of Pryor and Reeder model of Sigma and Discrimination too (2011). Though, Professional did not believe in Structural Stigma as they addressed it as a Professional maturity. Further, Corrigan et al. (2013) found that physicians with less experience, training and knowledge along with perceived Stigma became a major barrier in giving effective ad effective treatment towards patients along with negatively influencing patient's help-seeking behaviors. In discussing the prognostic factors, Contact and providing Psychoeducation was experienced as an essential ingredient by Primary Care Staff.

5.1. Strength

To the best of the Researcher knowledge, this is the first ever qualitative study incorporating Basic Qualitative Research as a method of inquiry to explore Stigma and Discrimination from the perspective of Primary Care Staff. Further, the Focus Group Discussion Guide was developed to understand the quality and content of the participants views and perceptions. The conduction of the Pilot study contributed in existing knowledge in terms of improving methodological underpinnings, refinement of data collection techniques, the appropriateness of theoretical approaches and the efficacy of analysis procedures.

5.2. Implications

This study highlighted the need to incorporate Islamic perspective of equality i.e., to avoid Discrimination and Stigmatization. This would further help in sharing pain of those people who have been diagnosed with Depression. A need for awareness-based Stigma reduction intervention was emerged to be provided to Primary Care Staff and significant support providers for training them in Psychoeducation and normalization about Depression to reduce the treatment gap in mental disorders.

5.3. Conclusion

This study highlighted that the Lack of Mental Health disparity is the core reason behind Stigma and Discrimination. The findings suggested the need to provide Psychoeducation and to improve the Professional detachment of the Professionals by employing Contact interventions with an aim to overcome this interpersonal divide and to facilitate positive interaction and connection between the participants diagnosed with Depression and the first level service providers i.e., Primary Care Staff.

References

- Ahmed, B., Enam, S. F., Iqbal, Z., Murtaza, G., & Bashir, S. (2016). Depression and anxiety: a snapshot of the situation in Pakistan. *International Journal of Neuroscience and Behavioral Science*, *4*(2), 32. Doi: 10.13189/ijnbs.2016.040202
- Charara, R., Forouzanfar, M., Naghavi, M., Moradi-Lakeh, M., Afshin, A., Vos, T., & Mokdad, A. H. (2017). The burden of mental disorders in the eastern Mediterranean region, *PLoS one*, *12*(1), e0169575. <https://doi.org/10.1371/journal.pone.0169575>
- Corrigan, P. W., Morris, S.B., Michaels, P. J., Rafacz, J. D., Rüsich, N. (2013). Challenging the public stigma of mental illness: a meta-analysis of outcome studies. *Psychiatr Serv.* *63*(10):963-73. doi: 10.1176/appi.ps.201100529. PMID: 23032675.
- Creswell, J. W. (2013). *Research design: qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications.
- Dalky, H.F., Abu-Hassan, H.H., Dalky, A.F., & Al-Deaimy, W. (2020). Assessment of mental health stigma components of mental health knowledge, attitudes and behaviors among Jordanian Healthcare Providers. *Community Mental Health Journal*, *56*, 523-531. Doi: 10.1007/s10597-019-00509-2.
- Davidson, C. (2009). Transcription: Imperatives for qualitative research. *International journal of qualitative methods*, *8*(2), 35-52. <https://doi.org/10.1177%2F160940690900800206>
- Giorgi, A. (1989). Some theoretical and practical issues regarding the psychological phenomenology method. *Say-brook Review*, *7*(2), 71–85. <https://psycnet.apa.org/record/1992-22877-001>
- Hagens, V., Dobrow, M. J., & Chafe, R. (2009). Interviewee transcript review: Assessing the impact on qualitative research. *BMC medical research methodology*, *9*(1), 47. DOI: 10.1186/1471-2288-9-4
- Ismail, N., Kinchin, G., & Edwards, J. A. (2018). Pilot study, does it really matter? learning lessons from conducting a pilot study for a qualitative PhD thesis. *International Journal of Social Science Research*, *6*(1), 1. doi:10.5296/ijssr.v6i1.11720
- Krueger, A. (1996). *School resources and student outcomes: an overview of the literature and new evidence from North and South Carolina*. National Bureau of Economic Research.
- Kvale, S., & Brinkmann, S. (2009). *Interviews: Learning the craft of qualitative research interviewing* (2nd ed.). Sage Publications, Inc.
- Mascayano, F., Tapia, T., Schilling, S., Alvarado, R., Tapia, E., Lips, W., & Yang, L. H. (2016). Stigma toward mental illness in Latin America and the Caribbean: a systematic review. *Brazilian Journal of Psychiatry*, *38*(1), 73-85. <http://dx.doi.org/10.1590/1516-4446-2015-1652>
- Merriam, S. B. (2009). *Qualitative research. A guide to design and implementation* (2nd ed.). Jossey-Bass.
- Moustakas, C. (1994). *Phenomenological research methods* (1st ed.). Sage Publications
- Oliver, D. G., Serovich, J. M., & Mason, T. L. (2005). Constraints and opportunities with interview transcription: Towards reflection in qualitative research. *Social Forces*, *84*, 1273-1289. <https://doi.org/10.1353/sof.2006.0023>
- Pescosolido, B. A. (2013). The public stigma of mental illness: What do we think; what do we know; what can we prove?. *Journal of Health and Social behavior*, *54*(1), 1-21.
- Pryor, J. B., & Reeder, G. D. (2011). HIV-related stigma. In J. C. Hall, B. J. Hall & C. J. Cockerell (Eds.), *HIV/AIDS in the Post-HAART Era: manifestations, treatment, and Epidemiology*, 790–806. Shelton, CT: PMPH-USA
- Shafiq, S., Parveen, S., & Oyeboode, J. R. (2020). How people of African Caribbean or Irish ethnicity cope with long-term health conditions in UK community settings: A systematic review of qualitative, quantitative and mixed method studies. *Health & Social Care in the Community*. <https://doi.org/10.1111/hsc.13181>

EMOTIONS AND ATTITUDES OF PREGNANT WOMEN IN SOCIAL ISOLATION IN THE PERIOD OF CORONAVIRUS PANDEMIC

Renata da Silva Coelho, Leila Salomão de La Plata Cury Tardivo, Helena Rinaldi Rosa, & Joice Aparecida Araujo Dominguez

Instituto de Psicologia da Universidade de São Paulo (Brasil)

Abstract

This study focuses on verifying the emotions and attitudes of pregnant women in social isolation during the COVID-19 pandemic and gathering information for the organization of psychoeducational support actions online. A questionnaire was prepared on identification, gestational and family history, emotions and attitudes toward social isolation and use of distance communication tools and search for psychological support. Were answered 59 questionnaires. 95% agreed with the social isolation measures. Family relationship conflicts were reported in 54.2%. Changes in emotions were perceived in 91.5%, of which 86.4% associated with the pandemic and 66.1% to pregnancy. The emotion of fear was aroused in 84.7% of the cases, sadness in 45.8%, loneliness in 33.9%, exhaustion in 42.4%, irritation in 50.9%. Positive emotions of solidarity occurred in 28.8%, hope in 27.1% and optimism in 15.3% of the sample. 54.2% think that talking to a psychologist can help. The content of the responses is concerned with quality of life, hygiene habits, and interpersonal relationships, special care for the baby, avoiding visits to babies, need for help with baby care, fear of contagion and going to the hospital, insecurity about returning to work and the absence of government protection measures. It is concluded that psychological support and online psycho education for pregnant women can be a protective factor for the mental health of pregnant women during the pandemic.

Keywords: *Covid-19, pandemic, pregnancy.*

1. Introduction

The direct and indirect effects of the COVID-19 pandemic on maternal health have been studied and have indicated that it is likely an increased risk of distress and psychiatric problems during pregnancy in the pandemic (Kotlar et al, 2021). Although there are no studies with enough follow-up to know these effects on the mental health of pregnant women. Indirect effects of the COVID-19 pandemic on the vulnerable groups of pregnant women can be seen in the reduction of antenatal care, ANC, and increased maternal-fetal and newborn mortality in many low and middle income countries (Menendez et al, 2020; Thapa et al, 2020).

The World Health Organization data indicate that worldwide about 10% of pregnant women suffer from mental disorders, mainly depression. During pregnancy and in the first year after delivery, events such as poverty, migration, extreme stress, exposure to violence, emergencies and conflict, natural disasters and low support often increase the risk of specific mental disorders. The pandemic context associated with social isolation, confinement, health protection routines, reduction of the social and family support network, preoccupation about contagion and transmission to the fetus, and financial problems have shown to have increased risk for physical and mental health disorders to pregnant women (López-Morales et al, 2020). Besides that, pregnant women have an increased risk of invasive ventilation when compared to non-pregnant women, due to changes in their bodies produced by pregnancy in the pulmonary and immune systems (Allotey et al, 2020). They are potentially more likely to need intensive care treatment for COVID-19. There seems to be greater risk associated with pre-existing medical conditions, hypertension, diabetes, maternal age and overweight. Further studies are needed to understand whether and how maternal SARS-CoV-2 infection is associated with long-term maternal and newborn health.

Some research was found focusing on attitudes and emotions of pregnant women since the beginning of the pandemic (Ng et al, 2020; Lee et al, 2020; Anikwe et al, 2020; Yassa et al, 2020; Ding et al, 2021; Parra-Saavedra et al, 2020; Sahin & Kabakci, 2020).

The level of anxiety and knowledge about COVID-19 in 324 healthy pregnant women, patients at the hospital antenatal clinic in Singapore, was assessed using standard scales, from March to April 2020, the results demonstrated the commonest source of information was the Internet, and a significant proportion were unaware or associated COVID-19 infection with fetal distress, intrauterine death, fetal anomalies, miscarriages, preterm labour and rupture of membranes, 35.8% screened positive for anxiety, 18.2% for depression and 11.1% for stress (Ng et al, 2020). A cross-sectional online survey using the Google platform was conducted on the attitudes and precaution practices of 167 non-infected pregnant women toward the COVID-19 seen at antenatal clinics from April to June 2020 (Lee et al, 2020). It was concluded that the factors age older than 36 years, Malay ethnicity, employment in frontline jobs, and attendance at high-risk clinics are likely to influence the positive attitudes and precautionary practices among pregnant women towards COVID-19 in Singapore.

In a cross-sectional survey on knowledge, attitude and practice of 430 pregnant women attended at a prenatal clinic hospital in Nigeria carried out between March and May 2020 using non-validated pre-tested questionnaires was observed as results that main source of information was the mass media in 61% of the respondents, 82% believed that COVID-19 is real, 88% thought that the disease is caused by a virus, 52% believes the disease is curable with 56% believing that medication for cure of COVID-19, regarding prevention the majority reported positive attitudes of knowing and practices of handwashing, wearing a mask, sneezing into the elbow, avoiding touching the face, interestingly 24% think that individuals infected with COVID-19 should be killed (Anikwe et al, 2020). Perhaps the search for information by the mass media explains the belief about the specific drug cure perceived in the initial months of restrictive social measures. To better understand the negative attitude of thinking about killing the infected, it would be interesting to characterize the sample of the group that presented this response and describe how the question was asked. Although the authors considered that this can be attributed to fears about the disease and indicated the need for adequate disclosure of information.

The attitude toward concern about and knowledge of COVID-19 of 172 women with healthy pregnancies over 30th gestational week who applied to the outpatient clinic of the referral center "Coronavirus Hospital" in Turkey were researched using a non-validated questionnaire in March 2020 (Yassa et al, 2020). Positive attitudes of trusting authority were observed in 65% of the pregnant women, trusting in healthcare staff in 92.4%, comply with the self-quarantine rules in 87.2%. Negative attitudes of vulnerability in 52%, concern in 80%, thinking they might get infected in delivery in 35.5% or babies might be infected in 42%, thinking the breastfeeding is not safe in 50%, not knowing if COVID-19 might cause birth defects in 76% or preterm birth in 64.5%. The positive attitudes presented are important for maternal-fetal well-being and health, however, the negative attitudes that were shown in the study due to lack of knowledge of the consequences of the disease should be considered for postnatal monitoring, as concluded by the authors. In a qualitative study also conducted in Turkey interviews were carried out via mobile phone about the concerns, problems and attitudes of 15 pregnant women in relation to the pandemic determined. The content analysis method identified three themes: not understanding the seriousness and fear of the unknown; coronavirus pandemic and disruption of the routine prenatal care; disrupted routines and social lives. In conclusion, the results have shown that pandemic has a negative emotional effect on pregnant women due a significant potential for creating anxiety, adversity and fear (Sahin & Kabakci, 2020).

Data on knowledge, attitudes, practices (KAP), sociodemographic information and influencing factors of anxiety among 817 pregnant women were collected in Wuhan in March 2020 (Ding et al, 2021). There was a prevalence of 20.8% of prenatal anxiety, 55.8% demonstrated not knowing that there is no effective treatment available, 19.7% did not know that the general population is susceptible to contagion, 83.4% were anxious about the possibility of being infected. The official media was considered to be the most reliable information source by 55.7% of the participants. Only 10.2% were worried about contracting COVID-19 through the ultrasound transducer during obstetric gynecological examination, 64.6% delayed or canceled the antenatal visits, 50.2% related to use of two personal protection equipment in hospital visits. It is observed that in some parts of the text the authors still use the word outbreak to refer to the pandemic.

A systematic evidence review research was carried out on the psychological impact seen in previous outbreaks of infectious diseases such as H1N1 and SARS in pregnant women (Brooks et al, 2020). The result identified themes: negative emotional states, uncertainty, concerns about infection and uptake of prophylaxis or treatment, disrupted routines, non-pharmaceutical protective behaviours, social support, financial and occupational concerns, disrupted expectations of birth, prenatal and postnatal care, and sources of information. These results could structure a global instrument of needs assessment of pregnant women. Managing a unified needs assessment could facilitate the analysis and comparison of different regions and populations groups. The most frequent result in the aforementioned studies on the attitudes of pregnant women towards COVID-19 was the search for information over the internet,

considering that there is no unified and validated instrument for data collection for use in emergency situations. It would be necessary to develop global management tools to protect pregnant women in pandemic crises related to infectious and contagious respiratory diseases.

2. Objectives

The survey aimed to verify attitudes, concerns and emotions of pregnant women, their perceptions of impact of social isolation and pandemic COVID-19 upon their pregnancy to think about subsequent proposals for psychoeducational and preventive interventions using social media to disseminate specific and reliable content for promote the mental health of pregnant women during the pandemic.

3. Methods

This study was conducted by the research and assistance group “Apoiar Online” at Institute of Psychology of the University of São Paulo - IPUSP. The survey was operationalized by an online electronic questionnaire and was made available on the Google platform disseminated on social networks from April to July 2020. The introduction informed about voluntary and anonymous participation, including indication of the institutional email for optional immediate support. The non-validated questionnaire was adapted from the research questionnaires previously applied to the general population on the same topics (Tardivo et al, 2020).

The current online survey was formed by 34 multiple choice questions and two discursive questions. The following topics were asked: 1. Identification socio demographic and obstetric history (age, educational level, professional activity, region of residence; gestational age, number of pregnancies, number of children, and children’s age). 2. Emotions and attitudes toward social isolation (time of social isolation, agreement with isolation, remote professional and domestic activity, number of people in the house, family support and help, family relationship, and use of social networks). 3. Emotions about pregnancy and pandemic (perception of own emotions toward pandemic and pregnancy, awareness of emotional reactions and feelings). 4. Health and psychotherapy (sleep quality, practice of physical activity, and follow-up related to pregnancy and pandemic). The discursive questions were “Do you think the pandemic will change your life in any way? How?” “Do you have any thoughts or feelings about caring for yourself and your baby related to the pandemic and social isolation? Which ones?”. These questions were not mandatory.

The included participants were pregnant women from the general population with reading ability in Portuguese, any gestational age. They were informed that the data would be published anonymously. The average time to fill out each questionnaire was ten minutes. The electronic data were compiled in an Excel spreadsheet and graphs on the Google platform with access restricted to researchers.

4. Results and discussion

A total of 59 survey responses were obtained. The majority, 61% were between 31 and 40 years old, 28% between 21 and 30, and only 6.8% between 41 and 50 and 3.4% less than 20 years old. The educational level was 39% postgraduate, 39% university, 13.6% secondary and 8.5% primary. Before the pandemic 78% of them had work. The majority, 78% lived in São Paulo, 3 participants lived abroad and the rest in other regions of Brazil. The participant’s obstetric history showed that the largest in the group had advanced gestational age, the most frequent were 23.7% of them between 31 and 35 weeks of gestation, 23.7% between 17 and 21 weeks, 13.6% between 27 and 30 weeks and 11.9% between 22 and 26 weeks. 54.2% of them were primiparous. More than half of the participants, 55.9% have no other children. Among those who had children 30.5% had only one child, 13.6% had two to three, and only 1.7% had four to five children’s. 11.9% of these children was seven years old, 8.5% was five years old and the most children were under four years old.

It was observed that 86.4% of pregnant women had been in social isolation for more than thirty days, 6.8% between fifty and thirty days, and 6.8% were not in social isolation. 95% agreed with the social isolation measures of which 66.1% agree and think it is important to prevent the spread of the coronavirus, 15.3% partially agree, and 13.6% agree because they are a risk group. In social isolation 54.2% report doing remote work in the home office, and 100% do housework, 76.3% had family support and help.

Only one participant reports being alone at home during social isolation, 40.7% was with three or four people, and 25.6% in two people including the pregnant woman. Family relationship conflicts were reported in 54.2%. Conflicts that already existed before isolation are reported in 33.9% of cases,

while 20.3% mention new conflicts that occur or worsen with the daily living of the isolated family at home. All participants responded positively to the use of social networks. The use of Facebook appeared in 88.8% associated with Instagram, WhatsApp, email and YouTube, 10.2% excluded Facebook and used the other media. The time spent using social networks during social isolation increased to 76.3%, remained the same to 20.3% and decreased to 3.4%. The purpose of using social networks to talk to friends was 89.9%, to read news at 81.4%, and to talk to family at 72.9%. Watch movies at 79.5% and play 21.8%. Few participants reported using it for work, 10.3%, or for the study, 8.5%. It is important to note that the main media used was Facebook and the second main purpose of use was reading news, which may indicate that the sources of information about the pandemic are not official or scientific. This can intensify negative emotions and attitudes toward the disease. And hinder the development of emotional balance strategies.

Changes in emotional state were perceived in 91.5% of which 86.4% associated with the pandemic and 66.1% to pregnancy. When compared to before the pandemic, emotional changes in primiparous were perceived as worse for 51.4%, better for 25.7% and equal to 22.95. While for pregnant women who already had other children there was a perception of worsening for 68%, improvement for 28% and equal for 4%. Having other children in seems to cause emotional worsening for the pregnant women because there was an interruption of classes, the leisure's spaces in the city were closed, so the children are confined and can be more agitated. The emotion of fear was aroused in 84.7% of the cases, sadness in 45.8%, loneliness in 33.9%, exhaustion in 42.4%, irritation in 50.9%. Positive emotions of solidarity occurred in 28.8%, hope in 27.1% and optimism in 15.3% of the sample.

The content of the answers to the two discursive questions showed concerns about the future social changes brought by the pandemic, such as unemployment, reduced interactions and family support, lack of celebration rituals for the baby, and baby protection and care practices. In addition to thoughts and feelings about the period of pregnancy and childbirth, such as fear of contagion in hospital, lack of specific guidelines for pregnant women about COVID-19, doubts about risk for the baby as much as the contagion as well as the implications for the baby psychological development, and absence of government protection measures.

The speech clipping of some participants showed hopelessness, insecurities, doubts and fear as an example of the impact of the pandemic for pregnant women. One of the participants wrote: *"[...] we are waiting for the next events. However, my insertion in the work ... will be more difficult. I also see, on the personal side, changes in the care of my son. Today I will no longer have a baby shower or something to celebrate, without the closeness that one usually has in pregnancy and I believe that the distance will remain even after the birth of my child"*.

The social and economic impact of the pandemic is more damaging, financially and emotionally for the pregnant women, as explained by the participant's writing: *"We lost our jobs. Without receiving. We will go through difficulties. We are already going through rely"*.

The emotions and attitudes that occurred during the gestation period that were described in the reports of two participants evidenced the helplessness resulting from the pandemic: *"[...] it is my baby that gives me the strength not to go crazy with all this". "Experiencing a pregnancy during a pandemic is an experience that will mark me deeply. I am grieving at having to pass the isolated pregnancy"*.

The prenatal care services were reduced, an aggravating factor for the emotional imbalance of the pregnant women, as noted in the following report: *"What saddens me, since the pandemic, my consultations have been canceled, since the 27th week I should have fetal echocardiography and analyzes and an ultrasound, because I am hypertensive and I don't know if my baby has already turned because he is sitting and I am afraid at the delivery time that all the care he needs is not provided"*.

Finally, fear was the predominant emotion and the attitude was the attempt to cope with the crisis, as recorded by one of the research participants: *"I am afraid of the hospital, visits, of being contaminated and not being able to stay close to the baby. I feel safe with the measures we have taken, related to social distance. However, there is an insecurity of whether it is still certain whether babies will suffer something if the mother suffers from COVID-19 during pregnancy. I try to dismiss that thought when it appears. Another issue is our sociable need, I am eager to be physically close to my parents right now. It is difficult to deal with the unpredictable and sometimes imagine that I can get through the whole pregnancy accompanied only by my husband. It causes some anxiety"*.

5. Conclusions

There are two fundamental aspects to conclude this study, the first is that psychoeducational interventions are imperative to enable pregnant women to recognize the negative emotions derived from the pandemic and to control its harmful effects, both physical and psychological over time. Psychological support groups are prophylactic measures to avoid problems in the relationship of post pandemic mothers

and babies. The second fundamental aspect is that learning about the skills of psychological crisis management developments in the emergency situation of the pandemic must become part of planning actions to reduce the suffering of pregnant women, a vulnerable group, in crisis situations in the future.

References

- Allotey J, Stallings E, Bonet M, et al. (2020). Clinical manifestations, risk factors, and maternal and perinatal outcomes of coronavirus disease 2019 in pregnancy: Living systematic review and meta-analysis. *British Medical Journal*. 2020;370:m3320. September, 14, 2020, from: <https://www.ncbi.nlm.nih.gov/pubmed/32873575>
- Anikwe, C. C., Ogah, C. O., Anikwe, I. H., Okorochukwu, B. C., & Ikeoha, C. C. (2020). Coronavirus disease 2019: Knowledge, attitude, and practice of pregnant women in a tertiary hospital in Abakaliki, southeast Nigeria. *International journal of gynaecology and obstetrics*, 151(2), 197–202. July, 01, 2020, from: <https://doi.org/10.1002/ijgo.13293>
- Brooks, S. K., Weston, D., & Greenberg, N. (2020). Psychological impact of infectious disease outbreaks on pregnant women: rapid evidence review. *Public health*, 189, 26–36. December, 07, 2020, from: <https://doi.org/10.1016/j.puhe.2020.09.006>
- Ding, W., Lu, J., Zhou, Y., Wei, W., Zhou, Z., & Chen, M. (2021). Knowledge, attitudes, practices, and influencing factors of anxiety among pregnant women in Wuhan during the outbreak of COVID-19: a cross-sectional study. *BMC pregnancy and childbirth*, 21(1), 80. January, 25, 2021, from: <https://doi.org/10.1186/s12884-021-03561-7>
- Fikadu, Y., Yeshaneh, A., Melis, T., Mesele, M., Anmut, W., & Argaw, M. (2021). COVID-19 Preventive Measure Practices and Knowledge of Pregnant Women in Guraghe Zone Hospitals. *International journal of women's health*, 13, 39–50. January, 7, 2021, from: <https://doi.org/10.2147/IJWH.S291507>
- Kotlar, B., Gerson, E., Petrillo, S. et al. (2021). The impact of the COVID-19 pandemic on maternal and perinatal health: a scoping review. *Reprod Health* 18, 10 (2021). January, 18, 2021, from: <https://doi.org/10.1186/s12978-021-01070-6>
- Lee, R., Loy, S. L., Yang, L., Chan, J., & Tan, L. K. (2020). Attitudes and precaution practices towards COVID-19 among pregnant women in Singapore: a cross-sectional survey. *BMC pregnancy and childbirth*, 20(1), 675. November, 10, 2021, from: <https://doi.org/10.1186/s12884-020-03378-w>
- López-Morales, H., Verónica del Valle, M., Canet-Juric, L., Andrés, M. L., Galli, J. I., Poó, F., Sebastián Urquijo, S. Mental health of pregnant women during the COVID-19 pandemic: A longitudinal study, *Psychiatry Research*, Volume 295, 2021, 113567. January, 25, 2020, from: <https://doi.org/10.1016/j.psychres.2020.113567>
- Menendez, C., Gonzalez, R. Donnay, F. Leke, R. G. F. (2020). Avoiding indirect effects of COVID-19 on maternal and child health. *The Lancet Global Health*, ISSN: 2214-109X, Vol: 8, Issue: 7, Page: e863-e864. July, 01, 2020, from: [https://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(20\)30239-4/fulltext#articleInformation](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(20)30239-4/fulltext#articleInformation)
- Ng, Q. J., Koh, K. M., Tagore, S., & Mathur, M. (2020). Perception and Feelings of Antenatal Women during COVID-19 Pandemic: A Cross-Sectional Survey. *Annals of the Academy of Medicine, Singapore*, 49(8), 543–552. August, 17, 2020, from: <https://pubmed.ncbi.nlm.nih.gov/33164024/>
- Sahin, B. M., Kabakci, E. N. (2020). The experiences of pregnant women during the COVID-19 pandemic in Turkey: A qualitative study. *Women and Birth*, ISSN 1871-5192. October, 01, 2020, from: <https://doi.org/10.1016/j.wombi.2020.09.022>
- Thapa, S. B., Mainali, A., Schwank, S. E., & Acharya, G. (2020). Maternal mental health in the time of the COVID-19 pandemic. *Acta obstetrica et gynecologica Scandinavica*, 99(7), 817–818. May, 06, 2020, from: <https://doi.org/10.1111/aogs.13894>
- World Health Organization. Maternal Mental Health. January, 22, 2021, from: Mental Health and Substance Use
- World Health Organization. Q&A on Coronavirus disease (COVID-19): Pregnancy and childbirth. September, 2, 2020; from: Coronavirus disease (COVID-19): Pregnancy and childbirth
- Yassa, M., Birol, P., Yirmibes, C., Usta, C., Haydar, A., Yassa, A., Sandal, K., Tekin, A. B., & Tug, N. (2020). Near-term pregnant women's attitude toward, concern about and knowledge of the COVID-19 pandemic. *The journal of maternal-fetal & neonatal medicine*, 33(22), 3827–3834, May, 19, 2020, from: <https://doi.org/10.1080/14767058.2020.1763947>

PSYCHOEDUCATION TO PREVENT THE SPREAD OF HIV AMONG MEN WHO HAVE SEX WITH MEN IN SURABAYA CITY

Christina Albertina Ludwinia Parung, & I Gusti Ayu Maya Vratasti

Faculty of Psychology, University of Surabaya (Indonesia)

Abstract

Sexual transmission of HIV among Men who have Sex with Men (MSM) is believed to be one of the sources of the AIDS epidemic. Nowadays, governments, communities, and NGOs are taking action to prevent its spread by assisting and educating groups of MSM in their countries. This assistance involves experts in many fields of study, including psychology. In the field of psychology, psychoeducation is believed to be one of the ways to assist the MSM groups. In September to December 2019, the authors conducted a mentoring effort to the MSM community at the MSM community gathering location called Gang Pattaya, in the city of Surabaya, the second largest and densely populated city in Indonesia. The existence of this community is disguised by the general public, but is well known by NGOs. Community members do MSM out of their liking, although some do it in exchange for money. However, safety factors, such as using condoms for MSM, are not a priority for this community. They do MSM whether they receive a reward or not, just out of a boost of pleasure. There is no attempt to find out the health of the partner once they are attracted to each other. In general, they do not know whether they are infected with HIV. Most of them feel healthy and since they do not show any symptoms, they think it is not necessary to get tested. In the mentoring process, we conduct psychoeducation, which begins with an approach to certain individuals so that they are comfortable with our presence, then increasing awareness of safer sex behavior for HIV prevention for groups in the form of counseling using the Theory of Reasoned Action (TRA) approach. Counseling is carried out in various forms including roleplay, games, and seminars. The number of participants was 11 people as agents of changes of the community, varying from 19 - 47 years old. Pretest related to knowledge of safer sex was carried out before conducting the intervention and post-test after the intervention. The normality test used is the Shapiro-Wilk analysis. Different tests on the data obtained were carried out using the non-parametric Wilcoxon Signed Ranks Test. None of the participants had lower post-test knowledge scores than the pre-test. Pretest and post test for safer sex behavior showed 2 participants with safer sex behavior did not change. Both belong to the senior group, while other participants have an improvement in their safer sex behavior. These findings suggest that intervention programs for MSM as an effort to reduce HIV transmission should pay attention to affective and cognitive coping strategies.

Keywords: *HIV, men who have sex with men, psychoeducation, psychology health, safer sex behavior, theory of reasoned action.*

1. Introduction

Nowadays, the HIV epidemic has grown globally. It affects anyone regardless of race, or gender, or sexual orientation. However, according to preliminary researches, this epidemic has spread rapidly among men who have sex with men (MSM). UNAIDS Report (2016) stated that there was a significant increase in HIV infection incidence all around the world between 2010 - 2014 -, about 17% increase in Western and Central Europe, 8% in Latin America. These numbers do not stop here. UNAIDS Report (2018) stated that the numbers of HIV infected-MSM contributed approximately 57% of HIV infections in Western Europe and North America, 41% in Latin America, and 25% in Asia, Pacific, and Caribbean, 20% in Eastern Europe, Central Asia, North Africa, and 12% in Western and Central Africa. According to Riono and Challacombe (2020), there were 640.000 people living with HIV in Indonesia and 400.000 among them are men, which makes the HIV prevalence of MSM in Indonesia reach to 25.8 % (UNAIDS, 2020).

Sexual contact between men is not acceptable among Indonesian citizens, however in real media is all over the issue. Consequently, many big cities in Indonesia like Jakarta, Bandung, and Surabaya have their own MSM community. Unfortunately this communities are closed communities that limit links from outside their group because the stigma and discrimination the communities are frequently facing among the

societies. This social phenomenon is one of the factors that cause difficulties in increasing awareness of the risks of having unhealthy sexual relationships.

Surabaya is one of the big cities in Indonesia with big numbers of MSM. According to Purcell et al. (2012), MSM group of all races and ethnicities is the group most severely affected by HIV/AIDS. USAIDS (2020) stated that in the world, the risk of HIV infection among gay men and MSM is 26 higher than others. Other findings also proved that the risk of HIV among MSM in the USA is higher than men, about 44 times higher (Johnson et al, 2014). Meanwhile, in developing countries, the possibility of infection is 19,3 times higher than the general population (Barat et. al, 2007).

Hence, the use of health services, including psychology is needed to accompany gay and MSM group to reduce the spread of HIV virus among population. This research aims to collect and analyze data to improve the local companion program for the MSM group that is located in Gang Pattaya, Surabaya. Generally, members from the MSM community have sexual intercourses based on attractiveness, but there are some members who do it for money. However, not many of them practice safer sex like using condoms. Also, there are no preventive services participations that make it even worse, mostly because stigma and discriminatory attitudes towards the community and the disease. Therefore, to increase awareness and to educate the MSM community, counseling needs to be done, so in order to make them understand the risk of sexual activity and they can prevent themselves from getting affected with HIV.

2. Method

2.1. Recruitment

Counseling and companionship process in the MSM community in Surabaya is started by doing personal approaches to individuals that are inside the organization / community. These key individuals are the agents of change inside the MSM. They will inform their friends in organization and they will pick some to be the leaders and the agents of change. This step is needed to be done because the MSM community is usually closed from the public, therefore to do the accompaniment, the researcher needed people from inside the community.

These participants are selected as agents of changes because they are open to new information, flexible, and approachable to be given information. After the counseling and companionship, they can give the information to their friends in the MSM community regarding preventive actions towards HIV. The author also made sure that each participant is willing to be interviewed and take pre and post tests.

Before the counseling and companionship process, the participants are asked to take pre-test regarding their prior knowledge about safer sex. The author has chosen 11 people to be the agents of change. The age group of participants are varied from 19 - 47 years old. The counseling and companionship process begins in September 2019 and ends in December 2019. After the counseling and companionship process are carried on, the author evaluates the results.

2.2. Needs analysis

Even though it is a closed community, the MSM community in the Gang Pattaya has become the attention of NGOs and the Surabaya City Health Office through health centers to be provided with an initial HIV screening test facility. The government and the Global Fund also provide assistance in the form of free drugs for positive HIV sufferers as a form of support for the prevention of HIV transmission. However, the awareness to check personal health and apply protection for safer sex behavior is still lacking in certain individuals. Unsafe sexual behavior is sexual intercourse with individuals whose health status is not known without the use of protection such as condoms (Slaymaker, et al., 2004).

In order to understand the various conditions that occur in the MSM community, an urgent needs analysis was carried out for the MSM community. The needs analysis process begins with interviews with community representatives. Initial interviews were conducted in order to see the ideal expectations that occur in all members of the community, to understand the realities that occur in the field, to determine the gap between ideal expectations and reality, to identify why there is a gap between expectations and reality so that action steps can be taken to fill the gap. The ideal hope for all community members is that they carry out routine health checks, especially those related to HIV, and they will use protection (condoms) when having sex. However, the reality shows that some members in "Gang Pattaya" are infected with HIV and are in the AIDS phase. Another reality is that many community members do not carry out routine health checks, do not use protection during sex because they feel more comfortable if they do not use protection. Another reason is community members who work as sex workers, who serve customers not to use protection in exchange for higher payments.

Through interviews, it was found that gaps occurred because of the fear of social judgment from the health center officers who carried out the scrutiny. In addition, there are concerns that HIV positive results from screening will make it difficult to find partners or customers. Based on these findings, an intervention was carried out. Psychoeducation is an intervention choice that needs to be taken in this MSM community.

2.3. Intervention approach

To increase awareness of safer sex behavior for HIV / AIDS prevention in the Pattaya Gang community, informal sharing and counseling was carried out using the Theory of Reasoned Action (TRA) approach in the form of psychoeducation. The concept of psychoeducation is doing therapy by providing information, systematically conveying integrated knowledge from emotional and motivational aspects (Ekhtiari, Rezapour, et al., 2017). Psychoeducation has been used as a form of treatment for various mental health disorders (Atri and Sharma, 2007) including bipolar disorder (Stafford and Colom, 2013), schizophrenia (Bauml et al., 2006), depression prevention (Cerón, et al., 2020), even for the prevention of HIV / AIDS (Fullilove et al., 1989; Brawner et al., 2021).

Mentoring and counseling are carried out in various forms, namely through informal meetings, seminars, workshops in the form of roleplay, games, watching short films, reflections, discussions on safer sex behavior, and lectures on safer sex. Pretest related to knowledge about safer sex was carried out before conducting the intervention and post-test after the intervention. TRA emphasizes the importance of social cognition which forms subjective norms (individual beliefs related to social norms). TRA also emphasizes the importance of beliefs and evaluations of individual beliefs to form attitudes to behavior in shaping individual behavior (Ogden, 2007). The TRA scheme is used to understand safer sex behavior as an effort to prevent HIV / AIDS transmission among the MSM community in Surabaya.

3. Results

The TRA approach used in this assistance program is expected to change the knowledge of community members about how HIV is transmitted, the impact of HIV, HIV prevention activities, and their behavior level. An evaluation of the pre-test and post-test results is carried out as follows:

3.1. Evaluation of knowledge

Based on data processing results, the participants' knowledge before and after joining the assistance program scores were obtained. The norms used in the evaluation of knowledge were ideal norms. Thus, the scores obtained by the participants were compared with the ideal scores. The participant's knowledge is categorized into five: namely Very Low, Low, Medium, High, and Very High.

The post-test was carried out after completing the assistance program, especially training. The data obtained were processed using the Shapiro-Wilk normality test because the sample size was less than 50 people. From the normality test, it is concluded that the distribution of pre-test knowledge data was normal. In comparison, the distribution of post-test knowledge data was not normal. Therefore, a t-test was carried out using the Wilcoxon non-parametric test. After being assisted and re-measured by post-test, it seems that almost all participants have improved, but 2 people had the same score. There were no participants who experienced a decrease in their knowledge score after joining the assistance program.

3.2. Evaluation of attitude

Based on data processing results, the participants' attitude implementing the safer sex behavior scores was obtained. The norms used in the evaluation of attitudes were ideal norms. The participants' attitudes are categorized into five: namely Very Low, Low, Medium, High, and Very High.

Based on the post-test results, it is found that 2 participants experienced an increase in the score category while the other 10 participants were in the same category. Even though more participants were in the same category, there was an increase in scores before and after the assistance program. The data normality test used Shapiro-Wilk. The results showed that the pre-test significance value of the attitude score was 0.889 (> 0.05), so that the distribution of the pre-test score data on the attitude scale of safer sex behavior was normal. In the post-test score, the significance value was 0.707 (> 0.05), so that the distribution of post-test data was normal. The pre-test and post-test data had normal data distribution, so a t-test was carried out using a parametric test.

There was a difference in the attitudes toward safer sex behavior before and after the program was carried out. It can be concluded that the program is capable of changing the participants' attitudes. This can be seen from the increased average score obtained by the participants after the program.

3.3. Evaluation of behavior level

Evaluation of behavior level was carried out to determine the participants' behavior change after the assistance program was done. This was done by conducting a return visit a month later to MSM in the Gang Pattaya area. The follow-up was conducted by interviewing 7 people who had previously attended safer sex counseling activity. Based on the interview results, in general, several findings were found, including participants who had started to act as agents of change. They share information, including knowledge gained during the assistance program with other MSM members. Participants share their knowledge by telling stories and discussing their HIV and safer sex experiences while doing social gatherings at hotspots. Some of the interviewed participants admitted to starting to use a condom when

having sexual intercourse and telling their partners their desire to use a condom when having sexual intercourse. However, sometimes participants admitted that their partners were hesitant to listen to the explanation. Yet, they have tried to be more aware of safer sex and make their partners do the same thing.

4. Discussion

The assistance program evaluation results show an increase in the participants' knowledge regarding safer sex behavior and HIV/AIDS. This change can be seen from the results of the t-test analysis, which shows a significance of 0.008 (<0.05) that indicates a difference in knowledge before and after the assistance program is carried out. This is reinforced by the change in the participants' average score from 73.64 to 84.09 after evaluating the workshop results. Participants gained new knowledge about the prevention of HIV/AIDS transmission through safer sex behavior; participants also understood new knowledge regarding the importance of implementing safer sex behavior as a form of self-protection.

Apart from the knowledge side, the participants' attitudes toward safer sex behavior also changed. T-tests indicate this on the attitudes toward safer sex behavior measurement scale that shows a significance value of 0.000 (<0.05), which indicates a difference in attitudes toward safer sex behavior before and after the assistance program is carried out. This result is also shown by a change in participants' mean score from 63.27 to 65.91, signifying an increase in knowledge. The increase implies a change in positive attitudes toward safer sex behavior. Previously, most participants only knew the meaning of safer sex behavior but did not understand the importance of safer sex and the steps to implement safer sex behavior. Based on the results of the evaluation on knowledge and short interviews that have been conducted, it is found that there is an increase in the participants' knowledge and insights regarding HIV/AIDS and prevention steps by implementing safer sex behavior.

The pre-test and post-test evaluation results also show participants' behavior change. In a more detailed discussion, for example, on the results of the pre-test and post-test attitude, 9 participants experienced an increase in the attitude scores, and only 2 participants had the same score. While related to the category, 2 people experienced an increase from medium to high and 9 people stayed in the same category. The pre-test and post-test attitude results did not show a decrease in either score or category, likewise with the pre-test and post-test knowledge. 9 participants experienced an increase in their score, and 2 participants had the same score. While related to the category, 6 participants experienced an increase: 1 participant from medium to very high and 5 participants from high to very high.

It is also supported by participant observation data, namely from the evaluation of reaction results; it was found that the average participant was interested in participating in the assistance program, as evidenced by the average score related to the material of 3.45 (interested) scale of 4. Moreover, related to the suitability of the material to their needs, participants gave 3.55 (appropriate), which means that the participants felt that the material presented suits their needs. The next assessment was related to the mentoring method; the participants gave 3.32 (good), which means that the participants felt the method was suitable and did not make them bored. This supports changes in the participants' knowledge and attitudes because the information conveyed during the mentoring can be received positively by the participants. Thus, data from the evaluation of reactions of the assistance program supports the findings of changes in knowledge and attitudes.

Participants' behavior changes after joining the mentoring can be due to new information received suit with the information they need. Abraham et al. (2016) stipulates that providing the information is critical to change individual motivation. Information can increase motivation and foster a desire to make changes in action if the delivery of information is accurate and on target. This proves that participants who participate in the assistance program can become a group that drives change in the community. This is called an agent of change. The follow-up interview data show that the participants are aware of being suitable agents of change, so that it is hoped that these agents of change will be able to encourage other (gay) MSMs to apply safer sex behavior.

When viewed from type, an agent of change in this study is categorized as the People-Change-Technology type. This type focuses on the individual. These agents of change pay attention to the morale and motivation of community members, including absence and the quality of the resulting behavior. The methods used here include activity enriching, goal setting, and behavior changes. Under this type, if individuals change their behavior, the community will also change, eventually driving people to change the community. Based on the results of the assistance program, it is hoped that behavior changes of participants who are part of the community members will be able to change other members of the MSM (gay) community. Participants of this program are agents who will bring about changes in their communities related to awareness of safer sex behavior.

5. Conclusion

Compared with the TRA analysis before the assistance program, the TRA analysis after the program showed a change in the attitude toward using condoms. The previous attitude of MSM (gay) individuals, namely the use of condoms, was considered something that is not mandatory to use, but after the program, this attitude changed, and MSM (gay) individuals began to realize the importance of using condoms. MSM also understands that using a condom is an obligation for self-protection when having sexual intercourse. MSM individuals have also shifted their understanding from initially being reluctant to carry out tests to become aware of the importance of knowing their health status and their partners by conducting VCT examinations as a form of protection and prevention of HIV transmission.

It can be concluded that this program successfully meets the initial objectives expected in the aspects of knowledge and attitude. In changing the participants' behavior, the motivation of each individual is needed.

This research is only a preliminary study, and to get better and long-term results, continuous assistance and involving many agents are needed so that the prevention of HIV transmission can be more effective.

References

- Abraham, C., Conner, M., Jones, F., & O'Connor, D. (2016). *Health psychology*. Routledge.
- Atri, A., and Sharma, M., (2007), Psychoeducation: Implications for the Profession of Health Education Californian, *Journal of Health Promotion, Volume 5*, Issue 4, 32-39
- Baral, S., F. Sifakis, F. Cleghorn, and C. Beyrer, (2007), Elevated risk for HIV infection among men who have sex with men in low- and middle-income countries 2000–2006: a systematic review, *PLoS Medicine*, vol. 4, no. 12, pp. 1901–1911
- Bäumel J, Froböse T, Kraemer S, Rentrop M, Pitschel-Walz G. (2006), Psychoeducation: a basic psychotherapeutic intervention for patients with schizophrenia and their families. *Schizophr Bull*, 32 *Suppl 1(Suppl 1)*: S1-S9. doi:10.1093/schbul/sbl017
- Brawner, B.M., Jemmott L.S., Hanlon A.L., Lozano A.J., Abboud S., Ahmed C. & Gina Wingood, G. (2021) Results from Project GOLD: A pilot randomized controlled trial of a psychoeducational HIV/STI prevention intervention for black youth, *AIDS Care*, DOI: 10.1080/09540121.2021.1874273
- Cerón, S.C., Bellón, J.A., Motrico, E., Campos-Paíno, H., Gómez, C.M., Ebert, D.D., Buntrock, C., Gili, M., Peral, P.M., (2020), Moderators of psychological and psychoeducational interventions for the prevention of depression: A systematic review, *Clinical Psychology Review, Volume 79*, 101859, ISSN 0272-7358
- Ekhtiari, H., Rezapour, T., Aupperle, R. L., & Paulus, M. P. (2017). Neuroscience-informed psychoeducation for addiction medicine: A neurocognitive perspective. *Progress in brain research*, 235, 239-264.
- Fullilove, Mindy, M.D, Fullilove, Robert, III EdD & Edward Morales (1989) Psychoeducation, *Journal of Psychotherapy & The Family*, 6:1-2, 143-160, DOI: 10.1300/J287v06n01_08
- Johnson, A.S., Hall HI, Hu X., Lansky A, Holtgrave DR, Mermin J. (2014), Trends in diagnoses of HIV infection in the United States, 2002–2011. *JAMA*.312(4):432–434. doi: 10.1001/jama.2014.8534.
- Ogden, J. (2007). *Health Psychology: A Textbook: A textbook*. McGraw-Hill Education (UK).
- Palli, A., (2017), Psychoeducation: The way to Make Patients Manage their Illness and Fill their Future with Life, *Mental Health in Family Medicine 13*: 528-531
- Purcell, D.W., Johnson, C.H., Lansky, A., Prejean, J., Stein, R., Denning P, Crepaz N. (2012), Estimating the population size of men who have sex with men in the United States to obtain HIV and syphilis rates. *Open AIDS J*. 6:98–107. doi: 10.2174/1874613601206010098
- Rhodes S.D. and Wong F.Y. (2016), “HIV prevention among diverse young MSM: Research needs, priorities, and opportunities”, *AIDS Educ Prev. Jun; 28(3)*: 191-201
- Slaymaker E, Walker N, Zaba B, Collumbien M, editors. (2004), *Unsafe Sex, comparative quantification of health risks: Global and regional burden of diseases attributable to selected major risk factors. Ch. 14. Geneva: World Health Organization; p. 1177-254*. Available from: <http://www.who.int/publications/cra/chapters/volume2/1177-1254.pdf>. [Last accessed on 2021 march 13]
- Stafford, N. and Colom F. (2013), Purpose and effectiveness of psychoeducation in patients with bipolar disorder in a bipolar clinic setting, *Acta Psychiatr Scand 127 (Suppl. 442)*: 11–18, DOI: 10.1111/acps.12118
- UNAIDS (2016) ‘Global AIDS UPDATE (accessed Dec 2020)
- UNAIDS (2018) ‘Global HIV & AIDS statistics — 2018 fact sheet’ (accessed March 2021)
- UNAIDS (2020) “Global Report, AIDS data book (accessed February 2021)

ANXIETY, DEPRESSION OF PREGNANT WOMEN DURING COVID-19 PANDEMIC: ARTICLE REVIEW

Varvara O. Anikina¹, Svetlana S. Savenysheva¹, & Mariia E. Blokh^{1,2}

¹*Saint-Petersburg State University, Saint-Petersburg (Russia)*

²*Dr D. O. Ott Research Institute of Obstetrics, Gynecology, and Reproduction, Saint-Petersburg (Russia)*

Abstract

The article is the review of the available research papers on anxiety, depression, stress and signs of PTSD in pregnant women during the COVID-19 pandemic. Articles were searched in the databases of Scopus, Web of Science, EBSCO, APA using the keywords "pregnancy", "COVID-19", "anxiety", "depression", "stress", "PTSD". For this article review we selected only those research studies that have comparatively large samples, with the most widely used measures: State and Trait Anxiety Inventory (STAI), Generalized Anxiety Disorder (GAD-7), Edinburg Postpartum Depression Scale (EPDS), and Impact of a Traumatic Event Scale (IES-R). In these studies levels of anxiety, depression and PTSD are either compared to the existing cut-off scores for these disorders in the literature or in COVID-19 and pre-COVID cohorts of pregnant women. Some papers include not only women during pregnancy but also postpartum. Data here are presented only on pregnancy. The results show that 22% to 68% of pregnant women experience moderate to severe anxiety, and it is two to five times more than the prevalence of anxiety in the literature. The state anxiety has increased more compared to trait anxiety. 14.9%-34.2% of women report on clinically significant levels of depression, and it is twice higher than the pre-existing data. About 10.3% of pregnant population have PTSD signs which falls into a moderate range. The levels of anxiety, depression and PTSD are significantly higher in COVID-19 cohorts than in pre-COVID samples. The most predicting factor for anxiety, depression and PTSD is the pre-existing mental health disorder of anxiety or depression.

Keywords: *COVID-19, pregnancy, anxiety, depression, PTSD.*

1. Introduction

Pregnant women being a vulnerable group of the population, during the COVID-19 pandemic are exposed to a huge number of stress factors – a decrease in the number of planned prenatal visits, the closure of delivery hospitals, self-isolation, lack of physical activity, financial problems, fear of infection, both of their own and their loved ones and the unborn child, as well as the vertical transmission and during breastfeeding. All this can lead to anxiety, depression, distress, which increases the likelihood of complications during pregnancy and delivery outcomes.

Accumulated data from the previous scientific studies show that stress during pregnancy, along with anxiety and depression, can increase vulnerability to infectious diseases (Christian et al., 2010), lead to pregnancy complications (Rubertsson et al., 2014), and increase the likelihood of premature birth (Staneva et al., 2015). Prenatal stress can have a negative impact on the quality of mother-child interaction (Spinelli et al., 2013), contribute to disorders of the child's mental health both after childbirth and later, in preschool and school years (Savenysheva, 2018).

2. Anxiety and depression of pregnant women during the pandemic

One of the first studies of the emotional states of pregnant women during the pandemic was in Italy (Saccone et al., 2020). Anxiety was assessed using Spielberger State and Trait Anxiety Inventory (STAI) and signs of PTSD using the Impact of a Traumatic Event Scale (IES-R). The study included 100 women, 48% in the third trimester. The results showed that 68% of women demonstrate moderate to severe anxiety, and 53% report the impact of the pandemic as strong. In another Italian study (Mappa et al., 2020) with 178 pregnant women (mean age 33 years, 61% in the second trimester), clinically

significant anxiety levels measured with STAI were reported by 38.2% of women; the median value for state anxiety was 12 points significantly higher ($p \leq 0.0001$) than the median value for trait anxiety.

Another method for assessing the level of anxiety is the Generalized Anxiety Disorder Questionnaire (GAD-7), which has also been used to assess the level of anxiety in pregnant women. In particular, in an American study including 788 pregnant women, moderate symptoms of anxiety (scores from 10 to 14) were observed in 21.6% of pregnant women, and 21.7% reported on serious symptoms (scores ≥ 15). This means that about half of the sample experience moderate-to-severe anxiety during the pandemic (Preis et al., 2020).

Greek study of 269 pregnant women (27.5% over 35 years of age) during a 6-week quarantine shows that 27.5% experience moderate and 10% strong/very strong state and 10.8% - moderate and 2.2% strong/very strong trait anxiety. State anxiety was significantly associated with postpartum depression measured using the Edinburgh Postpartum Depression Scale (EPDS), where 14.9% of the sample showing signs of severe (scores above 13) postpartum depression (Dagklis et al., 2020).

One of the most comprehensive study is the research conducted by the Belgian authors. It included 2,421 pregnant. The results showed that 69.5% of pregnant women show signs of postpartum depression as measured by EPDS (scores above 10), with extremely high values (above 13 points) observed in 25.3% of pregnant women (Ceulemans et al., 2020).

In an Italian study including 389 of whom were pregnant (mean age 32.9 ± 4.3 years) using STAI and EPDS the results showed that 64.0% of pregnant women had clinically high scores for state anxiety, and 44.0% - for trait anxiety. Moreover, 34.2% of pregnant women had clinically high scores (more than 13) on EPDS (Molgora et al. 2020).

The study conducted in the United States, involved 1061 women (average age 33.10 ± 3.77 years, 89.9% of the white population, 30.7% - in the third trimester, 45.8% - after the birth of a child). Anxiety, depression, and signs of PTSD were evaluated in a combined sample of pregnant and postpartum women. The results showed that 36.4% of the entire sample had clinically significant indicators of depression, 22.7% - anxiety, 10.3% showed signs of PTSD; 18.2% of women show moderate to severe health-related anxiety. At the same time, it was found that before pregnancy in the study sample, 17.5% of women were diagnosed with depression, 24.5% with generalized anxiety, and 4.1% were diagnosed with PTSD. The results of this study revealed that pre-pregnancy depression was a significant predictor of clinically severe depression at the time of the study ($p < 0.01$); similarly, a diagnosis of PTSD predicted the presence of signs of PTSD during the pandemic ($p < 0.01$). Pre-pregnancy anxiety and health-related anxiety during the pandemic were significant predictors of both anxiety, depression ($p < 0.001$), and severe signs of PTSD ($p < 0.05$) at the time of the study (Liu et al., 2021).

3. Anxiety, depression and PTSD signs in COVID-19 and pre-COVID cohorts of pregnant women

Some scientific papers present studies comparing samples of pregnant women recruited during the pandemic and before it has begun. One of the first such studies is the work carried out in China (Wu et al., 2020). It involved 4,124 women (average age 30 years, 14% over 35 years), of whom 2,839 were participants in the study before the outbreak of the pandemic was announced. The researchers used the Edinburgh Postpartum Depression Scale (EPDS). The results show that the average EPDS score in the group during the pandemic period is below the critical threshold of 10 points, but higher than in the group before the pandemic. The same tendency is observed for the anxiety subscales in the EPDS scale. Moreover, there was a significant increase in anxiety and depression due to an increase in the number of reported cases of deaths ($p < 0.005$). Similar data were obtained in a number of other studies (Dagklis et al., 2020., Kotabagi et al., 2020).

Another study was conducted in Canada and aimed to assess prenatal stress, anxiety, depression, signs of PTSD, and also had questions about mental health disorders. The results were analyzed for two cohorts of women (mean age 29.27 ± 4.23 years, gestational age 24.80 ± 9.42 weeks), whose data were collected in the period before the COVID-19 pandemic was declared ($n=496$) and during self-isolation period ($n=1258$). The results show that pregnant women in the COVID-19 cohort reported higher levels of prenatal stress ($p < 0.001$) compared to pregnant women in the pre-COVID-19 cohort, even when controlling for the woman's age, gestational age, level of education and family income, and the presence of mental health disorders. It was also found that compared to the group before the pandemic, pregnant women from the COVID-19 group were more likely to have more severe and clinically significant symptoms of depression and anxiety (6.0% and 10.9%, respectively, $p = 0.002$), more symptoms of PTSD, particularly dissociation ($p < 0.001$). The data also showed that the presence of a mental health disorder is a significant predictor of anxiety, dissociative symptoms, and mood change (Berthelot et al., 2020).

4. Discussion

Thus, the data from scientific studies obtained in 2020 in different countries and on large samples indicate that from 22% to 68% of pregnant women experience moderate to severe anxiety during the pandemic. At the same time cut-off scores presented in the scientific literature in the pre-pandemic time indicate the prevalence of anxiety is in 10-15% of cases. This means that the levels of anxiety during the pandemic are two to five times higher compared to the average number of the usual prevalence. Some studies indicate the increase of anxiety levels with the increasing numbers of the reported deaths in the mass-media. Other results indicate that state anxiety had a tendency to increase more than trait anxiety, which altogether can be viewed as an adaptive reaction to stressful situation, especially high levels of uncertainty and information presented in mass media. This data should be more observed in the future for the long-term consequences of anxiety, and if state anxiety may get internalized into traits or posttraumatic symptoms in pregnant women and postpartum.

Another result that we obtained from the articles review is that different studies report that 14.9%-36.4% of pregnant and newly mothers experience depression, specifically clinically severe symptoms of postpartum depression measured by EPDS. The cut-off scores presented in the literature demonstrate the prevalence of depression in 10-22% of cases. This means that about two times more pregnant women experience depression during the pandemic. It should be noted that in some studies high risk of postpartum depression is evaluated at the score of 10, but most studies use the critical level of 13, and still the number of clinically significant levels of depression are extremely high.

Signs of stress, including clinical levels of PTSD, are noted in 10.3% of pregnant women during the COVID-19 times, and this is higher than the levels obtained before the pandemic, indicating the presence of signs of PTSD in 5% of women (up to 18% - in high-risk groups). This means that pregnant women fall into a moderate range with regard to PTSD signs. But since the reviewed studies were conducted at the beginning of pandemic, it should be observed in more detail if PTSD symptoms sustains, decrease or, possibly we may observe increase in posttraumatic symptoms in pregnant women and after the delivery. It should also be noted that one of the main predicting factors for greater levels of anxiety, depression and PTSD is the pre-existing mental health disorder before pregnancy. This groups of women should be paid special attention to.

5. Conclusion

Anxiety, depression and stress levels of pregnant women had greatly increased during the COVID-19 pandemic compared to the pre-pandemic cohorts. This may have further negative consequences not only on women's mental health but also have a great impact on the fetus, delivery outcomes as well derail future child overall development. Scientists and practitioners should continue studying pregnant women and postpartum paying special attention to mental health issues, both of mother and the child, their interaction and other long-term consequences of COVID-19 pandemic on maternal and child mental and physical health. Special attention should be paid to those women with the pre-existing mental health disorders.

Acknowledgements

Research is supported by RFBR project No. 20-04-60386.

References

- Berthelot N., Lemieux R., Garon-Bissonnette J., Drouin-Maziade C., Martel É., & Maziade M. (2020). Uptrend in distress and psychiatric symptomatology in pregnant women during the coronavirus disease 2019 pandemic. *Acta Obstetrica and Gynecologica Scandinavica*, Vol. 99, P. 848–855. <https://doi.org/10.1111/aogs.13925>
- Ceulemans M., Hompes T., Foulon V. (2020). Mental health status of pregnant and breastfeeding women during the COVID-19 pandemic: A call for action. *International Journal of Gynecology & Obstetrics*. Vol. 151. №1. DOI: 10.1002/ijgo.13295
- Christian L.M., Franco A., Iams J.D., Sheridan J., Glaser R. (2010). Depressive symptoms predict exaggerated inflammatory responses to an in vivo immune challenge among pregnant women. *Brain, Behavior and Immunity*, Vol. 24, № 1, P. 49–53. DOI: 10.1016/j.bbi.2009.05.055

- Dagklis, T., Tsakiridis I., Mamopoulos A., Athanasiadis A., Pearson R., & Papazisis G. (2020). Impact of the COVID-19 lockdown on antenatal mental health in Greece. *Psychiatry and Clinical Neurosciences*, Vol. 74, P. 602–631. DOI:10.1111/pcn.13135
- Kotabagi P., Fortune L., Essien S., Nauta M., & Yoong W. (2020). Anxiety and depression levels among pregnant women with COVID-19. *Acta Obstetrica et Gynecologica Scandinavica*, Vol. 99, P. 953–954. DOI: 10.1111/aogs.13928
- Liu C., Erdei C., Mittal L. (2021) Risk factors for depression, anxiety, and PTSD symptoms in perinatal women during the COVID-19 Pandemic. *Psychiatry Research*. 2021. Vol. 295 <https://doi.org/10.1016/j.psychres.2020.113552>
- Mappa I., Distefano F., & Rizzo G. (2020). Effects of coronavirus 19 pandemic on maternal anxiety during pregnancy: a prospective observational study. *Journal of Perinatal Medicine*, Vol. 48, № 6, P. 545–550 <https://doi.org/10.1515/jpm-2020-0182>
- Molgora S., Accordini M. (2020) Motherhood in the Time of Coronavirus: The Impact of the Pandemic Emergency on Expectant and Postpartum Women's Psychological Well-Being. *Frontiers in Psychology*. DOI: 10.3389/fpsyg.2020.567155.
- Preis H., Mahaffey B., Heiselman C., & Lobel M. (2020). Pandemic-related pregnancy stress and anxiety among women pregnant during the COVID-19 pandemic. *American Journal of Obstetrics & Gynecology MFM*. DOI: 10.1016/j.ajogmf.2020.100155.
- Rubertsson C., Hellström J., Cross M., & Sydsjö G. (2014). Anxiety in early pregnancy: prevalence and contributing factors. *Archives of Women's Mental Health*, Vol. 17, N 3, P. 221–229. DOI: 10.1007/s00737-013-0409-0
- Saccone G., Florio A., Aiello F., Venturella R., De Angelis M.C., Locci M., Bifulco G., Zullo F., & Di Spiezio Sardo A. (2020). Psychological Impact of COVID-19 in pregnant women. *American Journal of Obstetrics and Gynecology*, Vol. 223, №2, P. 293–295. DOI: 10.1016/j.ajog.2020.05.003
- Savenysheva S.S. (2018). Vliyanie sostoyaniya i otnosheniya k rebenku materi v period beremennosti na posleduyushchee psichicheskoe razvitie rebenka: analiz zarubezhnyh issledovaniy [Influence of the state and attitude towards the child of the mother during pregnancy on the subsequent mental development of the child: analysis of foreign studies]. *Internet-zhurnal «Mir nauki - Internet journal "World of Science»*, № 1. <https://mir-nauki.com/PDF/14PSMN118.pdf>. (In Russ.).
- Spinelli M., Poehlmann J., & Bolt D. (2013). Predictors of parenting stress trajectories in premature infant-mother dyads. *The Journal of Family Psychology*, Vol. 27, №6, P. 873-883. DOI: 10.1037/a0034652
- Staneva A., Bogossian F., Pritchard M., Wittkowski A. (2015). The effects of maternal depression, anxiety, and perceived stress during pregnancy on preterm birth: A systematic review. *Women Birth*, Vol. 28, № 3, P. 179–93.
- Wu Y., Zhang C., Liu H., Duan C., Li C., Fan J., Li H., Chen L., Xu H., Li X., Guo Y., Wang Y., Li X., Li J., Zhang T., You Y., Li H., Yang S., Tao X., Xu Y., Lao H., Wen M., Zhou Y., Wang J., Chen Y., Meng D., Zhai J., Ye Y., Zhong Q., Yang X., Zhang D., Zhang J., Wu X., Chen W., Dennis C-L., & Huang H. (2020). Perinatal depressive and anxiety symptoms of pregnant women during the coronavirus disease 2019 outbreak in China. *American Journal of Obstetrics and Gynecology*, Vol. 223, P. 240e1-240e9. <https://doi.org/10.1016/j.ajog.2020.05.009>

AN EXPLORATIVE STUDY REGARDING THE RELATIONS BETWEEN DARK TRIAD AND HEXACO MODEL OF PERSONALITY

Dan Florin Stănescu, & Marius Constantin Romașcanu

*Communication Department, National University of Political Studies and Public Administration,
(Romania)*

Abstract

Despite their diverse origins, the personalities composing this Dark Triad share several features. To varying degrees, all three entail a socially malevolent character with behavior tendencies toward self-promotion, emotional coldness, duplicity, and aggressiveness (Paulhus & Williams, 2002). Subclinical narcissism, Machiavellianism, and psychopathy are referred to as the Dark Triad due to their socially undesirable nature, similar phenotypical behaviors (e.g., manipulation), positive intercorrelations of their scales, and conceptual similarities (e.g., ego-centricity) (Rauthmann, 2012). A narcissistic person is described in terms of a high vanity, constantly seeking attention and admiration, with a sense of superiority or authority. Most often he or she manifests manipulative and exhibitionist behaviors. Machiavellianism is a tendency to be cynical, pragmatic, emotionally detached in interpersonal relations but, at the same time a good organizer and having long-term strategically thinking. Psychopathy presents as cardinal features: impulsiveness, emotional detachment, manipulative antisocial behavior. In the current study 126 participants (24 males and 102 females), ages ranged between 18 and 26 years old ($M=19.30$, $SD=1.11$), were invited to fill in the following measures: MACH IV (Christie & Geis, 1970), Narcissistic Personality Inventory NPI-16 (Ames, Rose & Anderson, 2006), Self-Report Psychopathy scale – version III (Paulhus, Neumann, & Hare, 2009) and HEXACO-PI-R (Lee & Ashton, 2018). Results showed significant negative correlations between psychoticism and four of the six HEXACO factors, namely Honesty-Humility, Emotionality, Agreeableness, and Conscientiousness. Similarly, narcissism is negatively related to Honesty-Humility and Agreeableness, and positively with Extraversion. Machiavellianism showed a positive correlation with Honesty-Humility, Agreeableness, and Conscientiousness. Findings of the current study should be extended in more diverse samples (e.g., better female-male ratio) and also including measures for the Light Triad of personality, thus providing new insights into the positive, growth-oriented personality traits.

Keywords: *Dark triad, Machiavellianism, narcissism, psychopathy, HEXACO.*

1. Introduction

Despite their diverse origins, the personalities composing this Dark Triad share a number of features. To varying degrees, all three entail a socially malevolent character with behavior tendencies toward self-promotion, emotional coldness, duplicity, and aggressiveness (Paulhus & Williams, 2002). Subclinical narcissism, Machiavellianism, and psychopathy are referred to as the Dark Triad due to their socially undesirable nature, similar phenotypical behaviors (e.g., manipulation), positive intercorrelations of their scales, and conceptual similarities (e.g., ego-centricity) (Rauthmann, 2012).

Psychopathy is the tendency to impulsive thrill-seeking, cold affect, manipulation, and antisocial behaviors (Williams, Nathanson, & Paulhus, 2003), often falling into a primary factor (characterized by callous affect, affective shallowness, lack of empathy and remorse, superficial charm, and interpersonal manipulation) and a secondary factor (expressed through erratic lifestyles and anti-social behaviors, social deviance, low socialization, impulsivity, irresponsibility, aggression, sensation seeking, delinquency; Hare, 2003). Psychopathy is now recognized as a subclinical variable, exhibiting meaningful variation within “normal” populations (Hare, 1991). Psychopathy is also described by cold and rigid affectivity, a superficial interaction style, manipulative in interpersonal relations (Kring & Bachorowski, 1999).

Machiavellianism is the tendency to cynical, misanthropic, cold, pragmatic, and immoral beliefs; detached affect; pursuit of self-beneficial goals (e.g., power, money); strategic long-term planning; and manipulation tactics (Christie & Geis, 1970; Rauthmann & Will, 2011). Machiavellianism

is also characterized by the manipulation and exploitation of others, cunning, cold affect, and a lack of sincerity or ethical concern (Christie & Geis, 1970).

High Mach scorers exhibit manipulative behaviours towards others in order to promote their own interests and are found to be emotionally detached in their interactions with others, with an interpersonal orientation, which is described as cognitive as opposed to emotional, and with little tendency to focus on individual differences (Christie & Geis, 1970). They tend to exhibit a cool and detached attitude, an opportunist approach to norms, regulations and social values. They are able to make use of other people in order to fulfill their own wishes, and often disappoint others (Mudrack & Mason, 1995). Hunter, Boster și Gerbing (1982, as cited in Reimers, 2004) mentioned four essential components extracted from factorial analysis: flattery, honesty rejection, rejection of the belief that humans are moral, and the conviction that they are corrupt and unreliable.

Strong personalities, Machiavellians are distinguished by the desire to assert themselves, understand what motivates those around them and use this information to their advantage, use personal charm to seduce and conquer, quickly become the leaders of the group they belong to, they rigorously plan every move, they never reveal their own intentions, for them reputation matters a lot, people's good opinion of them being essential in their attempts to manipulate them in order to achieve their goals (Austin, Farrelly, Black, & Moore, 2007).

Related to psychopathy and Machiavellianism, narcissism represents an exaggeration of self-worth and importance, superiority over others (i.e., grandiosity), and attention-seeking (Raskin & Terry, 1988). Put simply, narcissism is an "excessive love for one's self" (Vernon et al., 2008, p.445), is the tendency to harbor grandiose and inflated self-views while devaluing others (Morf & Rhodewalt, 2001).

According to Raskin and Hall (1979), narcissism defines the personality of individuals who manifest facets of grandeur, domination, and superiority. The need to amaze, to be in the center of attention, and to be always appreciated are behaviors that the narcissistic personality manifests to mask the discrepancy between his two identities.

Narcissists are shown to exhibit extreme vanity; attention and admiration seeking; feelings of superiority, authority, and entitlement; exhibitionism and bragging; and manipulation (Raskin & Terry, 1988). They have a high need of achievement and a low one for affiliation. That is why they easily accept challenges, they show a high degree of competitiveness (Raskin & Terry, 1988). Narcissists are interested in success, power, beauty and glamour. They live as they are on a stage showing off and asking for others attention and admiration. They might be perceived as being arrogant, dominant and even hostile (Rosenthal & Pittinsky, 2006).

Moving further, the personality was best described using the well-known Five-Factor Model (FFM) of personality (Costa & McCrae, 1992; Goldberg, 1990). The aspects of this six-factor model include Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience (Ashton & Lee, 2007).

On one hand, people with high scores on the Honesty-Humility scale avoid manipulating others for personal gain, feel no temptation to break rules, and feel no special entitlement to elevated social status. On the other hand, persons with low scores will flatter others to get what they want, are inclined to break rules for personal profit, are motivated by material gain, and feel a strong sense of self-importance (Ashton & Lee, 2007).

Persons with high scores on the Emotionality scale experience fear of physical dangers, experience anxiety in response to life's stresses, feel a need for emotional support from others and feel empathy and sentimental attachments with others. Conversely, persons with low scores are not deterred by the prospect of physical harm, feel little worry even in stressful situations, and feel emotionally detached from others (Ashton & Lee, 2007).

Regarding the Extraversion scale, high scores describe people that feel positively about themselves, feel confident when leading or addressing groups of people, enjoy social gatherings and interactions, and experience positive feelings of enthusiasm and energy. Conversely, persons with low scores feel awkward when they are the center of social attention, are indifferent to social activities, and feel less lively and optimistic than others do (Ashton & Lee, 2007).

Additionally, persons with high scores on the Agreeableness scale forgive the wrongs that they suffered, are willing to compromise and cooperate with others, and can easily control their temper. Conversely, persons with low scores hold grudges against those who have harmed them, are rather critical of others' shortcomings, are stubborn in defending their point of view, and feel anger readily in response to mistreatment (Ashton & Lee, 2007).

Furthermore, persons with high scores on the Conscientiousness scale work in a disciplined way toward their goals, strive for accuracy and perfection in their tasks and deliberate carefully when making decisions. Conversely, persons with low scores tend to be unconcerned with orderly surroundings or

schedules, avoid difficult tasks or challenging goals, are satisfied with work that contains some errors, and make decisions on impulse or with little reflection (Ashton & Lee, 2007).

On the last scale of the model, Openness to Experience, people with high scores are inquisitive about various domains of knowledge, use their imagination freely in everyday life, and take an interest in unusual ideas or people. Conversely, persons with low scores are rather unimpressed by most works of art, feel little intellectual curiosity, avoid creative pursuits, and feel little attraction toward ideas that may seem radical or unconventional (Ashton & Lee, 2007).

In view of the above discussion, the following research question is proposed: What relations can be identified between the Dark Triad and HEXACO model of personality?

2. Methods

2.1. Participants

One hundred and twenty-six employees (24 men, 102 women), aged 18-26 years ($M = 19.30$; $AS = 1.11$) coming from both bachelor and master degree were invited to participate in the study. Participants were given the complete packets, including informed consent and measures to complete.

2.2. Measures

Self-reported data collection technique was used. All participants were ensured about the confidentiality of the data and that it would be only used for research purpose. Dark Triad was measured using the NPI (Raskin & Hall, 1979), the Self-Report Psychopathy Scale-III (Paulhus, Neumann, & Hare, 2009), and the MACH-IV (Christie & Geis, 1970).

Subclinical narcissism was assessed with the 40-item Narcissistic Personality Inventory (Raskin & Hall, 1979) which assesses four distinct factors: exploitativeness/entitlement, leadership/authority, superiority/arrogance, and self-absorption/self-admiration. For each item, participants have to choose one of two statements (forced choice) they felt applied to them more. One of the two statements reflected a narcissistic attitude (e.g., "I have a natural talent for influencing people."), whereas the other one did not (e.g., "I am not good at influencing people."). Kansi (2003) reported a good alpha of 0.80.

The 31-item Self-Report Psychopathy Scale-III (Paulhus, Neumann, & Hare, 2009) was used to assess nonclinical psychopathy. Participants rated how much they agreed (1 = strongly disagree, 5 = strongly agree) with statements such as, "I purposely flatter people to get them on my side" (IPM); "I never feel guilty for hurting others" (CA); "I've often done something dangerous just for the thrill of it" (ELS); and "I have tricked someone into giving me money" (CT). These items reflect psychopathic characteristics modeled in four dimensions: interpersonal manipulation (IPM), callous affect (CA), erratic life style (ELS), and criminal tendencies (CT). Good alpha were reported both for the total score (.81) and for the scales (between .74 and .82).

Machiavellianism was measured with the 20-item MACH-IV (Christie & Geis, 1970). Those items cover the use of deceit in interpersonal relationships, and a cynical attitude to human nature. Participants respond by indicating the extent to which they agree with each statement on a 5-point Likert scale. In this questionnaire, higher scores represent higher levels of Machiavellianism, as defined by manipulative interpersonal strategies and a skeptical view of others. An example item is 'The best way to handle people is to tell them what they want to hear.' Corral and Calvete (2000) reported an alpha of .70.

The HEXACO model of personality was assessed with the HEXACO-PI-R (HEXACO Personality Instrument Revised; Ashton, & Lee, 2009). This model is an alternative to the well-known Big Five model, having a common structure with it. The HEXACO model contains the factors Honesty-Humility, Affectivity (E - Emotionality), Extraversion (X - Extraversion), Ability (A - Agreeableness), Conscientiousness (C - Conscientiousness) and Openness to Experience to Experience). Response options for each item range from 1 ("strongly disagree") to 5 ("strongly agree"). The authors reported adequate internal consistency (alpha between .77 to .80).

3. Results

After collection, the data were analysed using SPSS 26.0 version software. Table 1 shows Honesty-humility to be negatively correlated with Narcissism ($r = -.350$, $p < .01$) and subclinical psychopathy ($r = -.505$, $p < .01$), and positively correlated with Machiavellianism ($r = .288$, $p < .01$), whereas, Emotionality negatively correlated only with subclinical psychopathy ($r = -.240$, $p < .01$) and Extraversion only with Narcissism ($r = .416$, $p < .01$).

Table 1. Bivariate correlations between Dark Triad components and Hexaco model of personality (a).

| | | Honesty-humility | Emotionality | Extraversion |
|------------------|-----------------|------------------|--------------|--------------|
| Narcissism | Pearson Correl. | -.350** | -.137 | .416** |
| | Sig. (2-tailed) | .000 | .126 | .000 |
| Machiavellianism | Pearson Correl. | .288** | .167 | .139 |
| | Sig. (2-tailed) | .001 | .061 | .121 |
| Psychopathy | Pearson Correl. | -.505** | -.240** | -.099 |
| | Sig. (2-tailed) | .000 | .007 | .268 |

Furthermore, the correlations run to test the relations between Dark Triad components and the rest of HEXACO scales (table 2), showed significant negative correlations between Agreeableness and Narcissism ($r = -.242$, $p < .01$), respectively subclinical psychopathy ($r = -.315$, $p < .01$), and positively correlation with Machiavellianism ($r = .269$, $p < .01$). The same significant results were also identified for the correlations between Conscientiousness and Machiavellianism ($r = .252$, $p < .01$), and between Conscientiousness and subclinical psychopathy ($r = -.315$, $p < .01$).

Table 2. Bivariate correlations between Dark Triad components and Hexaco model of personality (b).

| | | Agreeableness | Conscientiousness | Openness to experience |
|------------------|-----------------|---------------|-------------------|------------------------|
| Narcissism | Pearson Correl. | -.242** | .030 | .025 |
| | Sig. (2-tailed) | .006 | .739 | .785 |
| Machiavellianism | Pearson Correl. | .269** | .252** | -.027 |
| | Sig. (2-tailed) | .002 | .004 | .767 |
| Psychopathy | Pearson Correl. | -.315** | -.315** | .030 |
| | Sig. (2-tailed) | .000 | .000 | .741 |

4. Conclusions

The present study examined the relations between the broad HEXACO model of personality and the Dark Triad constructs. Results were consistent with the findings of Lee and Ashton (2005) who found that Narcissism was positively related to Extraversion. Psychopathy was inversely related to Emotionality, Conscientiousness, and Agreeableness (Lee & Ashton, 2005). Moreover, our results are mirroring previous research who noted that the Honesty-Humility facets are also empirically related to the individual Dark Triad subscales, with meta-analytic correlations in the $-.09$ to $-.56$ range (averaging $-.36$) (Muris et al., 2017).

One of the main weaknesses of this study was the use of a cross-sectional design, which does not allow for an assessment of the cause-effect relation. Also, the questionnaires were self-reported, which may result in common method bias. Moreover, there are some limitations that future studies should address. First, neither subfacets nor different “forms” of each Dark Triad trait were investigated (Jonason, Kavanagh, Webster, & Fitzgerald, 2011). For example, grandiose versus vulnerable narcissism (Miller et al., 2011) and primary versus secondary psychopathy (Hare, 2003) can be distinguished. Also, Machiavellianism likely has subfacets (tactics, morality, and views) despite being often unidimensionally conceptualized (Rauthmann & Will, 2011).

To sum up, findings of the current study should be extended in more diverse samples (e.g., better female-male ratio, different age ranges etc.), with different or more complex Dark Triad measures, or even including a comparison with Light Triad measures, and with different research designs (e.g., mixed methods).

References

- Ames, D.R., Rose, P., & Anderson, C.P. (2006). The NPI-16 as a short measure of narcissism. *Journal of Research in Personality, 40*, 440-450.
- Ashton, M.C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and Social Psychology Review, 11*, 150-166.
- Ashton, M.C., & Lee, K. (2009). The HEXACO-60: A short measure of the major dimensions of personality. *Journal of Personality Assessment, 91*, 340-345.

- Austin, E.J., Farrelly, D., Black, C., & Moore, H. (2007). Emotional intelligence, Machiavellianism and emotional manipulation: Does EI have a dark side?. *Personality and Individual Differences*, 43(1), 179-189.
- Christie, R., & Geis, F. (1970). *Studies in Machiavellianism*. New York: Academic Press.
- Corral, S., & Calvete, E. (2000). Machiavellianism: Dimensionality of the Mach IV and its Relation to Self-Monitoring in a Spanish Sample. *The Spanish Journal of Psychology*, 3(1), 3-13.
- Hare, R.D. (1991). *The Hare Psychopathy Checklist-Revised*. Toronto: Multi-Health Systems.
- Hare, R.D. (2003). *The Hare psychopathy checklist-revised*. (PCL-R; 2nd ed.). Toronto, Canada: Multi-Health Systems.
- Jonason, P.K., Kavanagh, P.S., Webster, G., & Fitzgerald, D., (2011). Comparing the Measured and Latent Dark Triad: Are Three Measures Better than One? *Journal of Methods and Measurement in the Social Sciences*, 2(1), 28-44.
- Kansi, J. (2003). The Narcissistic Personality Inventory: Applicability in a Swedish population sample. *Scandinavian Journal of Psychology*, 44(5), 441-448.
- Kring, A., & Bachorowski, J. (1999). *Emotions and Psychopathology*, Vanderbilt University, Nashville, USA.
- Lee, K., & Ashton, M. C. (2005). Psychopathy, Machiavellianism, and Narcissism in the Five-Factor Model and the HEXACO model of personality structure. *Personality and Individual Differences*, 38, 1571-1582. doi: 10.1016/j.paid.2004.09.016
- Lee, K., & Ashton, M.C. (2018). Psychometric properties of the HEXACO-100. *Assessment*, 25(5), 543-556.
- Miller, J.D., Hoffman, B.J., Gaughan, E.T., Gentile, B., Maples, J., & Campbell, W. K. (2011). Grandiose and vulnerable narcissism: A nomological network analysis. *Journal of Personality*, 79, 1013-1042.
- Morf, C.C., & Rhodewalt, F. (2001). Unraveling the paradoxes of Narcissism: A dynamic self-regulatory processing model. *Psychological Inquiry*, 12, 177-196.
- Mudrack, P.E., & Mason, E.S. (2013). Ethical judgments: What do we know, where do we go? *Journal of Business Ethics*, 115(3), 575-597.
- Muris, P., Merckelbach, H., Otgaar, H., & Meijer, E. (2017). The malevolent side of human nature: A meta-analysis and critical review of the literature on the Dark Triad (narcissism, Machiavellianism, and psychopathy). *Perspectives on Psychological Science*, 12(2), 183-204.
- Paulhus, D.L., & Williams, K.M. (2002). The Dark Triad of personality: Narcissism, Machiavellianism and psychopathy. *Journal of Research in Personality*, 36(6), 556-563. [https://doi.org/10.1016/S0092-6566\(02\)00505-6](https://doi.org/10.1016/S0092-6566(02)00505-6)
- Paulhus, D.L., Neumann, C.S., & Hare, R.D. (2009). *Manual for the self-report psychopathy scale*. Toronto: Multi-Health Systems.
- Raskin, R., & Terry, H. (1988). A principal-components analysis of the narcissistic personality inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology*, 54, 890-902.
- Raskin, R.N., & Hall, C.S. (1979). A narcissistic personality inventory. *Psychological Reports*, 45(2), 590. <https://doi.org/10.2466/pr0.1979.45.2.590>
- Rauthmann, J.F. (2012). The Dark Triad and interpersonal perception: Similarities and differences in the social consequences of narcissism, Machiavellianism, and psychopathy. *Social Psychological and Personality Science*, 3(4), 487-496. <https://doi.org/10.1177/1948550611427608>
- Rauthmann, J.F., & Will, T. (2011). Proposing a multidimensional Machiavellianism conceptualization. *Social Behavior and Personality*, 39, 391-404.
- Reimers, J. (2004). *Assessing Political Leadership – A Review of Christie and Geis` (1970) Mach IV Measure of Machiavellianism*, University of Nebraska – Lincoln.
- Rosenthal, A., & Pittinsky, T.L. (2006). Narcissistic Leadership. *The Leadership Quarterly*, 17, 617-633.
- Vernon, P.A., Villani, V.C., Vickers, L.C., & Harris, J.A. (2008). A behavioral genetic investigation of the dark triad and the Big 5. *Personality and Individual Differences*, 44, 445-452.
- Williams, K.M., Nathanson, C., & Paulhus, D.L. (2003). Structure and validity of the self-report psychopathy scale-III in normal populations. Presentation at the 11th annual convention of the American Psychological Association, Toronto, Canada.

FATIGUE AND ANXIETY IN BREAST CANCER: THE RELATIONSHIP WITH INTERPRETATION BIAS

Nidhi Vedd

Institute of Psychiatry, Psychology and Neuroscience (IOPPN), King's College London (UK)

Abstract

Background: Research has highlighted both fatigue and anxiety to be two of the most debilitating symptoms of breast cancer that prevail for years into its survivorship, and suggests that these symptoms influence how people interpret information. Harboring negative interpretation biases also helps to maintain self-destructive beliefs resulting in increased severity of symptoms and disability in those already affected by the illness. This study is the first utilizing an experimental measure of assessing interpretation bias in a population of breast cancer to investigate the contribution of fatigue and anxiety.

Method: A cross-sectional study design was used. 53 breast cancer survivors and 62 female healthy controls were recruited via opportunistic sampling. Participants completed an online questionnaire assessing basic demographics, fatigue via the Chalder Fatigue Questionnaire (CFQ) and anxiety using the Hospital Anxiety and Depression Scale (HADS). Following this, an in-person testing session assessed interpretation bias (IB) using a computerised task.

Results: Independent sample t-tests found a non-significant result in the comparison of IB indices between populations ($t(112.60) = .28, p = .783; d = .05$). Significant differences were observed in mean fatigue and anxiety scores in the breast cancer population compared to the healthy controls. Pearson correlation identified a statistically significant positive correlation between CFQ scores and negative interpretation bias ($r = .34, n = 53, p = .013$), however not for anxiety. Hierarchical multiple regression was calculated to predict negative interpretation biases based on potential confounding variables (age, relationship status and level of education), CFQ, HADS anxiety scores (separately). All four regression models were non-significant. The only significant predictor of negative interpretation bias was fatigue ($\beta = .39, t(53) = 2.71, p = .009$).

Conclusion: The identified significant correlation between fatigue and negative interpretation bias in this study corroborates findings from existing literature. However other results proved inconsistent with the vast body of research suggesting that breast cancer survivors would make more negative interpretations of ambiguous stimuli on an IB task compared to healthy controls. These results highlight the potential for future research investigating strategies of inherent self-adaptive and coping mechanisms that are or could be adopted by these participants to overcome this cognitive bias.

Keywords: *Fatigue, anxiety, breast cancer, interpretation bias.*

1. Introduction

Breast cancer is the most common cancer amongst females worldwide affecting approximately 1 in 8 women in their lifetime (Rojas K, 2016). According to Cancer Net, the average 5-year survival rate of women with invasive breast cancer is ~90%, and the 10-year survival rate is ~83%. It is therefore essential to understand and attempt to address the significant issues in cancer survivorship to minimise distress and improve patient quality of life (QOL). Following remission of breast cancer, the most common concern is fear of cancer recurrence. Fatigue has been reported by 30-50% of breast cancer survivors within the first five years post-treatment (Kingston B, 2016). It is one of the most prevalent symptoms experienced by those in remission of breast cancer and is present at significantly higher rates compared to age-matched controls.

One of the core processes, believed to maintain and perpetuate anxiety, is how people interpret and process information. A consistent finding amongst psychological literature is the tendency of individuals to process information preferentially according to their perspective of the world and perception of themselves (Beck A.T, 1988). Cognitive schemas are complex internally stored representations of ideas derived from previous experiences which, when operationalised, lead people to

construct their own psychological realities (Pace T, 1988). Beck theorised that when activated schemas are disproportionate to life events, information processing becomes erroneous, therefore affecting other systems resulting in inappropriate affect or behaviour (Beck AT, 1988). These schemas become reflected in the subjective interpretation of stimuli. These information-processing biases are frequently found in anxious individuals who generally sustain a view of the world that is more dangerous and threatening to them.

Cognitive models of anxiety show that cognitive biases such as interpreting ambiguous information in a negative manner, known as an interpretation bias, can serve as a strong maintaining factor of maladaptive anxiety (Lichtenthal W.G, 2017). Furthermore, Hughes et al., (2016) established that people with chronic fatigue syndrome (CFS), a condition characterised by persistent and debilitating physical and mental fatigue, tended to interpret ambiguous information as more illness-related and threatening in comparison to healthy individuals.

To date, no studies have utilised experimental measures with breast cancer survivors to explore how they interpret ambiguous information and how this relates to anxiety and fatigue. This study will be the first to take measures of both fatigue and anxiety cumulatively in the context of information processing. We hypothesised that: *"Breast cancer survivors would make more negative somatic/illness-related interpretations of neutral stimuli on an interpretative bias task, compared to healthy controls"*; accounting for potential confounding variables (age, relationship status and highest level of education). Secondly, we also hypothesised that *"Interpretation biases would have positive correlations to increased levels of anxiety and fatigue in breast cancer survivors."*

2. Methods

2.1. Design

A cross-sectional observational study design was used to investigate interpretation bias in breast cancer survivors compared to a healthy control population.

2.2. Participants

Over the period October 2018 – February 2020, a total of 58 participants in remission of breast cancer and 122 healthy controls were recruited via opportunistic sampling. Breast cancer participants were recruited primarily from oncology clinics at Guys and St Thomas' Trust (GSTT), whilst the healthy control population was recruited primarily through word of mouth, social media, poster distribution, an online portal via Kings College London (KCL) and applications including 'Next Door' and 'Gumtree'.

2.3. Materials

The software Qualtrics was used to create a survey assessing basic demographics, including age, ethnicity, relationship status and the highest level of education. The CFQ is an 11-item questionnaire assessing severity of physical and mental fatigue (Chalder et al., 1993). A Likert scoring system measured the severity of the fatigue using a scale where less than usual scored (0), no more than usual (1), more than usual (2) and much more than usual (3). The HADS is a commonly used reliable self-report scale assessing psychological distress in non-psychiatric, consisting of 16 items evaluating anxiety and depression on two separate subscales. Each item has a Likert response scale and is scored from 0 to 3, which gives a score from 0-24 for each scale. Interpretation bias was assessed using a task developed by Mathews and Mackintosh (2000). It involved the endorsement of statements that have either positive or negative interpretations to an ambiguous scenario presented to them in the form of a short four-line story. Participants were asked to recall the scenarios in a 'memory test' and decide how similar four new statements were in comparison to the original text. These statements included a positive interpretation, a negative interpretation, a false but positive statement (positive foil) and a false but negative statement (negative foil).

2.4. Procedure

Ethical approval was granted by the Berkshire B NHS Ethics Committee (REC reference: 14/SC/0172) at King's College London. Participation in the study was voluntary, however, to maximize the sample size, £20 was given as a partial incentive and to cover travel expenses into the site of testing.

2.5. Analysis

The data was analyzed using IBM SPSS Statistics (Version 26) software. Descriptive analysis was conducted for participant characteristics of both groups including age, gender, time since diagnosis, relationship status, highest level of education, CFQ, HADS depression and HADS anxiety scores and IB Index. Independent sample t-tests were used to compare mean CFQ scores, HADS depression and anxiety

scores, between the IV 'health status' with two levels (breast cancer and healthy control populations). An independent t-test was also used in assessing the primary hypothesis to determine whether there were any statistically significant differences in mean IB index, positive interpretations and negative interpretations between breast cancer survivors and healthy controls. Pearson product-moment correlation coefficients (PMCC) were carried out to assess the strength of the relationship between levels of anxiety and IB performance (including overall index, positive and negative interpretations separately); and levels of fatigue and IB. In order to determine whether there were any significant effects of confounding variables on negative interpretation biases in breast cancer survivors, a hierarchical multiple regression analysis was performed with CFQ scores, HADS anxiety scores, relationship status, highest level of education and age as predictors and negative IB as the DV variable.

3. Results

After matching age/gender of the healthy controls to the breast cancer population, the final analysis included 62 healthy controls and 53 breast cancer survivors. Significant differences were observed in mean fatigue and anxiety scores in the breast cancer population compared to the healthy controls. Fatigue = ($t(66.70)=6.88$, $p < .001$, $d=.76$). HADS anxiety = ($t(110.55)= 3.48$, $p=.001$; $d=.64$). HADS depression = ($t(94.29)=3.618$, $p < .001$; $d=.76$). Statistics show these both to have a medium effect size. Independent sample t-tests found a non-significant result in the comparison of IB indices between populations ($t(112.60) = .28$, $p=.783$; $d=.05$). Equally this was the same for positive and negative interpretations. The second hypothesis: 'Interpretation bias would be positively correlated with increased levels of anxiety and fatigue in the breast cancer population', was assessed using Pearson product-moment correlation (PMCC). Pearson correlation identified a statistically significant positive correlation between CFQ scores and negative interpretation bias ($r=.34$, $n=53$, $p=.013$), however not for anxiety ($r=.20$, $n=53$, $p=.158$). Hierarchical multiple regression was calculated to predict negative interpretation biases based on potential confounding variables (age, relationship status and level of education), CFQ, HADS anxiety scores (separately). All four regression models were non-significant. The only significant predictor of negative interpretation bias was fatigue ($\beta = .39$, $t(53)=2.71$, $p=.009$).

4. Discussion

The significant difference in mean fatigue and anxiety levels between the two populations corroborate findings from existing literature, which consistently recognise these symptoms to be two of the largest threats to psychological well-being amongst breast cancer survivorship (Lichtenthal W.G, 2017). This rejection of the primary hypothesis challenges findings of existing literature. From the results of the interpretation bias task, it may be inferred that the cognitive schemas of the breast cancer participants were not maladaptive as Beck's theory suggested, yet perhaps the contrary. Interestingly, research has suggested that positively interpreting ambiguous information may constitute a protective marker of psychological well-being, particularly during stressful circumstances. Using the principles of cognitive bias modification, individuals who adopt this positive mentality are typically more resilient to stress which provides them with great cognitive flexibility and they're able to endorse more positive coping styles in the face of adversity, thus explaining the non-significant difference in interpretation bias performance compared to healthy controls.

The finding that fatigue was positively correlated with making more negative interpretations on the IB task is consistent with current research supporting the association between fatigue and negative IB (Kleim B., 2014). Whilst research has focused on chronic fatigue syndrome populations in the past, it is proposed that factors maintaining fatigue are transdiagnostic to a range of other long-term conditions. Although it may appear paradoxical, studies have proposed that physical exercise can serve as a beneficial intervention, which may help women survivors of breast cancer to recognise and reorganise their interpretations of fatigue thereby reducing its intensity. Other studies suggest yoga and mindfulness interventions are powerful tools in combating cancer-related fatigue.

The non-significant correlation between anxiety and negative IB falls contradictory to a lot of literature as the cognitive models of anxiety disorders propose that information processing has a vital role in developing emotional psychopathology. This finding may be due to the HADS anxiety scale which has reduced sensitivity and specificity compared to a 'gold standard' structured clinical interview.

4.2 – Limitations: The study was underpowered with unequal sample sizes of 53 and 62, instead of desired 64 as determined using G* Power software (Erdfelder E., 1996). The subjectivity of fatigue and anxiety may further contribute to a bias in results; therefore, it would be appropriate to consider potential objective measures of these variables focusing on physiological processes, i.e. sympathetic arousal or performances including reaction times. The self-reported execution of these questionnaires introduces

both social desirability bias and recall bias as many questions rely on the participant being able to recall symptoms over the past month accurately. Additionally, some participants in the breast cancer group were taking hormone therapy for which there is empirical evidence supporting its correlation to increased levels of fatigue, mood swings and depression. Finally, there were differences in variability of time passed since being in remission and the results do not account for some patients being at different stages of remission. This could be improved by including it as a confounding variable.

5. Conclusion

Overall, this study was able to detect a significant positive correlation between higher levels of fatigue and negative interpretation biases. Confirmation of this association should provoke inquiry into interventions such as various techniques of CBM incorporating positive interpretation training and other strategies such as exercise and mindfulness. Our findings draw inquisition into potential ways by which survivors of breast cancer can adapt and cope with the effects of their illness. The future direction of research within this field should focus on determining a more specific and direct relationship between one's mechanisms of coping and the effects on interpretation bias in survivors of breast cancer. Identifying these strategies will prove essential to community psychiatric and clinical practice. It may, in turn, apply to the broader scope of all long-term conditions to ease the burden of fatigue and anxiety, two of their most profound symptoms.

References

- Beck, A. T., & Clark, D. A. (1988). Anxiety and depression: An information processing perspective. *Anxiety research, 1*(1), 23-36.
- Chalder, T., Berelowitz, G., Pawlikowska, T., Watts, L., Wessely, S., Wright, D., & Wallace, E. P. (1993). Development of a fatigue scale. *Journal of psychosomatic research, 37*(2), 147-153.
- Erdfelder, E., Faul, F., & Buchner, A. (1996). GPOWER: A general power analysis program. *Behavior research methods, instruments, & computers, 28*(1),
- Hughes, A., Hirsch, C., Chalder, T., & Moss-Morris, R. (2016). Attentional and interpretive bias towards illness-related information in chronic fatigue syndrome: A systematic review. *British journal of health psychology, 21*(4), 741-763.
- Kingston, B., & Capelan, M. (2016). Fatigue in breast cancer survivors. In *Breast Cancer Survivorship* (pp. 261-280). Springer, Cham.
- Kleim, B., Thörn, H. A., & Ehlert, U. (2014). Positive interpretation bias predicts well-being in medical interns. *Frontiers in psychology, 5*, 640.
- Lichtenthal, W. G., Corner, G. W., Slivjak, E. T., Roberts, K. E., Li, Y., Breitbart, W., ... & Beard, C. (2017). A pilot randomized controlled trial of cognitive bias modification to reduce fear of breast cancer recurrence. *Cancer, 123*(8), 1424-1433.
- Pace, T. M. (1988). Schema theory: A framework for research and practice in psychotherapy. *Journal of Cognitive Psychotherapy, 2*(3), 147.
- Rojas, K., & Stuckey, A. (2016). Breast cancer epidemiology and risk factors. *Clinical obstetrics and gynecology, 59*(4), 651-672.
- Servaes, P., Verhagen, S., & Bleijenberg, G. (2002). Determinants of chronic fatigue in disease-free breast cancer patients: a cross-sectional study. *Annals of oncology, 13*(4), 589-598.
- Ziółkowska, E., Zarzycka, M., Wiśniewski, T., & Żyromska, A. (2012). The side effects of hormonal therapy at the patients with prostate cancer. *Contemporary oncology, 16*(6), 491.

COMPULSIVE BUYING AND RELATED MOTIVES: ENHANCEMENT AND COPING

Kuntay Arcan

Psychology Department, Maltepe University, İstanbul (Turkey)

Abstract

Background: Research indicates that compulsive buying that refers to chronic, excessive shopping and expenditure isn't rare, especially among the young people. However, related studies are limited. More research is required to advance our understanding about the phenomenon and to improve prevention and treatment strategies.

Objectives: This study especially aimed to investigate the role of shopping motives for compulsive buying. For this purpose, coping and enhancement motives that were originally developed to assess drinking reasons were adapted for shopping. Examining the relationships of compulsive buying with demographics, spending frequency of different products, positive and negative affect were also other objectives of the study.

Methods: The sample was composed of 362 voluntary university students selected through convenience sampling in Turkey. Majority of the participants were females (77.9%). The mean age was 21.91 (SD = 3.11). Participants rated the frequency of shopping motives for each of the 5 enhancement items (e.g. *to get high, because it's fun*) and the 5 coping items (e.g. *to forget worries, to relax*) on 4 point Likert-scale (1: almost never, 4: almost always). Compulsive Buying Scale, Positive and Negative Affect Schedule were also utilized as standard measurement instruments. The participants rated their spending frequency on different products such as cosmetics, clothes, technological products, or furniture on a 1 to 4 scale (1: almost never, 4: almost always).

Findings: According to the results of the hierarchical multiple regression analysis being female, having younger age and lower GPA (1st step) in addition to higher personal income (2nd step), spending frequently for cosmetics, shoes and clothes (3rd step), having higher negative affect (4th step) were found to be associated with compulsive buying scores. Moreover, both enhancement and coping motives that were entered into the regression equation in the last step (5th step), also predicted the participants' compulsive buying scores. The total explained variance was 58.2%.

Conclusions: The findings of this study are important to indicate the possible risk factors for compulsive buying including age, gender, income, spending habits, and negative affect. Moreover, the results reveal that buying something in order to enhance positive affect and to avoid negative feelings can be prominent determinants of compulsive buying. Research from non-Western countries such as the present study are essentially important to highlight the associates of compulsive buying across cultures since majority of the relevant literature derive from studies conducted with Western participants.

Keywords: *Compulsive buying, motives, enhancement, coping, Turkish university students.*

1. Introduction

Impulsive purchases are common and most of them are not problematic, but repeated experiences of uncontrolled buying may be dysfunctional and problematic (Billieux et al., 2008). Overpowering impulse to buy that is associated with negative consequences is typical for compulsive buyers (O'Guinn & Faber, 1989). This kind of preoccupation with buying may be distressing and time consuming and it may lead to family, social, vocational or financial difficulties (McElroy et al., 1994). Approximately one in 20 individuals are stated to suffer from compulsive buying negative consequences and thus, it is proposed that buying related problems should not be overlooked (Maraz, Griffiths, & Demetrovics, 2015). Research of compulsive buying related risk factors especially among young people seems important taking prevalence rates and difficulties at psychological, academic, financial, familiar levels into consideration (Villardefrancos & Otero-Lopez, 2016).

Emotional distress (depression, anxiety, obsessive compulsiveness) and personal characteristics (low conscientiousness and self-esteem, external locus of control, sensation seeking) together with

tendency to avoid daily life stress are personal variables that are associated with addictive buying (Rodríguez-Villarino et al., 2006). Evidence of associations between avoiding negative feelings and addictive behaviors are also present in the relevant addiction literature including alcohol, substance use, or gambling research (e.g. McNally et al., 2003; Simons, Correia, & Carey, 2000, Simons et al., 2016; Wood & Griffiths, 2007). Motivational model of alcohol use suggests that people also drink to enhance positive emotions as well as to cope with negative emotions (Cooper et al., 1995). Related research supports the relation of enhancement motive and drinking alcohol (e.g. Kuntsche, von Fischer, & Gmel, 2008; Stevenson et al., 2019). Similar findings that indicate association between enhancing positive emotions and gambling are also present in the relevant literature (Jaurequi et al., 2020).

Taking into consideration the role of motivational factors in the addiction literature as briefly outlined above, major purpose of the present study was to investigate the predictive role of shopping motives for compulsive buying. Thus, enhancement and coping motives that were developed to assess drinking reasons (Cooper et al., 1992) were adapted in order to assess shopping motives for the present study. Income, spending frequency on different products, positive and negative affect were the other variables of the study in addition to the demographics of the participants. The sample was composed of university students taking into consideration the relevant research results that indicate the presence of possible problems among them in various studies conducted in different countries (e.g. Duroy, Gorse, & Lejoyeux, 2014; Villardefrancos & Otero-Lopez, 2016). The major expectation was to contribute to the development of preventive and treatment programs about compulsive buying by determining the possible risk factors among the Turkish university students.

2. Methods and materials

2.1. Sample and procedure

The sample of this cross-sectional survey was composed of 362 voluntary university students selected through convenience sampling in Turkey. The study was conducted in 2018. Participation was voluntary and withdrawal at any time of the study was possible. Participants signed a written informed consent including this information. The instrument set was completed on the average in 20 minutes.

The majority of the participants were females (77.9%). They were almost four times of the male participants (22.1%). The mean age of the participants was 21.91 (SD = 3.11). Most of the participants were undergraduate students in Faculty of Humanities and Social Sciences (51.4%) and Faculty of Education (43.1%). The majority of them were studying Psychology (49.2%) and Guidance and Psychological Counseling (38.4%).

2.2. Materials

Demographics & Spending Form:

This form consisted of information about demographical variables and spending frequency of the participants. Demographical variables were age, sex, GPA, department, household and personal income. Additionally, the participants rated their spending frequency on different products on a 1 to 4 scale (1: almost never, 4: almost always) in this form. These products were cosmetics, shoes and clothes, accessory and jewelry, technological products, stationery, souvenir, and furniture.

Buying Motives:

In order to assess the buying motives of the participants in the present study, coping and enhancement motives that were developed for drinking literature were adapted for shopping. Five items for coping and five items for enhancement that were utilized for the present study were validated for alcohol use reasons in addition to social (Cooper et al., 1992) and conformity (Cooper, 1994) motives. It was assumed that coping and enhancement motives would be compatible as buying reasons rather than social and conformity motives. Relative frequency of drinking for different reasons (e.g. enhancement: because it's exciting, because it's fun; coping: to forget about your problems, because it helps when you feel depressed or nervous) were rephrased and asked for relative frequency of shopping reasons considering the purpose of the present study. The participants rated those shopping reasons on a 1 to 4 scale (1: almost never / never, 2: sometimes, 3: usually, 4: almost always / always). The internal consistency values were computed as .87 and .90 for enhancement and coping shopping motives respectively for the present study. These values were compatible with the Cronbach's alpha scores reported for the original versions (Cooper, 1994; Cooper et al., 1992) and the Turkish version (Evren et al., 2010) of scale that focused on drinking motives.

Compulsive Buying Scale:

Compulsive Buying Scale was developed by Valence, D'astous and Fortier (1998) and adapted into Turkish by Yüncü and Kesebir (2014). Items of the scale are about tendency to spend money (e.g. "I sometimes feel that something inside pushed me to go shopping."), expectancy about shopping

(e.g. “For me shopping is a way of facing the stress of my daily life and relaxing.”), or results of shopping (e.g. “At times, I have felt somewhat guilty after buying a product, because it seemed unreasonable.”). Internal consistency value for the Turkish version of the scale was reported as .80. Twelve items of the scale were rated on a 5 point Likert-scale in the present study (1: never, 5: always). Higher scores on the scale indicate that the participants are more compulsive buyers.

The Positive Affect Negative Affect Schedule (PANAS):

PANAS was developed by Watson, Clark and Tellegen (1988) and adapted into Turkish by Gencöz (2000). The scale has 20 items. Positive affect (e.g. interested, proud, inspired) and negative affect (e.g. upset, guilty, scared) items are rated on a 5 point Likert scale (1: very slightly or not at all, 5: extremely). Internal consistency values were reported as .83 and .86 for positive affect and negative affect respectively for the Turkish version of the scale. Higher scores on the subscales indicate that the participants feel more positively and negatively.

3. Results

The participants rated their spending frequency on different products excluding their basic needs on a 1 to 4 scale (1: almost never, 4: almost always) as shown in Table 1. The most common “(almost) always” answers were observed for shoes & clothes, cosmetics, and stationery products respectively. These rankings were same for the “usually” ratings. On the other hand, the most common “(almost) never” answers were observed for furniture, accessory & jewelry, and technological products in respect.

Table 1. Spending frequency of the participants.

| | (almost) never | sometimes | usually | (almost) always |
|------------------------|----------------|-------------|-------------|-----------------|
| cosmetics | 54 (14.9%) | 159 (43.9%) | 109 (30.1) | 37 (10.2%) |
| shoes & clothes | 0 | 98 (27.1%) | 198 (54.7%) | 66 (18.2%) |
| accessory & jewellery | 73 (20.2%) | 205 (56.6%) | 71 (19.6%) | 10 (2.8%) |
| technological products | 67 (18.5%) | 228 (63.0%) | 45 (12.4%) | 19 (5.2%) |
| stationery | 52 (14.4%) | 192 (53.0%) | 87 (24.0%) | 28 (7.7%) |
| souvenir | 34 (9.4%) | 256 (70.7%) | 58 (16.0%) | 14 (3.9%) |
| furniture | 225 (62.2%) | 120 (33.1%) | 13 (3.6%) | 1 (0.3%) |

Mean scores of compulsive buying, negative affect, positive affect, enhancement and coping buying motives were computed for the participants and correlations of these scores were analysed. Compulsive buying scores of the participants were positively and significantly correlated with their negative affect ($r = .20, p < .001$), enhancement ($r = .73, p < .001$) and coping ($r = .66, p < .001$) motives scores. These results are shown in Table 2 including the internal consistency values of the scales.

Table 2. Descriptive statistics and correlations.

| | Mean | SD | Cronbach's α | 1 | 2 | 3 | 4 | 5 |
|----------------------|------|------|---------------------|-------|-------|------|-------|------|
| 1. compulsive buying | 2.25 | 0.74 | 0.88 | 1.00 | | | | |
| 2. negative affect | 2.02 | 0.58 | 0.80 | .20** | 1.00 | | | |
| 3. positive affect | 3.33 | 0.59 | 0.77 | .07 | -.12* | 1.00 | | |
| 4. enhancement | 2.03 | 0.64 | 0.87 | .73** | .04 | .08 | 1.00 | |
| 5. coping | 1.91 | 0.67 | 0.90 | .66** | .03 | .03 | .79** | 1.00 |

* $p < .01$, ** $p < .001$

A hierarchical multiple regression analysis was performed to determine the predictors of the participants' compulsive buying scores. It was especially aimed to test the additional contributions of enhancement and coping motives on compulsive buying scores after controlling for the effects of the other study variables. Gender, age, GPA were entered into the equation in the first step. Household and personal income that were entered into the equation in the second step preceded the spending frequency of the participants on different products. Finally, negative and positive affect scores were entered as the fourth and buying motives (enhancement & coping) scores were entered as the fifth steps into the regression analysis. As can be seen in Table 3, all steps statistically contributed to the compulsive buying scores of the participants ($F < .001$). Being female, having younger age, lower GPA and higher personal income were associated with higher compulsive buying scores. Spending more frequently for cosmetics, shoes and clothes that were regressed in the third step of the equation and higher negative affect that was regressed in the fourth step were also associated with higher compulsive buying scores. Enhancement and coping motives that were entered into the equation in the last step incremented the explained variance of compulsive buying scores more than the variables of the prior steps as can be followed from the R^2 values. The results of the regression analysis are detailed in Table 3.

Table 3. Variables associated with compulsive buying according to the results of the regression analysis.

| | β | t | R^2 | $Adj. R^2$ | F | F change |
|-----------------|---------|----------|-------|------------|----------|------------|
| <i>Step 1</i> | | | .086 | .078 | 11.17*** | 11.17*** |
| gender | -.23 | -4.39*** | | | | |
| age | -.11 | -2.07* | | | | |
| GPA | -.18 | -3.49** | | | | |
| <i>Step 2</i> | | | .118 | .105 | 9.48*** | 6.45*** |
| personal income | .21 | 3.43** | | | | |
| <i>Step 3</i> | | | .226 | .199 | 8.49*** | 6.98*** |
| cosmetics | .31 | 4.91*** | | | | |
| shoes & clothes | .12 | 2.10* | | | | |
| <i>Step 4</i> | | | .266 | .236 | 8.97*** | 9.39*** |
| negative affect | .19 | 4.05*** | | | | |
| <i>Step 5</i> | | | .600 | .582 | 32.37*** | 144.318*** |
| enhancement | .48 | 7.98*** | | | | |
| coping | .26 | 4.63*** | | | | |

* $p < .05$, ** $p < .01$, *** $p < .001$

4. Conclusion

The findings of the present study suggested that being young and female were risk factors for compulsive buying among Turkish university students. Similar results are already present in the relevant literature (e.g. Dittmar, 2005). In addition, lower GPA seemed to be another associate of compulsive buying according to the results of the present study supporting the previous research (e.g. Harvanko et al., 2013). Preoccupation with buying may result in academic difficulties for some of the university students. At the same time, compulsive buying behavior may be increasing in order to avoid low academic performance related stress. Higher personal income and spending more frequently for cosmetics, shoes and clothes were the other predictors of compulsive buying. Clothes, shoes, or cosmetics purchases are also reported as usual among compulsive buyers in previous studies (e.g. Christenson et al., 1994; Miltenberger et al., 2003). The participants of the present study were relatively young people and majority of them were single. Thus, most of them were not probably responsible for meeting other family members' economic needs. In other words, they were presumably more 'free' to spend their money for themselves. Considering the participants' economical responsibilities for others in future research may clarify the association between income and compulsive buying. After controlling for the effects of all these variables, negative affect together with enhancement and coping motives predicted the compulsive buying scores of the sample. It seems negative emotions may be motivating compulsive buying and decrease in negative affect and increase in positive affect may be maintaining the problem as Miltenberger and colleagues (2003) suggest. The results of the present study are especially important to reveal the robust predictive role of affect regulation motives on the compulsive buying behavior after controlling for the effects of demographics, income, purchased items, positive and negative affect. The contribution of enhancement and coping motives on explained variance of compulsive buying was more than the contribution of the other study variables although those variables were entered into the regression equation in the preceding steps.

References

- Billieux, J., Rochat, L., Rebetez, M. M. L., & Van der Linden, M. (2008). Are all facets of impulsivity related to self-reported compulsive buying behavior? *Personality and Individual Differences*, 44(6), 1432-1442.
- Christenson, G. A., Faber, R. J., de Zwaan, M., Raymond, N. C., Speckers, S. M., Ekern, M. D., Mackenzie, T. B., Crosby, R. D., Crow, S. J., & Eckert, E. D. (1994). Compulsive buying: Descriptive characteristics and psychiatric comorbidity. *The Journal of Clinical Psychiatry*, 55(1), 5-11.
- Cooper, M. L. (1994). Motivations for alcohol use among adolescents. Development and validation of a four-factor model. *Psychological Assessment*, 16(2), 117-128.
- Cooper, M. L., Frone, M. R., Russell, M., & Mudar, P. (1995). Drinking to regulate positive and negative emotions: A motivational model of alcohol use. *Journal of Personality and Social Psychology*, 69(5), 990-1005
- Cooper, M. L., Russell, M., Skinner, J. B., & Windle, M. (1992). Development and validation of a three-dimensional measure of drinking motives. *Psychological Assessment*, 4(2), 123-132.

- Ditmar, H. (2005). Compulsive buying – a growing concern? An examination of gender, age and endorsement of materialistic values as predictors. *British Journal of Psychology*, 96(4), 467-491.
- Duroy, D., Gorse, P., & Lejoyeux, M. (2014). Characteristics of online compulsive buying in Parisian students. *Addictive Behaviors*, 39(12), 1827-1830.
- Evren, C., Celik, S., Aksoy, R., & Cetin, T. (2010). Factorial structure, reliability and validity of the Turkish version of the Drinking Motives Questionnaire-Revised in male alcohol dependent patients. *Düşünen Adam: The Journal of Psychiatry and Neurological Sciences*, 23(3), 174-184.
- Gencoz, T. (2000). Positive and negative affect schedule: A study of validity and reliability. *Turkish Journal of Psychology*, 15(46), 27-28.
- Harvanko, A., Lust, K., Odlaug, B. L., Schreiber, L. R. N., Derbyshire, K., Christenson, G., & Grant, J. E. (2013). Prevalence and characteristics of compulsive buying in college students. *Psychiatry Research*, 210(3), 1079-1085.
- Jaurequi, P., Estevez, A., Macia, L., & Lopez-Gonzalez, H. (2020). Gambling motives: Association with addictive disorders and negative mood in youth. *Addictive Behaviors*, 110, DOI: 10.1016/j.addbeh.2020.106482
- Kuntsche, E., von Fischer, M., & Gmel, G. (2008). Personality factors and alcohol use: A mediator analysis of drinking motives. *Personality and Individual Differences*, 45(8), 796-800.
- Maraz, A., Griffiths, M. D., & Demetrovics, Z. (2015). The prevalence of compulsive buying: A meta-analysis. *Addiction*, 111(3), 408-419.
- McElroy, S. L., Keck, P. E., Pope, H. G., Smith, J. M. R., & Strakowski, S. M. (1994). Compulsive buying: A report of 20 cases. *The Journal of Clinical Psychiatry*, 55(6), 242-248.
- McNally, A. M., Palfai, T. P., Levine, R. V., & Moore, B. M. (2003). Attachment dimensions and drinking-related problems among young adults: The mediational role of coping motives. *Addictive Behaviors*, 28(6), 1115-1127.
- Miltenberger, R. G., Redlin, J., Crosby, R., Stickney, M., Mitchell, J., Wonderlich, S., Faber, R., & Smyth, J. (2003). Direct and retrospective assessment of factors contributing to compulsive buying. *Journal of Behavior Therapy and Experimental Psychiatry*, 34(1), 1-9.
- O'Guinn, T. C., & Faber, R. J. (1989). Compulsive buying: A phenomenological exploration. *Journal of Consumer Research*, 16(2), 147-157.
- Rodriguez-Villarino, R., Gonzalez-Lorenzo, M., Fernandez-Gonzalez, A., Lameiras-Fernandez, M., & Foltz, M. L. (2006). Individual factors associated with buying addiction: An empirical study. *Addiction Research and Theory*, 14(5), 511-525.
- Simons, J. S., Clarke, C. J., Simons, R. M., & Spelman, P. J. (2016). Marijuana consequences in a motivational context: Goal congruence reduces likelihood of taking steps toward change. *Addictive Behaviors*, 52, 83-90.
- Simons, J., Correia, C. J., & Carey, K. B. (2000). A comparison of motives for marijuana and alcohol use among experienced users. *Addictive Behaviors*, 25(1), 153-160.
- Stevenson, B. L., Dvorak, R. D., Kramer, M. P., Peterson, R. S., Dunn, M. E., Leary, A. V., & Pinto, D. (2019). Within- and between-person associations from mood to alcohol consequences: The mediating role of enhancement and coping drinking motives. *Journal of Abnormal Psychology*, 128(8), 813-822.
- Valence, G., D'astous, A., & Fortier, L. (1998). Compulsive buying: Concept and measurement. *Journal of Consumer Policy*, 11, 419-433.
- Villardefrancos, E., & Otero-Lopez, J. M. (2016). Compulsive buying in university students: Its prevalence and relationships with materialism, psychological distress symptoms, and subjective well-being. *Comprehensive Psychiatry*, 65, 128-135.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063-1070.
- Wood, R. T. A., & Griffiths, M. D. (2007). A qualitative investigation of problem gambling as an escape-based coping strategy. *Psychology and Psychotherapy: Theory, Research and Practice*, 80, 107-125.
- Yüncü, Z., & Kesebir, S. (2014). Compulsive Buying Scale: Validity, reliability and its psychometric characteristics in our society. *Bağımlılık Dergisi*, 15(3), 142-149.

PROBLEMATIC INTERNET USE AMONG ADOLESCENTS AND THE VIEW OF CONTEXT: A PLS-STRUCTURAL EQUATION MODEL

Lucrezia Ferrante, Claudia Venuleo, & Simone Rollo

Department of History, Society and Human Studies, University of Salento (Italy)

Abstract

The idea of Internet use as a way to face psychosocial malaise is growing in the scientific literature about Problematic Internet Use (PIU). The present study, assuming the Semiotic Cultural Psycho-social Theory (SCPT) (Salvatore, 2018) as theoretical framework, postulates and emphasizes that the context in which the subject is embedded provide the symbolic resources, which ground the way adolescents perceive, experience, and therefore deal with the material and social world, including the likelihood of using the Internet as a way to facing life problems and difficulties. SCTP adopts the term “Symbolic Universes” (SU) to denote affect-laden assumptions concerning the world which may (or not) promote adaptive responses.

Specifically, the present study aimed to test a mediation model in which each Symbolic Universes (i.e. independent variable) is associated with the psychosocial malaise in terms of social anxiety, loneliness, and negative emotions (i.e. mediator variable), which in turn has effects on PIU (i.e. dependent variable).

Measures of PIU (GPIUS), symbolic universes (VOC), negative affect (PANAS), social anxiety (IAS), loneliness (ILs) among a total of 764 Southern Italy youths aged from 13 to 19 (mean age =15.05 ± 1.152). A Multiple Correspondence Analysis (MCA) was firstly run to detect SU; a Partial Least Squares Structural Equation Modelling (PLS-SEM) was then performed on R for testing the hypothesized mediation model.

The results demonstrated that Symbolic Universes characterized by anomie and unreliability of the social context are associated with adolescents’ PIU though the mediation of social anxiety, loneliness, and negative emotions.

Overall, findings suggest that within an anomic and unreliable scenario, PIU might acquire the meaning of a way to face life in an environment that seems meaningless, uncertain, and detrimental. On the plane of intervention, this points to the need for programs that address social and cultural influences in youths’ Internet use.

Keywords: *Problematic internet use, adolescents, symbolic universes, social environment, psychosocial malaise.*

1. Introduction

The negative effects of Internet use among adolescents have gained increasingly attention in the last decades. Although the lack of a widely accepted definition of Problematic Internet Use (PIU) (Musetti et al., 2016; Spada, 2014), it is well-recognized that it may occur when Internet use works as a way of escaping from problems and gaining relief (Young, 1998), coping with difficult life experiences (Griffiths, 2005), or regulating moods (Caplan, 2010). Therefore, for a better understanding of PIU among adolescents, it seems important to consider their life problems which may explain its onset and maintenance.

The present study, assuming the Semiotic Cultural Psycho-social Theory (SCPT) (Salvatore, 2018) as theoretical framework, postulates and emphasizes that the context in which the subject is embedded provide the symbolic resources, which ground the way adolescents perceive, experience, and therefore deal with the material and social world, including the likelihood of using the Internet as a way to face life problems and difficulties. SCTP adopts the term “Symbolic Universes” to denote basic intuitive, embodied, affect-laden assumptions concerning the world - what it is and how it works - which may (or not) promote adaptive responses. Each Symbolic Universe can be interpreted as the result the foregrounding of a certain set of generalizing meanings encompassing the experience as a whole (e.g. “life is a question of luck”), while others are left in the background (e.g. “life depends on efforts and

pain”); SU is not set in the head of the individual, rather it is the by-product of a continuous intersubjective negotiation within people’s life spheres (e.g. family, school, workplace) mediated by the symbolic resources provided by the cultural context.

Previous studies have showed the relationship between the ways by which people interpret their social experience and their attitude toward problematic/hazardous behaviors consistently with the tenet that the meanings any SU is composed of are ways of experiencing the social environment, which foster and constrain actions and reactions. For instance, studies among problem gamblers, alcoholics and problematic internet users (Venuleo et al., 2016) have found that they differ from controls due to a negative view of the social environment, perceived as anomic, unreliable, and destined not to change at all.

According to SPCT, the capacity of Symbolic Universes to promote adaptive responses is a function of two aspects (Venuleo et al., 2020): 1) the consistency between the beliefs, feelings and actions underpinned by the Symbolic Universes, and the role demands made on the subjects by the social environment, that is whether the Symbolic Universe encourage behaviors and attitudes that are related to interpersonal and social tasks, rules and goals; 2) the variable degree of salience of the generalised meanings composing them, with a high salience corresponds to a rigid, polarised, way of thinking, producing homogenising affect-laden interpretations of the reality (typically organized by the bad/good, pleasure/displeasure opposition) and reducing the capacity to regulate thoughts, desires and beliefs, and to tackle social constraints and requirements effectively.

1.1. Aim and hypothesis

Based on the SCPT and the view of PIU as a way to face psychosocial malaise, the present study aims to test a theoretical model model in which each Symbolic Universes is associated with the psychosocial malaise in terms of social anxiety, loneliness, and negative emotions, which in turn has effects on PIU. We expect that a negative view of the social environment – underpinned by a low consistency with social tasks, rules and goal as well as homogenising affect-laden interpretations – may fuel negative affect (e.g. sadness, stress, loneliness, and other intolerable feelings) which in turn increase the need to indulge in Internet use: indeed, it is reasonable that within a view of their own social network as poor and untrustworthy, Internet use can seem as the only way to cope with problems in life.

2. Method

2.1. Participants and instruments

The study was performed in public high schools situated in the Southern Italy with a total of 764 students attending yr. 9 (52%) and 11 (48%) and aged from 13 to 19 (mean age =15.05 ± 1.152). Participants were asked to complete an online survey containing the following scales:

a. The Generalized Problematic Internet Use Scale – 2 (GPIUS-2; Caplan, 2010), 15 items associated to eight points Likert scale (from “Definitely disagree” to “Definitely agree”) (α Cronbach = .91);

b. View of Context (VOC; Ciavolino et al., 2017), 45 items associated with a four-points Likert scale (from “Not at all” to “A lot” or from “Very unreliable” to “Very reliable”) (α Cronbach = .79);

c) The Interaction Anxiousness Scale (IAS; Leary, 1983), 15 items associated to five points Likert scale (from “Not at all characteristic of me” to “Extremely characteristic of me”) (α Cronbach = .66);

d) The Negative Affect subscale of the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988), 10 items associated to 5-point Likert scale (from “Not at all” to “Very much”) (α Cronbach = .80);

e) General Loneliness Sub-scale from Italian Loneliness Sub-scale (ILS; Zammuner, 2008), 7 items associated to four points Likert scale (from “I often feel this way” to “I never feel this way”) (α Cronbach = .85).

2.2. Data analysis

Firstly, to detect Symbolic Universes, a Multiple Correspondence Analysis (MCA) was computed on items of View of Context questionnaire. Factorial dimensions were extracted from this analysis, with each factor describing the juxtaposition of two opposite models of response modes (i.e. “generalized meanings”) which organize (dis)similarities in the way of interpreting the social environment. The MCA provides a measure of the degree of association of any respondent with every factorial dimension, expressed in terms of respondent’s position (coordinate) on the factorial dimension. Accordingly, the SU the student belongs to has been detected in terms of two factorial coordinates – one

for each factor/dimension of sense extracted and interpreted based on the largest proportion of the data matrix inertia explained. This analysis was run on the software SPAD.

Secondly, the Partial Least Squares Structural Equation Modelling (PLS-SEM) was performed on R software for testing two hypothesized mediation models, one for each Symbolic Universe as independent variable, and both with the psychosocial malaise as mediator variable, and PIU as dependent variable.

3. Results

3.1. Symbolic universes

The first factorial dimension of the VOC (Symbolic Universe 1) accounts for 48.62%, and the second (Symbolic Universe 2) for 16.41%, thus the two factors account for 65.03% of the total inertia (Benzécri, 1979). Symbolic Universe 1 opposes two patterns of answers that have been interpreted as the markers of two models of relationship with one’s own social environment: *Agency* (-) versus *Anomie* (+). On the *Agency polarity*, answers adopting intermediate choices on the Likert scales are aggregated (e.g. “somewhat agree”, “somewhat disagree”), referring to the possibility of determining life with one’s own actions, to the importance of understanding the world, and in disagreement with fatalistic attitudes (life depends on luck, it is not possible to predict the future), in a context of sufficiently trustworthy institutions. On the *Anomie polarity*, answers adopting extreme choices are aggregated (e.g. “strongly agree”, “not at all”), referring to the importance of not being scrupulous and be allied with the strongest, the impossibility to count on anyone and for people to change, the absence of faith in the development of the country, and an unreliable vision of services and institutions. Symbolic Universe 2 opposes two patterns of answers that have been interpreted as the markers of two way of evaluating the social environment: *Absolute reliability* (-) versus *Moderate unreliability* (+). On the *Absolute reliability polarity* answers adopting extreme choices on the Likert scales are aggregated (e.g. “very”, “much better”), referring to school, police, public administration as trustworthy, to faith in a better future and in the possibility that people change, and to the importance of following the rules, sharing, and acquiring knowledge. On the *Moderate unreliability polarity* answers adopting intermediate choices on the Likert scales are aggregated (e.g. “not very”, “somewhat”), referring to an almost absent trust in services and institutions, as well as a weak faith in the future of the country and in the possibility to succeed in life following the rules and acquiring knowledge.

3.2. The mediation PLS-SEM model

In Model 1 with Symbolic Universe 1 “Model of relationship with the social environment” as independent variable, the *Anomie polarity* was significantly positively related to psychosocial malaise, and psychosocial malaise was significantly positively related to PIU. In Model 2 with Symbolic Universe 2 “Evaluation of the social environment” as independent variable, the *Unreliability polarity* was significantly positively related to psychosocial malaise, and psychosocial malaise was significantly positively related to PIU. In both cases, the results support the quality of the measurement models with Cronbach alpha and Dillon-Goldstein’s rho indices of 0.70 and higher, indicating homogeneity of the indicators, and the eigen values > 1, revealing the unidimensionality of the model.

Figure 1. PLS-SEM with Symbolic Universe 1 - Anomie as independent variable.

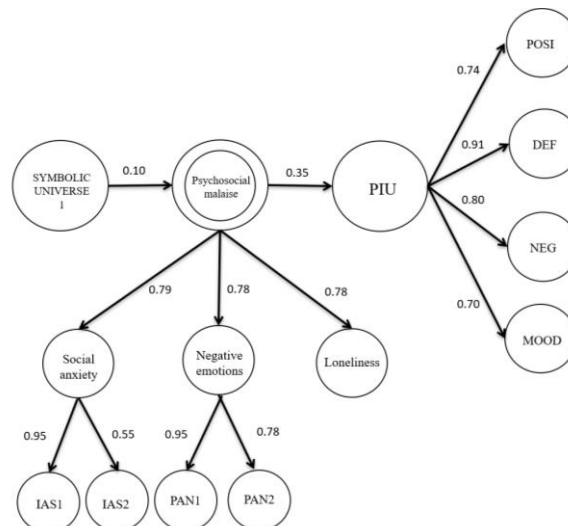
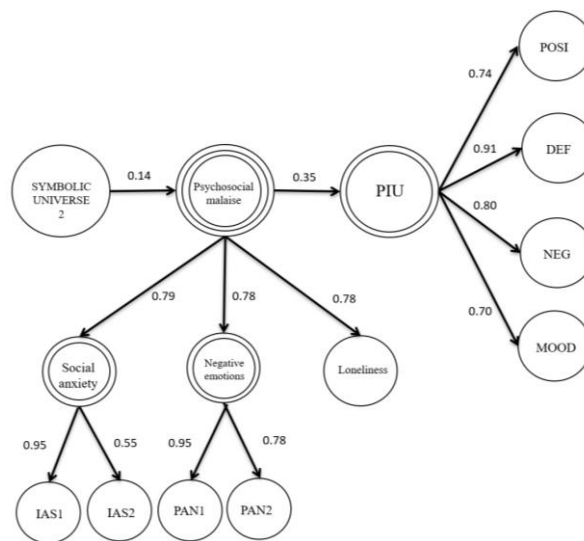


Figure 2. PLS-SEM with Symbolic Universe 2 - Moderate unreliability of the system as independent variable.



4. Discussion

Our results support that Symbolic Universes are associated with adolescents' PIU through the mediation of psychosocial malaise.

Particularly, adolescents tending to adopt the Anomie polarity of the Symbolic Universes "Models of relationship with the social environment" are more likely to manifest malaise which, in turn, is associated to PIU: they perceived their socio-cultural environment as a place where people cannot absolutely count on anyone, and breaking rules, not having scruples and being allied with the strongest is the only way to get by; there is no faith at all in the future or even in people, institutions and services. They showed rigid, polarized, and extremely negative connotations and evaluations of their environment: the reality is interpreted in a homogenising way not considering the variability of objects or events of the experience. According to our view, such reactive adolescents' tendency to homogenize their experience and express extremely negative connotations and evaluations can be interpreted as the marker of an intense affective activation – not unlike a person that is very upset will tend to see everything around them as triggers for anger –, which, from a clinical standpoint, hampers the ability to use reality for the regulation of one's thoughts, desires and beliefs, therefore to face social constraints and requirements effectively (Salvatore & Freda, 2011).

Findings also showed that high psychosocial malaise in our sample is associated to the position on the Moderate unreliability polarity of the Symbolic Universe "Evaluation of the social environment", that is the polarity referring to lack of trust in institutions (e.g. schools, the Church, police) and services (e.g. health departments, public offices), as well as a weak adherence to beliefs such as the importance of sharing, acquiring knowledge and following rules. This point seems consistent with our standpoint that the role of the Symbolic Universes in promoting distress depends also on degree to which individuals' beliefs, feelings, and actions, underpinning it, encourage or not behaviors compatible with interpersonal and social tasks, rules and goal. In this sense, adolescents in our study who do not seem to easily find in their environment anyone (i.e. institutions and people) or anything (i.e. tenets, models, beliefs) to rely on and to follow, reported higher psychosocial malaise, which increases the risk of PIU.

Overall, our findings provided support to the idea that a negative view of the social environment, perceived as anomic and unreliable, is associated to psychosocial malaise (social anxiety, loneliness, negative emotions) which in turn enhances the need to overindulge in Internet use as a way to face feelings and situations that are felt to be unbearable. Such interpretation is consistent with the view of PIU as a maladaptive mechanism for compensating individual's problems; it worth to highlight that the present study further contributes to understand the development of PIU highlighting that the malaise which adolescents try to face with Internet can be understood as a reflex of of the way they interpret their social experience, namely Symbolic Universes. In this sense, Internet is used in a rigid, persistent and maladaptive way (i.e. problematic) to compensate unpleasant states within a context perceived as lacking of support, opportunities, something or someone to rely on, for facing life distress

With regard clinical implications, considering the role of sense-making in PIU development and maintenance, suggest that any intervention that restrict its action to the specific behaviours (e.g. to inform adolescents and children about how to use Internet in order to remove negative outcomes related to its

utilization) is likely to have limited efficacy, given that the way people feel, think, and act is function of their global worldview that concerns the world of experience as a whole. By this perspective, risk prevention is more radically, a matter of cultural meanings to interpret their own social experience. On the plane of intervention, this points to the need for comprehensive programming of prevention and health promotion that addresses multiple influences in the various contexts of adolescents' lives (Thorlindsson, 2011): family-focused interventions may be more effective than youth-only focused prevention services, and culture-focused interventions addressing parents and adolescents' cultural assumptions should improve interventions success even more (Kumpfer et al., 2002).

References

- Benzecri, J.P. (1979). Sur le calcul des taux d'inertie dans l'analyse d'un questionnaire. *Cahiers Anal Données*, 4, 377–378.
- Caplan, S. E. (2010). Theory and measurement of generalized problematic Internet use: A two-step approach. *Computers in Human Behavior*, 26(5), 1089-1097.
- Ciavolino, E., Redd, R., Evrinomy, A., Falcone, M., Fini, V., Kadianaki, I., ... & Rochira, A. (2017). Views of Context. An instrument for the analysis of the cultural milieu. A first validation study. *Electronic Journal of Applied Statistical Analysis*, 10(2), 599-628.
- Griffiths, M. (2005). A “components” model of addiction within a biopsychosocial framework. *Journal of Substance Use*, 10(4), 191–197.
- Kumpfer, K. L. (2002). Factors and processes contributing to resilience. In *Resilience and development* (pp. 179-224). Boston, MA: Springer.
- Leary, M. R. (1983). Social anxiousness: The construct and its measurement. *Journal of personality assessment*, 47(1), 66-75.
- Musetti, A., Cattivelli, R., Giacobbi, M., Zuglian, P., Ceccarini, M., Capelli, F., ... & Castelnuovo, G. (2016). Challenges in internet addiction disorder: is a diagnosis feasible or not?. *Frontiers in psychology*, 7, 842.
- Salvatore, S. (2018). Culture as dynamics of sense-making. A semiotic and embodied framework for sociocultural psychology. In J. Valsiner, & A. Rosa (Eds), *Cambridge Handbook of Culture & Psychology*. Cambridge, UK: Cambridge Handbooks in Psychology.
- Salvatore, S., & Freda, M. F. (2011). Affect, unconscious and sensemaking. A psychodynamic, semiotic and dialogic model. *New ideas in psychology*, 29(2), 119-135.
- Spada, M. M. (2014). An overview of problematic Internet use. *Addictive behaviors*, 39(1), 3-6.
- Thorlindsson, T. (2011). Bring in the social context: Towards an integrated approach to health promotion and prevention. *Scandinavian journal of public health*, 39(6_suppl), 19-25.
- Venuleo, C., Rollo, S., Marinaci, T., & Calogiuri, S. (2016). Towards a cultural understanding of addictive behaviours. The image of the social environment among problem gamblers, drinkers, internet users and smokers. *Addiction Research & Theory*, 24(4), 274-287.
- Venuleo, C., Salvatore, G., Andrisano-Ruggieri, R., Marinaci, T., Cozzolino, M., & Salvatore, S. (2020). Steps towards a unified theory of psychopathology: The Phase Space of Meaning model. *Clinical Neuropsychiatry*, 17(4), 236-252.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of personality and social psychology*, 54(6), 1063.
- Young, K. S. (1998). Internet addiction: The emergence of a new clinical disorder. *Cyberpsychology & behavior*, 1(3), 237-244.
- Zammuner, V. L. (2008). Italians' social and emotional loneliness: The results of five studies. *International Journal of Social Sciences*, 3(2), 108-120.

QUALITY OF LIFE OF PATIENTS UNDERGOING SURGICAL TREATMENT OF LOWER LIMB CANCER

Maria Iakovleva¹, Olga Shchelkova¹, & Ekaterina Usmanova²

¹*Department of Medical Psychology and Psychophysiology, Saint Petersburg State University (Russia)*

²*Department of Medical Rehabilitation, National Medical Research Center of Oncology named after N.N. Blokhin (Russia)*

Abstract

Patients suffering from oncological diseases are the focus of attention of both physicians and psychologists. Although tumor lesions of bones and soft tissues are a relatively rare condition, its effect on the person's mind and lifestyle are significant, and its treatment is a challenge, also in terms of patient's adaptation to the disease and therapy. There are various strategies for treating this pathology; all of them are associated with high-tech medicine focused on maintaining or improving patients' quality of life (QoL).

The aim of the present research is to study the psychological characteristics and QoL of patients undergoing surgical treatment of tumor lesions of bones and soft tissues of lower limbs.

Material and methods. 36 patients were examined (mean age 58,22; 19 – men). The SF-36 questionnaire, Ways of Coping Questionnaire (WCQ), and Big Five Personality Test (BFI) were used. Treatment by means of the isolated limb perfusion technique was prescribed to 15 patients (group 1); 21 patients were subjected to lower limb amputation due to their disease (group 2).

Results. It was found that patients who underwent amputation are characterized by lower rates on the coping scale 'accepting responsibility' than patients from the perfusion group ($p < 0.05$); at the same time, patients from the second group had higher values on the 'openness' scale of the BFI compared to the first group ($p < 0.1$).

The study of the relationship between patients' QoL parameters, personality and coping showed that in the first group the values on the coping scale 'seeking social support' negatively correlate with 'bodily pain' ($p < 0.01$), and 'escape-avoidance' negatively correlates with 'social functioning' ($p < 0.01$). In the second group, the following significant correlations between personality traits and QoL were revealed: 'extraversion' is positively associated with 'physical functioning', 'role-emotional' and 'mental health' ($p < 0.01$), 'agreeableness' has a negative correlation with 'bodily pain' and 'general health' ($p < 0.01$), 'neuroticism' is negatively related with 'bodily pain' and 'general health' ($p < 0.01$), 'openness' is positively associated with 'bodily pain' and 'general health' ($p < 0.01$).

Conclusion. The data obtained emphasizes the importance of taking into account personality characteristics in the management of patients with cancer, including tumor lesions of the bones and soft tissues, as well as the dynamic nature of QoL and its close interconnection with the stage and strategy of treatment and patients' personality. Psychological support for patients is required for their successful adaptation to the illness and therapy.

Acknowledgement. This research was supported by the Russian Foundation for Basic Research (RFBR) (Grant No 20-013-00573).

Keywords: *Health related quality of life, coping, cancer, surgical treatment.*

1. Introduction

Tumor lesions of bones and soft tissues of limbs (such as sarcoma and some others) are not considered the most common. However, the risk of death and disability for patients is quite high, and its therapy is challenging and presents specific difficulties. There are various approaches to treating this cohort of patients, including radiation, chemotherapy, surgical treatment; in any case, limb salvage treatment is a priority (Crago & Lee, 2016). However, it is not always possible to achieve recovery using the mentioned methods, and there is a need of limb amputation. Isolated limb perfusion (ILP) is an alternative to amputation; it has been explored for more than 50 years (Martin-Tellez et al., 2020). The

procedure is considered safe and is recommended even for elderly patients (van Etten et al., 2003), but it is not used very often.

The benefits of such treatment are numerous; the technique is less traumatic, patients' functioning after surgery gets compromised to a minimum, it induces a high tumor response rate and leads to a high limb salvage rate. Thus, the application of this method is justified. There is also evidence of a significantly worse physical functioning of patients after amputation in comparison with patients after ILP, as well as higher rates of anxiety; these differences are especially pronounced when amputations are performed at the above-knee level (Pardasany et al., 2006).

Despite the proven efficacy of ILP, there is also evidence of a high recurrence rate after ILP (Bhangu et al., 2013). The described contradictions are fundamental in the issue of determining a treatment strategy for patients with tumor lesions of bones and soft tissues of limbs. In modern-day medicine, one of the key factors that is taken into account when choosing therapy is the psychological factor – patient's health-related quality of life (QoL), which includes numerous aspects of physical, mental and social functioning. Researchers hypothesize a higher QoL in patients who have undergone ILP compared to patients who have undergone amputation (Mason et al., 2013). However, the problem was acknowledged as controversial and complex for evaluating (Chang et al., 1989). The available data on the QoL of patients after surgery are contradictory: despite the incomparably lower trauma of ILP, the posterior level of QoL is not higher than after amputation.

The aim of the present research is to study the psychological characteristics and QoL of patients undergoing surgical treatment of tumor lesions of bones and soft tissues of limbs.

2. Methods

The study was performed at the N.N. Blokhin National Medical Research Center of Oncology (Moscow, Russia). 36 patients undergoing treatment for tumor lesions of bones and soft tissues of lower limbs were examined; the mean age of the sample was 58.22 years old, 52.78 % (19 patients) were male. Treatment by means of the isolated limb perfusion technique was prescribed to 15 patients (group 1); 21 patients were subjected to lower limb amputation due to their disease (group 2).

The psychological investigation included the SF-36 Questionnaire ("The Short Form (36) Health Survey") (SF-36) to assess patients' QoL and its parameters, the Ways of Coping Questionnaire (WCQ) to assess patients' coping behaviour, and the Big Five Personality Inventory (BFI) to assess patients' personality traits.

3. Results

The study of patients' QoL by means of the SF-36 Questionnaire showed no significant differences between the groups in terms of their QoL parameters.

Analysis of patients' data obtained through the WCQ and the BFI allowed to reveal the following differences in the psychological characteristics of the groups (see Table 1). It was found that patients who underwent amputation (group 2) are characterized by lower rates on the coping scale Accepting responsibility of the WCQ than patients from the perfusion group ($p < 0.05$), meaning they are less prone to accept and acknowledge their role in the emergence of a problem and less willing to take responsibility for its solution. At the same time, patients from the second group tended to have higher values on the Openness scale of the BFI compared to the first group ($p < 0.1$).

Table 1. Differences in psychological characteristics of patients undergoing ILP/amputation.

| Patient characteristic | Group 1 (ILP) N=15 (M) | Group 2 (amputation) N=21 (M) | p-value |
|--------------------------------|---------------------------|----------------------------------|---------|
| Openness (BFI) | 26.18 | 31.10 | < .1 |
| Accepting responsibility (WCQ) | 51.64 | 44.67 | < .05 |

Note. ILP – Isolated limb perfusion; M – mean value; BFI – Big Five Personality Inventory; WCQ – Ways of Coping Questionnaire.

The study of the relationship between patients' QoL parameters, personality and coping allowed to establish the following. No significant correlations were revealed between QoL and personality traits in patients who underwent ILP. Meanwhile, several correlations were revealed between QoL parameters and coping strategies in the first group (see Table 2): Role-Physical Functioning has a correlation with the Self-controlling coping ($p < 0.05$); Social Functioning is negatively related to the Confrontive ($p < 0.05$), Distancing ($p < 0.05$), and Escape–Avoidance ($p < 0.01$) copings; Bodily Pain negatively correlates with the copings Seeking social support ($p < 0.01$) and Positive reappraisal ($p < 0.05$).

Table 2. Correlations between QoL parameters (SF-36 Questionnaire) and coping strategies (Ways of Coping Questionnaire) in patients undergoing ILP.

| Scales of the Ways of Coping Questionnaire | SF-36 scales | | | | | | | |
|--|--------------|----|-------|----|---------|---------|----|----|
| | GH | PF | RP | RE | SF | BP | VT | MH |
| Confrontive | | | | | -.709* | | | |
| Distancing | | | | | -.825* | | | |
| Self-controlling | | | .812* | | | | | |
| Seeking social support | | | | | | -.854** | | |
| Accepting responsibility | | | | | | | | |
| Escape-Avoidance | | | | | -.882** | | | |
| Planful problem-solving | | | | | | | | |
| Positive reappraisal | | | | | | -.733* | | |

Note. * $p < .05$; ** $p < .01$. GH – General Health; PF – Physical Functioning; RP – Role-Physical Functioning; RE – Role-Emotional; SF – Social Functioning; BP – Bodily Pain; VT – Vitality; MH – Mental Health.

In the second group, the following significant correlations between personality traits and QoL were revealed: Extraversion is positively associated with Physical Functioning, Role-Emotional Functioning and Mental Health ($p < 0.01$), Agreeableness has a negative correlation with Bodily Pain and General Health ($p < 0.01$), Neuroticism is negatively related with Bodily Pain and General Health ($p < 0.01$), Openness is positively associated with Bodily Pain and General Health ($p < 0.01$).

4. Discussion

Studies available to date do not provide a definite answer on the level and dynamics of QoL of patients undergoing ILP. Thus, there is evidence of a higher QoL of these patients compared to the same age population average values, among those who had not been diagnosed with cancer (Noorda, 2004). The authors attribute their results to a life reevaluation of patients who faced a vital threat and experienced repeated recurrences and surgery. On the other hand, there are opposite data showing lower QoL of patients compared with a healthy sample (Eiser et al., 2001).

Another contrariety that arises in the analysis of this topic is the discrepancy in the data regarding the effect of the performed surgery type on the later QoL of patients: the field presents both data on significantly higher QoL of patients after ILP compared to amputations (e.g., Mason et al., 2013), and data on the absence of significant differences in QoL of these two groups of patients, up to the conclusion that there is no need to take this factor into account when choosing a therapy strategy (Zahlten-Hinguranage et al., 2004). Our results partly accord with these findings; but we cannot agree that patients' QoL is not related to the characteristics of the treatment and should not be taken into account when considering different treatment strategies.

The traumatic effect of surgery on patients' psychological status seems apparent; thus, symptoms of psychological distress to the extent of PTSD were revealed on a sample of patients suffering from tumor lesions of the extremities and undergoing ILP (Thijssens et al., 2006); however, not all researchers confirm similar changes in the patients' psychological status after surgery.

In summary, the conclusion that was drawn more than 35 years ago on the ambiguousness of psychological outcomes of limb-salvage surgery compared to amputation (Weddington, Seagraves, & Simon, 1985), remains relevant and requires further detailed research.

5. Conclusions

The research on the QoL of patients undergoing surgical treatment of tumor lesions of bones and soft tissues and their psychological characteristics will be continued. It is fundamental to take into account the time of the surgery, its complications and concomitant diseases, the social status of patients, along with the use of more precise tools to assess the QoL. The data obtained also emphasizes the importance of taking into account personality characteristics in the management of patients with cancer, as well as the dynamic nature of QoL and its close interconnection with the stage and strategy of treatment and patients' personality. Psychological support for patients is required for their successful adaptation to the illness and therapy.

Acknowledgements

This research was supported by the Russian Foundation for Basic Research (RFBR) (Grant No 20-013-00573).

References

- Bhangu, A., Broom, L., Nepogodiev, D., Gourevitch, D., & Desai, A. (2013). Outcomes of isolated limb perfusion in the treatment of extremity soft tissue sarcoma: a systematic review. *European Journal of Surgical Oncology*, 39(4), 311–319. <https://doi.org/10.1016/j.ejso.2012.12.018>
- Chang, A. E., Steinberg, S. M., Culnane, M., Lampert, M. H., Reggia, A. J., Simpson, C. G., Hicks, J. E., White, D. E., Yang, J. J., & Glatstein, E. (1989). Functional and psychosocial effects of multimodality limb-sparing therapy in patients with soft tissue sarcomas. *Journal of clinical oncology: official journal of the American Society of Clinical Oncology*, 7(9), 1217–1228. <https://doi.org/10.1200/JCO.1989.7.9.1217>
- Crago, A. M., & Lee, A. Y. (2016). Multimodality Management of Soft Tissue Tumors in the Extremity. *The Surgical clinics of North America*, 96(5), 977–992. <https://doi.org/10.1016/j.suc.2016.05.001>
- Eiser, C., Darlington, A. S., Stride, C. B., & Grimer, R. (2001). Quality of life implications as a consequence of surgery: limb salvage, primary and secondary amputation. *Sarcoma*, 5(4), 189–195. <https://doi.org/10.1080/13577140120099173>
- Martin-Tellez, K. S., van Houdt, W. J., van Coevorden, F., Colombo, C., & Fiore, M. (2020). Isolated limb perfusion for soft tissue sarcoma: Current practices and future directions. A survey of experts and a review of literature. *Cancer Treatment Reviews*, 88, 102058. <https://doi.org/10.1016/j.ctrv.2020.102058>
- Mason, G. E., Aung, L., Gall, S., Meyers, P. A., Butler, R., Krüg, S., Kim, M., Healey, J. H., & Gorlick, R. (2013). Quality of life following amputation or limb preservation in patients with lower extremity bone sarcoma. *Frontiers in oncology*, 3, 210. <https://doi.org/10.3389/fonc.2013.00210>
- Noorda, E.M. (2004). *Indications and Results of Isolated Limb Perfusion* (UvA Dissertations). Amsterdam: Amsterdam University Press.
- Pardasaney, P. K., Sullivan, P. E., Portney, L. G., & Mankin, H. J. (2006). Advantage of limb salvage over amputation for proximal lower extremity tumors. *Clinical orthopaedics and related research*, 444, 201–208. <https://doi.org/10.1097/01.blo.0000195413.16150.bc>
- Thijssens, K. M., Hoekstra-Weebers, J. E., van Ginkel, R. J., & Hoekstra, H. J. (2006). Quality of life after hyperthermic isolated limb perfusion for locally advanced extremity soft tissue sarcoma. *Annals of surgical oncology*, 13(6), 864–871. <https://doi.org/10.1245/ASO.2006.05.023>
- van Etten, B., van Geel, A. N., de Wilt, J. H. W., & Eggermont, A. M. M. (2003). Fifty tumor necrosis factor-based isolated limb perfusions for limb salvage in patients older than 75 years with limb-threatening soft tissue sarcomas and other extremity tumors. *Annals of Surgical Oncology*, 10, 32–37. <https://doi.org/10.1245/ASO.2003.03.076>
- Weddington, W. W., Jr, Segreaves, K. B., & Simon, M. A. (1985). Psychological outcome of extremity sarcoma survivors undergoing amputation or limb salvage. *Journal of clinical oncology: official journal of the American Society of Clinical Oncology*, 3(10), 1393–1399. <https://doi.org/10.1200/JCO.1985.3.10.1393>
- Zahlten-Hinguranage, A., Bernd, L., Ewerbeck, V., & Sabo, D. (2004). Equal quality of life after limb-sparing or ablative surgery for lower extremity sarcomas. *British journal of cancer*, 91(6), 1012–1014. <https://doi.org/10.1038/sj.bjc.6602104>

BEING ONLINE DURING COVID-19 AND THE RELATIONSHIP WITH WELL-BEING: NARRATIVES AMONG UNIVERSITY STUDENTS

**Simone Rollo¹, Claudia Venuleo¹, Lucrezia Ferrante¹, Claudia Marino²,
& Adriano Schimmenti³**

¹*Department of History, Society and Human Studies, University of Salento, Lecce (Italy)*

²*Department of Developmental and Social Psychology, University of Padova, Padova (Italy)*

³*Faculty of Human and Social Sciences, University of Enna "Kore", Enna (Italy)*

Abstract

During COVID-19 outbreak various technological devices have provided a basis for maintaining social connections with friends, family, work and community networks, and media have reported a global increase in Internet use. Scholars debate whether Internet use represented a resource for well-being or on the opposite a risk for health.

In the frame of Semiotic, Cultural Psychosocial Theory, we argue that the meaning of Internet use and its impact on well-being might depend on semiotic resources people possessed to represent the crisis and to use the Internet in a healthy manner.

The study examines the meanings of being online during the COVID-19 pandemic based on narratives collected from Italian young students (N=323; Mean age = 22.78, SD = 2.70; 77.3% women; 81.9% living with their parents), recruited by Microsoft Forms online survey during first Italian Lockdown, and explores whether different views of being online related to different connotations of the Internet during the pandemic and different levels of well-being.

Computer-assisted Content Analysis was used to map the main Dimensions of Meaning (DM) characterizing the texts. Then, ANOVA was used to examine (dis)similarities between DM related to Internet connotations (e.g., resource, danger or refuge); Pearson's correlations were computed to examine the relationships between DM and well-being.

Two DM emerged, the first represent the relationship between being online and the daily life context; the second, the Internet functions during the pandemic. Relations between DM, internet connotation and well-being were found.

Findings highlight how a plurality of representations of being online are active in the cultural milieu and their potential role in explaining the different impact of Internet use on well-being during pandemic.

Keywords: *COVID-19 pandemic, being online, meaning, internet connotation, well-being.*

1. Introduction

The containment measures of COVID-19 have provided physical isolation as the main way to contrast the diffusion of the virus. All over the world there has been the closure of schools/universities and workplaces and the obligation to stay at home and leave only for primary needs. A relationship between these physical distance measures and the risk of psychosocial distress has been hypothesized (Brooks et al., 2020; Mazza et al., 2020).

In this emergency situation, technology – and being online – is configured as the main way to “be together”, but scientific community debates about the role that internet could be assume in terms of well-being or health risks (Boursier et al., 2020). In this sense, at least two visions are possible: from one side, Internet is a resource where people might maintain friendships increasing social support (Nabity-Grover et al., 2020) or collect health information (Canale et al., 2020) in order to be updated on the pandemic and to reduce distress levels relating to health condition knowledge; from the other side, Internet could be experienced as a constraint in the interpersonal, school/academic/work spheres or even as a danger, as it may have exacerbated distress responses, amplified worry and impaired functioning (Schimmenti et al., 2020; Thompson et al., 2017).

In this study, it is recognized that the relationship between the internet and well-being is complex and dynamic and, to our knowledge, no study has examined the meaning of being online during the COVID-19 pandemic from a user perspective. Adopting a Semiotic Cultural Psycho-social Theory

(SCPT; Venuleo et al., 2020a) it is recognized the meanings that foster and constrain the way people interprets any specific event, object and state of their life (Salvatore et al., 2018). In this framework, individuals interpret what happens in their life in terms of specific affect-laden meanings that are consistent with the symbolic and cultural environment in which their self and their being-in-the-world are grounded (Salvatore et al., 2018; Venuleo et al., 2020b). In these terms, we suggest that the meaning of Internet use and its impact on well-being might depend on the personal and social cultural meanings in terms of how people interpret their being online in a given historical circumstance, that is, the pandemic situation.

2. Design

2.1. Aims and hypothesis

The study aims to explore the representations (i.e., meanings) related to “being online” during pandemic and their association with well-being levels. We expect that (1) a plurality of representations of being online reflecting people’s variability in the categorization of the experience (Salvatore et al., 2018); (2) different views of being online relate to different Internet connotations during the pandemic and different levels of well-being.

2.2. Participants

From 1st April to 19th May 2020, the period when the Italian government imposed self-isolation, an anonymous online survey using Microsoft Forms was conducted. A total of 323 questionnaires were collected among Italian university students (Mean age = 22.78, SD = 2.70; 77.3% women; 81.9% living with their parents).

2.3. Data collection

The online questionnaire was administered. It was composed by three sections. (1) An open question – “*Being online in the time of COVID-19...*” – was chosen to gain access to the people’s subjective experience and to capture their ways of making sense of the state of being online. The open text is more likely to work as a “projective stimulus” (Venuleo & Guidi, 2016). Participants were encouraged to writing down everything that comes to mind with respect to the situation and responding in the manner that is deemed most appropriate, taking into account that the objective of the investigation was to collect people’s subjective experience. Subsequently, (2) participants were asked to choose a connotation of their Internet use during the health emergency between “refuge”, “danger”, “resource”, in accordance with literature suggestions (cf. for Internet as refuge: Tzavela et al., 2015; for Internet as resource or danger: Guan & Subrahmanyam, 2009). In the last section, (3) the overall well-being of participants was detected through the Flourishing Scale (FS; Diener et al., 2010) in the Italian version by Di Fabio (2016).

2.4. Data Analysis

Three steps for data analysis:

(1) An automatic procedure for content analysis (Salvatore et al., 2012; Salvatore et al., 2017) – performed by T-LAB software (version T-Lab Plus 2020; Lancia, 2020) – was applied to the whole corpus of narrative texts collected from opened question in order to map the main dimensions of meanings underpinning the set of contents. Specifically, Lexical Correspondence Analysis (LCA) – a factor analysis procedure for nominal data (Benzécri, 1973) – was computed in order to extract principal factorial dimensions that describes the juxtaposition of two patterns of strongly associated (co-occurring) lemma (i.e., the citation form – namely, the headword – used in a language dictionary) and that can be interpreted as a marker of a latent dimension of meanings underpinning dis/similarities in the respondents’ discourses (Gennaro et al., 2019; Salvatore et al., 2017). In order to compute LCA, the textual corpus of narratives (N = 323) was split into units of analysis (EC = 546), called Elementary Context Units (ECUs) and the lexical forms present in the ECUs categorized according to the “lemma” they belong to (LEM_{Total} = 550; LEM_{Analysis} = 465; Threshold Selection = 4). A digital matrix of the corpus was defined, having as rows the ECU, as columns the lemmas and in the cell x_{ij} the value ‘1’ if the j th lemma was contained in the i th ECU, otherwise the x_{ij} cell received the value ‘0’ (Types = 3720; Occurrences = 19551).

(2) ANOVA was computed by SPSS v22 to examine (dis)similarities related to Internet connotations with regard to dimensions of meaning extracted.

(3) Pearson’s correlation was computed by SPSS v22 to examine the relationships between the dimensions of meanings and the levels of well-being.

3. Findings

3.1. Dimensions of meaning detection

Examples of lemma associated on the polarity are reported in brackets using italics.

FIRST FACTORIAL DIMENSION. “Being online in the daily life context”: *Rupture* versus *Continuity*. This dimension opposes two patterns of lemma which we interpret as the markers of two ways of representing the relationship between being online and the daily life context.

(-) Rupture: being online is recounted as something which reflects the rules and restrictive measures imposed on the citizens during the health emergency to ensure health security (*city, citizen, service, rule, restriction, security, reason*). Lemmas such as power, impose, immediately evokes a sense of imposition and passivity felt in the regulatory relationship established by the government with the citizens and that brings to mind the human, relational and social condition (*condition, relationship, social, human, isolation*).

(+) Continuity: being online emerges as a state that makes it possible to continue academic commitments (*online lessons, professor, degree*), leisure activities (*leisure, pastime, recipe, cooking, TV series, music, movies*), and relationships (*friend*).

SECOND FACTORIAL DIMENSION. “Internet functions during the pandemic”: *Health emergency* versus *Daily activities*. This dimension opposes two patterns of lemma which we interpret as the markers of two ways of representing the Internet functions.

(-) Health emergency: being online is recounted in its two-sided nature of being at the same time a source of entertainment and distraction (*beautiful, pleasant*) during the lockdown (*restriction, quarantine*), and as a source of danger and unpleasant experiences (*source, dangerous, panic, distressing*), due to disinformation and media alarmism (*fake news, alarmism*).

(+) Daily activities: the Internet is interpreted as a means of carrying on (*continue, participate, to go forward, as opposed to stop*) study activities (*university, lesson, online lesson, exam, student*), work (*working, worker*), free time (*YouTube, recipe*).

3.2. Comparison of Internet connotations on Dimensions of Meaning (ANOVA)

Significant statistical differences were found on the second dimension extracted (i.e., “Internet function during the pandemic”) with respect to Internet connotation (i.e., resource, danger or refuge) ($F_{2,298} = 5.14$; $p < .01$). Post-hoc analyses by Bonferroni test showed that the differences concerned the connotations of the Internet as “Resource” and “Refuge” (Mean Difference I – J = .28141; $p < .01$). This result highlights that participants with higher factor scores on the second dimension of meaning (positive polarity: Daily activities) connoted Internet as “resource”, whereas participants with lower factor score on the same dimension (negative polarity: Health emergency) connoted the Internet as “refuge”.

3.3. Relation between Dimension of Meaning and Well-Being levels (Pearson’s Correlation)

Significant statistical correlation was found between participants’ positioning on the second dimension (i.e., “Internet function during the pandemic”) and well-being levels ($r = .12$; $p < .01$). This result highlights that higher scores on the second dimension (positive polarity: Daily activities) are related to higher well-being levels; whereas lower scores (negative polarity: Health emergency) are related to lower well-being levels.

4. Discussion

Different interpretations were identified about what “being online” means during the pandemic. The distribution of the lemma on the semiotic map (i.e., factorial space) defined by the two dimensions of meaning reflects how each polarity captures a way of interpreting being online.

Referring to the first dimension “Being online in the daily life context”, from one hand, Internet represents a way to continue own daily life, that is Internet may play a key role in supporting the response to the crisis (Pan et al., 2020; Roy et al., 2020); from the other hand, the “rupture” meaning could be referred to a view of Internet as an amplifier of the social changes and of the “forced” isolation due to emergency measures (Gruber et al., 2020). The analyses show that there is not association between positioning on the first dimension, the Internet connotation and the well-being levels. This finding could be interpret in this way: continuity may be felt as distressing in some cases (e.g., if it is associated to the pressure to maintain the same standard of productivity and efficiency in a changed scenario) and a benefit in others (e.g., if the sense of maintaining meaningful objectives is in the foreground); similarly, rupture

can acquire the meaning of having lost or of lacking what existed before or also the meaning of an opportunity to reflect on previous choices and their critical impact and to make the future better.

Referring to the second dimension “Internet functions during the pandemic”, from one hand, internet is useful for acquiring health information; from the other hand, it offers the possibility of carrying on with daily activities and goals. These different ways of interpreting the Internet functions were related to the different Internet connotations and to different well-being levels. The respondents that recognize the possibility of carrying on their daily activities online tend to connote the Internet as a resource and to show higher well-being levels, offering support for a compensatory social interaction model in a novel at-risk condition (Canale et al., 2020); on the other hand, the respondents that identify the Internet functions related to the health emergency (e.g., information about number of contagion), tend to connote the Internet as a refuge. This is possible probably because internet is experienced as a means to understand what is happening around. In this way it reduces uncertainty showing lower levels of well-being (Gómez-Salgado et al., 2020; Thompson et al., 2017). This result is consistent with the idea that cybercondria – that is excessive/repeated online searches for health information – is associated with increasing levels of health anxiety or distress. Starcevic and colleagues (2020) observed that during public health crises (such as the COVID-19 pandemic) several factors contribute to cybercondria, including fear of a newly identified and little-known disease, difficulty in coping with uncertainty, lack of authority and reliable sources of health information, large amounts of information often confusing, conflicting and constantly updated, and the inability of online health information to provide reassurance. These factors can help fuel a rapid alternation between need to know (fear of not knowing) and a need not to know (fear of knowing) which can interfere with decision-making and related actions during the pandemic and levels of distress.

5. Conclusion

In conclusion, the results suggest the use of the Internet and its impact on well-being during the COVID-19 pandemic may depend on the cultural, social and personal meanings attributed to being online that define a connotation and motivation for use.

References

- Benzécri, J. P. (1973). *L'analyse des données* (Vol. 2, p. 1). Paris: Dunod.
- Boursier, V., Gioia, F., Musetti, A., & Schimmenti, A. (2020). Facing loneliness and anxiety during the COVID-19 isolation: the role of excessive social media use in a sample of Italian adults. *Frontiers in Psychiatry, 11*, 1380.
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet, 395* (10227), 912-920.
- Canale, N., Marino, C., Lenzi, M., Vieno, A., Griffiths, M., Gaboardi, M., ... & Santinello, M. (2020). How communication technology helps mitigating the impact of COVID-19 pandemic on individual and social wellbeing: Preliminary support for a compensatory social interaction model. *PsyArXiv*.
- Di Fabio, A. (2016). Flourishing Scale: Primo contributo alla validazione della versione italiana [Flourishing Scale: First contribution to the validation of the Italian version]. *Counsel. Giornale Ital. Ric. Appl, 9*, 1-17.
- Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D. W., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social indicators research, 97*(2), 143-156.
- Gennaro, A., Gelo, O., Lagetto, G., & Salvatore, S. (2019). A systematic review of psychotherapy research topics (2000-2016): a computer-assisted approach. *Res. Psychother. 22*, 472-485.
- Gómez-Salgado, J., Andrés-Villas, M., Domínguez-Salas, S., Díaz-Milanés, D., & Ruiz-Frutos, C. (2020). Related health factors of psychological distress during the COVID-19 Pandemic in Spain. *International Journal of Environmental Research and Public Health, 17*(11), Article 3947.
- Gruber, J., Prinstein, M., Abramowitz, J. S., Albano, A. M., Aldao, A., Borelli, J., & ...Weinstock, L. (2020). *Clinical Psychological Science's Call to Action in the Time of COVID-19*. *PsyArXiv*.
- Guan, S. S. A., & Subrahmanyam, K. (2009). Youth Internet use: risks and opportunities. *Current opinion in Psychiatry, 22*(4), 351-356.
- Lancia, F. (2020). User's Manual: Tools for text analysis. T-Lab version Plus 2020. Available online at: <https://www.tlab.it/?lang=it> (accessed June 20, 2020).

- Mazza, C., Ricci, E., Biondi, S., Colasanti, M., Ferracuti, S., Napoli, C., & Roma, P. (2020). A nationwide survey of psychological distress among Italian people during the COVID-19 pandemic: Immediate psychological responses and associated factors. *International Journal of Environmental Research and Public Health*, *17*(9), 3165.
- Nabity-Grover, T., Cheung, C. M., & Thatcher, J. B. (2020). Inside out and outside in: How the COVID-19 pandemic affects self-disclosure on social media. *International Journal of Information Management*, *55*(102188), 1-5.
- Pan, S. L., Cui, M., & Qian, J. (2020). Information resource orchestration during the COVID-19 pandemic: A study of community lockdowns in China. *International Journal of Information Management*, *54*, Article 102143.
- Roy, K. C., Hasan, S., Sadri, A., & Cebrian, M. (2020). Understanding the efficiency of social media-based crisis communication during hurricane sandy. *International Journal of Information Systems*, *52*(2), Article 122060.
- Salvatore, S., Fini, V., Mannarini, T., Veltri, G., Avdi, E., Battaglia, F., ... Valmorbida, A. (2018). Symbolic Universes between present and future of Europe. First results of the map of European societies' cultural milieu. *PLoS ONE*, *13*(1), e0189885.
- Salvatore, S., Gelo, O. C. G., Gennaro, A., Metrangolo, R., Terrone, G., Pace, V., et al. (2017). An automated method of content analysis for psychotherapy research: a further validation. *Psychother. Res.*, *27*(1), 38–50.
- Salvatore, S., Gennaro, A., Auletta, A. F., Tonti, M., & Nitti, M. (2012). Automated method of content analysis: a device for psychotherapy process research. *Psychother. Res.*, *22*(3), 256-273.
- Schimmenti, A., Billieux, J., & Starcevic, V. (2020). The four horsemen of fear: An integrated model of understanding fear experiences during the COVID-19 pandemic. *Clinical Neuropsychiatry*, *17*(2), 41-45.
- Starcevic, V., Schimmenti, A., Billieux, J., & Berle, D. (2020). Cyberchondria in the time of the COVID-19 pandemic. *Human Behavior and Emerging Technologies*, September 2020, 1-10.
- Thompson, R. R., Garfin, D. R., Holman, E. A., & Silver, R. C. (2017). Distress, worry, and functioning following a global health crisis: A national study of Americans' responses to Ebola. *Clinical psychological science*, *5*(3), 513-521.
- Tzavela, E. C., Karakitsou, C., Dreier, M., Mavromati, F., W Ifling, K., Halapi, E., ... & Tsitsika, A. K. (2015). Processes discriminating adaptive and maladaptive Internet use among European adolescents highly engaged online. *Journal of adolescence*, *40*, 34-47.
- Venuleo, C., Gelo, C. G. O., & Salvatore, S. (2020a). Fear, affective semiosis, and management of the pandemic crisis: COVID-19 as semiotic vaccine. *Clinical Neuropsychiatry*, *17*(2), 117-130.
- Venuleo, C., Guidi, M. (2016). Seeking for "otherness". Training to the reflexive Competence. In *Reflexivity and Psychology* (pp. 245–271). Information Age Publishing.
- Venuleo, C., Salvatore, G., Andrisano-Ruggieri, R., Marinaci, T., Cozzolino, M., & Salvatore, S. (2020b). Steps towards a unified theory of psychopathology: The Phase Space of Meaning model. *Clinical Neuropsychiatry*, *17*(4), 236, 252.

PERCEIVED STRESS IN PATIENTS WITH CORONARY ARTERY DISEASE DURING THE COVID-19 PANDEMIC

Márcia Schmidt¹, Karine Schmidt¹, Vitória Silva², Filipa Waihrich¹,
& Alexandre Quadros¹

¹Graduate Program in Health Sciences: Cardiology, University Foundation of Cardiology (Brazil)

²Institute of Cardiology of Rio Grande do Sul (Brazil)

Abstract

Introduction: The COVID-19 pandemic has brought many routine changes to the entire Brazilian population. On mental health, individuals were observed to be increasingly susceptible to developing symptoms such as psychological stress, anxiety, and depression due to social restrictions. The psychosocial factors exerted a fundamental role in the etiology and evolution of cardiovascular diseases (CVDs), with stress being one of these factors. **Objective:** To evaluate the self-perceived stress on arterial coronary disease patients during the COVID-19 pandemic. **Methods:** Coronary artery disease patients undergoing percutaneous coronary intervention in the period between February and May 2020 at a reference hospital in cardiology were considered eligible. The patients were interviewed about their self-perceived stress through phone calls from August to December 2020. The clinical characteristics were obtained through the electronic record. The stress was evaluated using a Perceived Stress Scale – PSS-10. Those patients with a score higher than the PSS-10 average (16 points) were considered stressed. The patients were divided into groups with and without stress. The categorical variables were expressed through the frequency and percentage and analyzed by the chi-square test, and the continuous variables were described by average and standard deviation, then compared using a Student's t test. **Results:** A total of 501 patients were assessed for eligibility, and 200 were included. Forty-nine percent of the patients presented stress symptoms. The stressed patients were frequently younger and had a family history of premature coronary artery disease. The women were more often stressed than the men, even though both groups had a higher prevalence of stressed patients than non-stressed patients. Concerning the PSS-10 questions, the patients with stress were more frequently upset with something unexpected; they felt more often unable to control important matters in their lives, more nervous, and irritated than those without stress. They also referred to the greater difficulty they faced in controlling irritations in their lives. Finally, 50% of the stressed patients also felt very frequently that their problems had accumulated in such a manner that they could not solve them anymore, in comparison to 0.98% in the without-stress group. **Conclusion:** The patients with arterial coronary disease and self-perceived stress were younger and presented a family history of premature coronary disease. They had less control over their irritations and important issues in their lives, feeling overloaded and incapable of solving their problems compared to those without stress.

Keywords: *Stress, psychological, pandemics, coronary artery disease, percutaneous coronary intervention.*

1. Introduction

The COVID-19 pandemic has changed the reality of people's lives and will have long-lasting ramifications for the health of the population and the health system (Khera et al., 2020). The worsening of mental health has been documented worldwide in this period, with symptoms of post-traumatic stress, panic disorder, depression, anxiety, and self-perceived stress on the rise, even after adjustments for previous psychiatric illnesses and a history of childhood trauma, suggesting that the COVID-19 pandemic is having an independent effect on the mental health of the population (Mimoun et al., 2020; Rossi et al., 2020).

In patients with coronary artery disease (CAD), who belong to a risk group for COVID-19, stress is a potential known risk factor for cardiovascular events and mortality (Richardson et al., 2012). The more detailed assessment of stress in the midst of the COVID-19 pandemic may contribute to more targeted mental health care for these patients.

2. Objective

To evaluate the self-perceived stress in CAD patients during the COVID-19 pandemic.

3. Methods

Cross-sectional study. CAD patients who have undergone percutaneous coronary intervention at a reference hospital in cardiology were considered eligible.

3.1. Inclusion and exclusion criteria

Inclusion criteria: Patients with CAD obstruction of one or more epicardial arteries, with at least 50% stenosis and/or left main disease with at least 50% of stenosis measured by catheterization (CATE) and who had undergone PCI (Cesar et al., 2014); Exclusion criteria: Patients who are more than 75 years old or patients with cognitive disability. We excluded patients who lived farther from the hospital (>48 miles) because at the time this project was conducted, we intended to call them to an outpatient clinic.

3.2. Logistics

Patients with CAD who underwent percutaneous coronary intervention in the period between February and May 2020 were sequentially assessed for eligibility according to the list of PCIs performed by the cath lab of a cardiology reference center in southern Brazil. Patients were interviewed about their own perceived stress through telephone calls from August to December 2020 by a trained investigator. All participants provided free and informed consent verbally by telephone to the researcher and via SMS phone message.

3.3. Assessment of self-perceived stress

The stress was evaluated using a Perceived Stress Scale – PSS-10. PSS items were designed to assess the degree to which respondents found their lives unpredictable, uncontrollable, and overburdened. It consisted of 10 items that measured perceived stressful experiences over the previous month with a 5-point Likert scale ranging from never (=0), almost never (=1), sometimes (=2), fairly often (=3), and very often (=4). It is a scale composed of six negative items (1, 2, 3, 6, 9, 10) and four positive items (4, 5, 7, 8). Possible PSS-10 scores range from 0 to 40. A higher score indicates greater stress (Cohen et al., 1983; Siqueira Reis et al., 2010). Those patients with scores higher than the average for the Brazilian population on PSS-10 (16 points) were considered stressed (Siqueira Reis et al., 2010).

3.4. Statistical analysis

The patients were divided into groups with and without stress. The categorical variables were expressed as frequencies and percentages and analyzed by the chi-square test, and the continuous variables were described by average and standard deviation compared using a Student's t test. A two-tailed P value ≤ 0.05 was considered to indicate statistical significance. All analyses were performed using IBM® SPSS® software version 24.

3.5. Ethical and legal considerations

This protocol is in accordance with the Helsinki declaration and was approved by the local ethics committee.

4. Results

A total of 501 patients were assessed for eligibility, of whom 227 were excluded, mainly due to distance and age. Thus, we found 274 eligible patients. Of these, 56 were lost; 11 declined; and 7 died, leading to 200 participants. Of the general sample, 62.12% were male and 37.87% female. Forty-nine percent of the patients presented stress symptoms. Women have a 47.42% prevalence of stress, higher than men, at 28.71%, although males were more prevalent in groups with and without stress ($p = 0.008$). The stressed patients were frequently younger ($p=0.002$) and with a premature family history of CAD ($p=0.005$) (Table1).

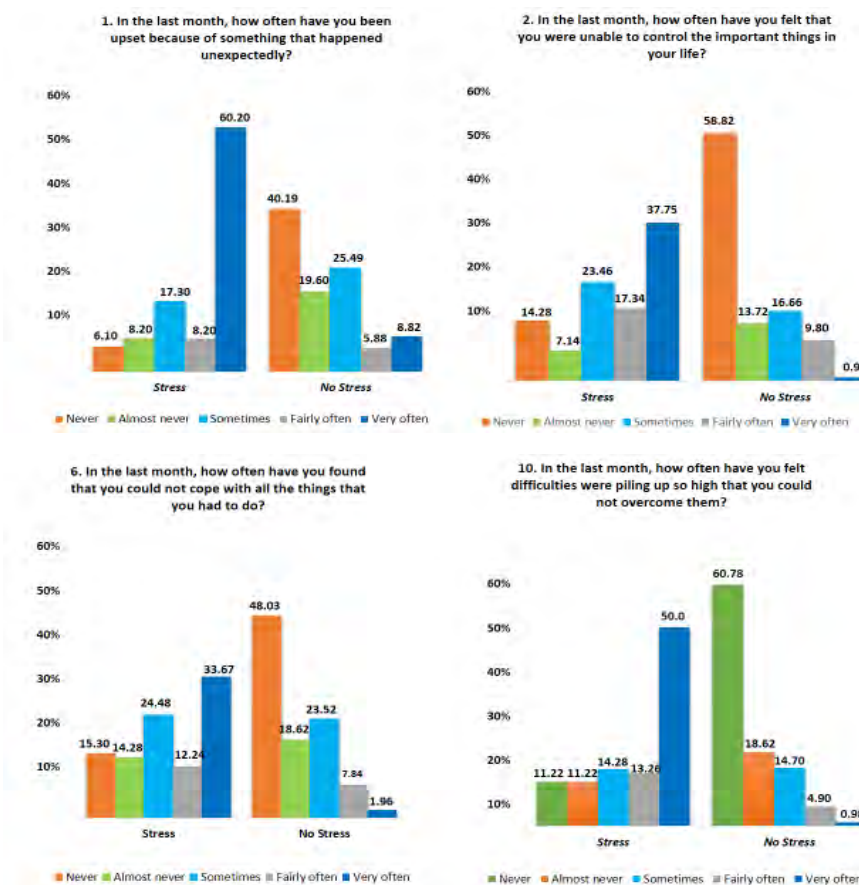
Concerning PSS-10 questions, patients with stress were more often upset by something unexpected (60.20% vs. 8.82%); they more often felt unable to control important things in their lives (37.75% vs. 0.98%) and were more nervous than those without stress (63.26% vs. 9.80%). They felt less sure about their ability to handle their problems (40.81% vs. 81.37%). They less often felt that things were going their way (20.40% vs. 47.05), and they more often felt that they could not cope with everything they had to do (33.7% vs. 1.96%). Only 22.44% of the stressed patients felt able to control their irritations, compared to 59.40% of those without stress. They felt less frequently that they were on top of things (16.32 vs. 55.88%). Of the stressed people, 48.97% were angry about things that were outside of their control, which occurred only among 4.90% of those without stress. Finally, 50% of stressed people felt very often that problems had accumulated so much that they could not solve them, compared to 0.98% of those without stress. Figure 1 shows some items of the Perceived Stress Scale according to the groups.

Table 1. Characteristics of patients with coronary artery disease according to groups with and without stress.

| Characteristics | With stress n= 98 (49%) | No stress n= 102 (51%) | p |
|---------------------------------------|----------------------------|---------------------------|--------------|
| Age years | 58.74 ± 9.83 | 62.95 ± 9.37 | 0.002 |
| Sex | | | |
| Female n (%) | 46 (47.42) | 29 (28.71) | 0.008 |
| Male n (%) | 51 (52.57) | 72 (71.28) | |
| Public Healthcare n (%) | 78 (80.41) | 74 (73.26) | 0.23 |
| Risk Factors | | | |
| Smoking n (%) | 24 (24.48) | 18 (17.64) | 0.24 |
| Hypertension n (%) | 64 (65.30) | 65 (63.72) | 0.82 |
| Diabetes Mellitus n (%) | 35 (35.71) | 35 (34.31) | 0.84 |
| Dyslipidemia n (%) | 46 (46.93) | 38 (37.25) | 0.17 |
| Premature family history of CAD n (%) | 30 (30.92) | 19 (18.62) | 0.05 |
| Obesity n (%) | 29 (29.59) | 24 (23.76) | 0.35 |
| Clinical History | | | |
| Previous MI n (%) | 36 (37.11) | 28 (27.72) | 0.16 |
| Previous CABG n (%) | 5 (5.15) | 5 (5.05) | 0.97 |
| Previous PCI n (%) | 30 (30.92) | 23 (23.00) | 0.21 |
| Current angina n (%) | 46 (47.42) | 43 (42.57) | 0.49 |
| HF n (%) | 12 (12.37) | 8 (7.92) | 0.30 |
| Stroke n (%) | 4 (4.12) | 2 (1.98) | 0.38 |
| Chronic kidney failure n (%) | 4 (4.12) | 0 | 0.06 |
| Angiographic aspects | | | |
| Number of injured vessels | | | |
| 1. n (%) | 56 (57.14) | 60 (58.82) | 0.21 |
| 2. n (%) | 27 (27.55) | 19 (18.62) | |
| 3. n (%) | 15 (15.30) | 23 (22.54) | |

CAD-Coronary artery disease; MI-myocardial infarction; CABG-Coronary artery bypass graft; PCI-percutaneous coronary intervention; HF-heat failure;

Figure 1. Perceived Stress Scale items (PSS-10) according to groups with and without stress.



5. Discussion

In our study, we found a stress prevalence of 49% among patients, compared to 29.6% described in the general population in this pandemic period (Salari et al., 2020). It is possible that the knowledge among cardiovascular patients that they belong to the group at highest risk of complications for COVID-19 causes a constant state of alertness and an intensified concern in the adoption of care measures to prevent COVID-19 contamination. This reality can be considered an additional stressor at this time of pandemic in relation to the general population. These data deserve attention, since stress is known to be a risk factor for greater cardiovascular morbidity and mortality in the population with CAD (Richardson et al., 2012).

We observed in this study that the stressed patients were younger, and women had a higher prevalence of stress than men, which is in line with what has been documented in the current and the pre-pandemic scenario (Rossi et al., 2020; Xu et al., 2015). Considering that the patients with stress were younger and more likely to be of working age than those without stress, we can consider the hypothesis that they may have suffered more directly the economic impacts of the pandemic, with temporary or permanent loss of employment. The interruption of professional activity in the pandemic has been reported as a factor that can generate loss of confidence, self-esteem, and control, especially when the person perceives himself as a burden on society and feels a lack of belonging that contributes to emotional suffering (Brooks et al., 2020).

In our study, although stressed patients showed confidence in their ability to deal with their personal problems, most of them felt unable to control important things in life, indicating a feeling of helplessness, which is reinforced by their concern that they could not deal with everything they had to do. Stressed patients also seemed to suffer from anguish for the things they could not control and returned that sentiment in the form of hostility. This revolt is evidenced by more frequent annoyance in unexpected situations and anger at things that were out of control. The correlation between higher levels of self-perceived stress and greater hostility has been demonstrated in this period and seems to be mediated by social support, which reinforces the need for social bonds to achieve better emotional management in crisis situations and when facing high levels of stress such as the pandemic (Duan et al., 2020). In addition, we can assume that people become irritated when reality falls short of expectations, which is demonstrated by the frustration of most people who become stressed by things never happening in the expected way. This generates greater nervousness and less ability to control life's irritations. One study demonstrated a strong inverse correlation between perceived stress levels and sense of control, which confirms our findings that participants felt greater stress and less emotional and behavioral control (Mimoun et al., 2020). In addition, the feeling among half of the stressed people that they were accumulating problems to the point of not being able to resolve them indicates a stage of emotional exhaustion, a situation of greater vulnerability for less control in the face of stressful events, especially in individuals with negative emotional coping skills (Yan et al., 2020).

The pandemic caused several stressful events such as fear of infection with the new coronavirus; hospitalization; the death of loved ones by COVID-19; relationship difficulties; changes in work routines; and financial, supply, or housing problems (Lai et al., 2020; Mimoun et al., 2020; Rossi et al., 2020). In addition, long-term social isolation, frustration, boredom and lack of adequate information on the part of public health authorities have also been documented as stressful events (Brooks et al., 2020; Lai et al., 2020). All of these situations can increase stress even more in patients suffering from heart disease. This group of patients was also potentially affected by another stressor, adopted to reduce the spread of Sars-Cov-2 and redirect resources to care for patients with COVID-19: up to 80% of elective interventions were postponed indefinitely, first in Italy and then in most countries, with only emergency cardiac procedures being performed. In addition, the fear of contagion from the coronavirus has been reported as one of the factors in decreased attendance due to cardiovascular causes in emergencies, with studies from Europe and the United States reporting a more than 50% reduction in hospital admissions due to acute coronary syndrome (Garcia et al., 2020; Stefanini et al., 2020).

One of the limitations of this study is that, to date, we do not have a control group, either of cardiovascular patients outside the pandemic period or of a general sample of the local population during the pandemic. Our future perspective is to evaluate, during the pandemic, participants without coronary heart disease for comparison with the results presented in this article. We intend to survey a group of coronary patients outside the pandemic period in the future. However, we emphasize that our objective was to evaluate and report these results as soon as possible, aiming at an early intervention in these patients, in view of the strong correlation between high stress and greater morbidity and mortality in patients with cardiovascular disease. This study allowed the prioritization of psychological care for women and those with a family history of coronary heart disease.

In conclusion, the patients with arterial coronary disease and self-perceived stress are younger, female, and presented a family history of premature coronary disease. They have less control over their irritations and important issues in their lives, feeling overloaded and incapable of solving their problems compared to those without stress. A more detailed understanding of the characteristics of stress in patients with CAD during the COVID-19 pandemic period presented in this article may contribute to a more focused and assertive approach to the management of stress in this risk group.

References

- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet*.
- Cesar, L., Ferreira, J., Armaganijan, D., Gowdak, L., Mansur, A., Bodanese, L., Sposito, A., Sousa, A., Chaves, A., & Markman, B. (2014). Diretriz de doença coronária estável. *Arquivos Brasileiros De Cardiologia*.
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of health and social behavior*, 385-396.
- Duan, H., Yan, L., Ding, X., Gan, Y., Kohn, N., & Wu, J. (2020). Impact of the COVID-19 pandemic on mental health in the general Chinese population: Changes, predictors and psychosocial correlates. *Psychiatry research*, 293, 113396.
- Garcia, S., Albaghdadi, M. S., Meraj, P. M., Schmidt, C., Garberich, R., Jaffer, F. A., Dixon, S., Rade, J. J., Tannenbaum, M., & Chambers, J. (2020). Reduction in ST-segment elevation cardiac catheterization laboratory activations in the United States during COVID-19 pandemic. *Journal of the American College of Cardiology*, 75(22), 2871-2872.
- Khera, A., Baum, S. J., Gluckman, T. J., Gulati, M., Martin, S. S., Michos, E. D., Navar, A. M., Taub, P. R., Toth, P. P., & Virani, S. S. (2020). Continuity of care and outpatient management for patients with and at high risk for cardiovascular disease during the COVID-19 pandemic: A scientific statement from the American Society for Preventive Cardiology. *American Journal of Preventive Cardiology*, 1, 100009.
- Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., Wu, J., Du, H., Chen, T., & Li, R. (2020). Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA network open*, 3(3), e203976-e203976.
- Mimoun, E., Ben Ari, A., & Margalit, D. (2020). Psychological aspects of employment instability during the COVID-19 pandemic. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(S1), S183.
- Richardson, S., Shaffer, J. A., Falzon, L., Krupka, D., Davidson, K. W., & Edmondson, D. (2012). Meta-analysis of perceived stress and its association with incident coronary heart disease. *The American journal of cardiology*, 110(12), 1711-1716.
- Rossi, R., Succi, V., Talevi, D., Mensi, S., Ntalu, C., Pacitti, F., Di Marco, A., Rossi, A., Siracusano, A., & Di Lorenzo, G. (2020). COVID-19 pandemic and lockdown measures impact on mental health among the general population in Italy. *Frontiers in Psychiatry*, 11.
- Salari, N., Hosseinian-Far, A., Jalali, R., Vaisi-Raygani, A., Rasoulpoor, S., Mohammadi, M., Rasoulpoor, S., & Khaledi-Paveh, B. (2020). Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: a systematic review and meta-analysis. *Globalization and health*, 16(1), 1-11.
- Siqueira Reis, R., Ferreira Hino, A. A., & Romélio Rodriguez Añez, C. (2010). Perceived stress scale: reliability and validity study in Brazil. *Journal of health psychology*, 15(1), 107-114.
- Stefanini, G. G., Azzolini, E., & Condorelli, G. (2020). Critical organizational issues for cardiologists in the COVID-19 outbreak: a frontline experience from Milan, Italy. *Circulation*, 141(20), 1597-1599.
- Xu, X., Bao, H., Strait, K., Spertus, J. A., Lichtman, J. H., D'onofrio, G., Spatz, E., Bucholz, E. M., Geda, M., & Lorenze, N. P. (2015). Sex differences in perceived stress and early recovery in young and middle-aged patients with acute myocardial infarction. *Circulation*, CIRCULATIONAHA.114.012826.
- Yan, L., Gan, Y., Ding, X., Wu, J., & Duan, H. (2020). The relationship between perceived stress and emotional distress during the COVID-19 outbreak: Effects of boredom proneness and coping style. *Journal of anxiety disorders*, 77, 102328.

FEELINGS AND REACTIONS OF MEN AND WOMEN TO THE COVID 19 PANDEMIC IN BRAZIL

**Renata da Silva Coelho, Joice Aparecida Araujo Dominguez, Helena Rinaldi Rosa,
& Leila Salomão de La Plata Cury Tardivo**

Psychology Institute - Universidade de São Paulo (Brazil)

Abstract

This current study aims to understand the impacts of the pandemic on a group of adult men and women's mental health. Social distancing, the fear of getting sick, the loss of the loved ones and changes in the family's routine triggered and favored the difficulties increase in the population's mental health. This study presents data related to the online survey carried out from April to October among men and women in Brazil, through an electronic form, recording the effects of isolation, the main complaints and the feelings that permeate everyone. Both men and women over the age of 18 constitute part of the active population and an age group which assumes many responsibilities and was, on a large scale, affected by the pandemic. Out of the 6,766 people over the age of 18 that participated in the survey, 6,023 were female and 743 were male. Most women were aged between 31 to 40 and most men, 21 to 30. The main feelings reported by the participants appeared in the following order: fear, sadness, irritation, solidarity, overload, hope, loneliness and optimism for women and fear, irritation, sadness, overload, solidarity, loneliness, hope and optimism for men. It was concluded that in the pandemic period, people experienced constant and significant changes in the social and technological fields in an impacting way and without any choice. The pandemic caused intense psychic distress in people, highlighting the need for therapeutic and preventive work to return to activities and for the population's mental health.

Keywords: Feelings, pandemic, social distancing, isolation.

1. Introduction

In March 2020, the World Health Organization (WHO) declared the new coronavirus Covid-19 a global pandemic which caused distancing and social isolation in many countries. In Brazil, more than 5 million cases of the disease were confirmed in mid October 2020. Social distancing, the fear of getting sick, the loss of the loved ones and changes in the family's routine triggered and favored the difficulties increase in the population's mental health. This is considered the fourth wave in the health sphere. Therefore, part of the control actions to face the pandemic is that men and women follow the authorities' prevention recommendations.

The entire Brazilian population, both men and women, were abruptly affected, being unable to go to their workplaces, many of them adapting to working at home, online classes, without any contact with friends also having a very intense and challenging coexistence with family members at home as well as greater use of social networks and technology. These factors require more attention in the pandemic which represents an important state of emotional and social vulnerability, making it difficult to maintain a balanced psychic structure.

On the other hand, several programs and services in the country tried to seek understanding of the current moment in order to contribute to a better psychological care for the population in general. Among these services, authors proposed the online survey, which was made feasible by the psychological care project of the Mental Health and Social Clinical Psychology Laboratory of IPUSP (USP Institute of Psychology), APOIAR. It aimed at identifying people's suffering in the pandemic and social distancing through a survey on the impact of the pandemic on people's daily lives, mainly on their mental health, focusing on finding out the principal emotional difficulties (loneliness, sadness, dejection, depression, deep fears, anguish, anxiety or conflicts) of the population including men and women. This study presents data related to the online survey carried out from April to October among men and women, recording the effects of isolation, the principal complaints and the main feelings that permeate everyone. Both men and women over the age of 18 constitute part of the active population and an age group which assumes many responsibilities and was, on a large scale, affected by the pandemic in a more disturbing way, in many senses.

2. Objectives

This current study aims to understand the impacts of the pandemic on a group of adult men and women's mental health, who are over the age of 18.

3. Methods

Considering the importance of knowing the social isolation and distancing impacts resulting from the COVID-19 pandemic, *Google Forms* questionnaires were prepared for men and women and shared online through social networks in order to understand the current situation regarding men's feelings and attitudes.

Out of the 6,766 people over the age of 18 that participated in the survey, 6,023 were female and 743 were male. Most women were aged between 31 to 40 and most men, 21 to 30. The majority of the participants are from the capital of São Paulo (69.4% of women and 70.1% of men) from April to October 2020.

4. Results and discussion

6,023 women and 743 men ranging from 19 to over 80 years participated in the survey, being adults from 21 to 50 predominant. Most participants were from São Paulo, but there are responses from residents in different Brazilian states. Convenience sample and snowball subject recruitment were the methods used. The most relevant results show that 50.1% of men and 53.7% of women have children. In addition to working, most women carry out domestic chores (cooking, washing etc.) and help their children with online school activities; men work and also perform chores at home, but less frequently than women. Fear is the most predominant feeling among women and men followed by irritation for men and sadness for women. The most frequent feeling is inverted in the third position: sadness for men and irritation for women. The feelings of overload and solidarity are in 4th position for both (more frequent among women). The research presented important indicators of the emotional state resulting from the impacts of the pandemic on the general population, which can contribute to mental health care strategies during and after the Covid-19 pandemic in Brazil.

The age of the male participants ranged from 21 to 30 years, closely followed by the 41-50, 31-40 and 51-59 age ranges. Most participants in this group have a higher education level and paid or voluntary work. More than 50% have children given that just over 50% have 2 to 3 children followed by the ones who have 1 child. Just over 50% of children are over 18 years old, and in the other age groups they are distributed in a more balanced way with fewer babies under 1 year old. The vast majority do not have grandchildren.

Regarding social isolation, at the time the questionnaire was shared, most participants had been together with 2 to 3 people for more than 15 days, followed by isolation in 2 people and the participant being by him or herself. The vast majority agrees with isolation, even fewer people partially agree. There were few responses against the protection measure and even fewer participants stated that they were indifferent to the issue. Most of the participants are working at home and consider using social networks much more in this period than before. Nearly all of them use WhatsApp followed by e-mail and YouTube, Facebook and Instagram. Almost all participants use these apps to talk to friends followed by checking the news, talking to family members, watching movies, playing games and working.

Among male participants, 69% reported that they currently reside in São Paulo, other Brazilian states 31% and less than 1% in countries abroad, including Portugal, England, Spain and Austria.

In isolation, the vast majority of men stated that they are doing a lot of domestic chores, such as cooking, cleaning the house, washing and ironing followed by reading, leisure activities and playing and helping children with school activities to a lesser extent. They consider to be in harmony with their families at this moment and that isolation is bringing them closer (though less than 50%). These participants state they have conflicts which already existed before the pandemic, followed by those who consider to have some conflicts that occur or are worsened due to the daily proximity in isolation. The majority of the participants stated that they have feelings as never before, with the predominance of fear, followed by irritation, solidarity, sadness, overload, hope, loneliness and anxiety; and yet the vast majority associates them directly with the pandemic.

Regarding sleep, male participants stated they have a good and reasonable quality (closer), fewer stated this quality is bad, and just over 50% stated they notice a change in sleep during this period.

More than 50% of the participants stated that they did physical activities before the pandemic, but did not maintain the same practice during the period. Most of the participants who followed psychological care before the pandemic suspended it during this period, followed by those who managed

to maintain online sessions during the pandemic. Most participants state that talking to a psychologist could not help at this time, followed very closely by those who state that talking to a psychologist could surely help at this time and the other part which considers it might help or not. The vast majority (almost all) stated they thought the pandemic was going to change their lives in some way.

For women, age ranges between 31 and 40 years, followed closely by 41-50, 21-30, and 51-59 age ranges. Most participants in this group have a higher education level and paid or voluntary work. More than 50% have children, just over half participants have 2 to 3 children followed by the ones who have 1 child. Just over 50% of children are over 18 years old, and in the other age groups they are distributed in a more balanced way with fewer babies under 1 year old. The vast majority do not have grandchildren. At the time the questionnaire was shared, most participants had been with 2 to 3 people for more than 15 days, followed by isolation in 2 people and the participant being by him or herself. Regarding isolation, the vast majority agreed with social distancing, even fewer women who partially agree and none who is against the measure. Most of the participants are working at home and consider using social networks much more in this period than before. Nearly all of them use WhatsApp followed by Instagram and YouTube. This use refers more to talking to friends, almost all, followed by checking the news, games and working. During social distancing, the vast majority of women stated that they are performing many domestic chores, such as cooking, cleaning the house, washing and ironing followed by leisure activities, playing and helping children with school activities which appear at a lesser extent. More than 50% state they have to help with the mentioned activities. They considered being in harmony with their families at this moment (though less than 50%). They stated that they have conflicts that already existed before the pandemic, followed by those that either started to happen or worsened in this period. The vast majority of the participants stated that they have feelings as never before with the predominance of fear, followed by irritation, overload, loneliness and anxiety; and yet the vast majority associates them directly with the pandemic.

The participants answered about the place they currently reside and 72% informed São Paulo, other Brazilian states represent 27% of the responses and countries abroad 1% including the United States, Germany, Portugal, United Kingdom, France, Canada, Sweden, Spain, Costa Rica, Switzerland, Panama, Norway, Italy, Ireland, England, Dubai, Chile, Bolivia and Uruguay.

Regarding sleep, the participants stated that they have a good and reasonable quality (closer), fewer participants stated the quality is bad, and just over 50% stated they noticed a change in sleep during this period. More than half of the participants stated that they did physical activities before the pandemic, but did not maintain it during the period. Participants who had psychological assistance before the pandemic are evenly distributed between keeping it online during the pandemic or having it suspended. Half of the participants stated that talking to a psychologist could help at this time and the other half is divided into considering that it might help or not. Finally, the vast majority (almost all) state that they believe the pandemic is going to change their life in some way.

5. Conclusions

The main feelings reported by the participants were, in general, as follows: fear, sadness, irritation, solidarity, overload, hope, loneliness and optimism for women and, fear, irritation, sadness, overload, solidarity, loneliness, hope and optimism for men. One might conclude that in the pandemic period, people experienced constant and significant changes in the social and technological fields in an impacting way and without any choice. The pandemic provoked new forms of organization, contact and interaction in human beings and has truly potentiated manifestations of intense psychological distress in people, highlighting the need for therapeutic and preventive work for the return to activities and for the population's mental health.

During the research and in the online appointments carried out by the team, it was observed women participated much more than men. Therefore, the reasons why they do not look for health services are: since the male gender is related to the values of culture, the way men build and experience their masculinity becomes one of the matrixes of the ways to get sick and die (LEVORATO et al, 2014). Men also look for services less frequently because they feel embarrassed as this is opposite to the androcentric culture (SILVA et al, 2012).

Regarding the female participants' responses, in the vast majority, both in this survey and seeking care, there were signs of emotional difficulties, such as anxiety, overload, and even depression, as seen in several studies, which still add a feeling of generalized panic and stress in mental health.

Recent researches have shown a higher prevalence of symptoms for stress, anxiety and depression in the female population during the COVID-19 pandemic as pointed out in a Brazilian study (Souza et al, 2020).

Literature review studies point out that unexpected changes in the family dynamics, such as closing schools, companies and public places and limiting or even prohibiting the practice of physical and leisure activities, changes in routines and work like working at home as well as distancing lead the general population to the feelings of abandon and insecurity due to the economic and social repercussions caused by the pandemic (Moreira et al, 2020).

In another review article Schmidt, Crepaldi, Bolze, Neiva-Silva, & Demenech (2020) found that the fast worldwide spread of the new coronavirus, the uncertainties about how to control the disease and the seriousness of COVID- 19 in addition to the unpredictability of the pandemic duration and its consequences represent risk factors for the mental health of the general population (Zandifar & Badrfam, 2020). The same authors describe the broad study by Wang et al. (2020) with the general population in China, including 1,210 participants in 194 cities, during the initial stage of the pandemic. This study showed moderate to severe symptoms of anxiety, depression and stress in 28.8%, 16.5% and 8.1% of respondents, respectively. Moreover, 75.2% of the respondents reported fear of their family members contracting the disease. Being a woman, student and having physical symptoms related to COVID-19, or previous health problems, were factors significantly associated with higher levels of anxiety, depression and stress. (Wang et al., 2020). The new coronavirus pandemic can impact mental health and psychological well-being also due to changes in routines and family relationships (Cluver et al., 2020; Ornell et al., 2020) as found in the present investigation.

As measures to combat COVID-19, social or physical distancing stands out (Faro, Bahiano, Nakano, Reis, Silva, & Vitti, 2020) which implies the maintenance of a spatial distance - about two meters – from people. It is also recommended not to have group meetings and avoid full places and crowds. This measure has been implemented by countries to avoid contagion. Other measures are quarantine and isolation. Quarantine is essential to mitigate contagion, as it is an attempt to keep people out of contact with others, in order to decrease contamination and, consequently, the number of deaths and the demand for health services. Even though it is necessary, quarantine can cause, as the investigation showed, friends' and family's distancing, uncertainty about how long distancing will last (Brooks et al, 2020), boredom (Barari et al 2020), fear (Lima et al, 2020) among others. Also in the mentioned study (Faro, Bahiano, Nakano, Reis, Silva, & Vitti, 2020), it was observed a greater presence of anxiety disorders (Barari, et al; Lima et al, 2020) and depression (Pancani, Marinucci, Aureli, & Riva, 2020).

The present investigation showed, like others that have been developed, although with a lesser number of participants, the impacts on mental health in the face of the pandemic in the Brazilian population, considering the characteristics of different populations affected by COVID-19, such as men and women, differences by age and mainly of people and groups in greater vulnerability, women of working age. The need for urgent preventive measures with regard to COVID 19 was highlighted, as well as mental health care and prevention.

The present investigation had a large number of participants, most of them from the State of São Paulo, and showed the impacts on mental health, emotions and attitudes, resulting from the pandemic and measures to combat COVID-19. Considering the greater number of female participants, differences by age, with the largest young adults group, the need for urgent preventive measures to combat COVID-19 as well as mental health care and prevention were highlighted. It is necessary to implement proposals in the view of what the psychological repercussions of the necessary distancing / isolation cause, and the increase of COVID 19 so that it is less harmful.

References

- Barari, S., Caria, S., Davola, A., Falco, P., Fetzer, T., Fiorin, S., Slepici, F. R. (2020). *Evaluating COVID-19 public health messaging in Italy: self-reported compliance and growing mental health concerns*.
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet*, 395(102227), 912-920
- Cluver, L., Lachman, J. M., Sherr, L., Wessels, I., Krug, E., Rakotomalala, S., & McDonald, K (2020). Parenting in a time of COVID-19. *The Lancet*.
- Faro, A., Bahiano, M. D. A., Nakano, T. D. C., Reis, C., Silva, B. F. P. D., & Vitti, L. S. (2020). COVID-19 e saúde mental: a emergência do cuidado. *Estudos de Psicologia (Campinas)*, 37.
- Levorato, C. D., Mello, L. M. D., Silva, A. S. D., & Nunes, A. A. (2014). Fatores associados à procura por serviços de saúde numa perspectiva relacional de gênero. *Ciência & saúde coletiva*, 19, 1263-1274.

- Lima, C. K. T., Carvalho, P. M. M., Lima, I. A. S., Nunes, J. A. V. O., Saraiva, J. S., Souza, R. I., ... Rolim Neto, M. L. (2020). The emotional impact of coronavirus 2019-Ncov (new Coronavirus Disease). *Psychiatry Research*, 287, e11291
- Moreira, Wanderson Carneiro, Sousa, Anderson Reis de, & Nóbrega, Maria do Perpétuo Socorro de Sousa. (2020). Adoecimento Mental na População Geral e em Profissionais de Saúde durante a Covid-19: Scoping Review. *Texto & Contexto - Enfermagem*, 29, e20200215. Epub September 02, 2020.
- Ornell, F., Schuch, J. B., Sordi, A. O., & Kessler, F. H. P. (2020). "Pandemic fear" and COVID-19: Mental health burden and strategies. *Brazilian Journal of Psychiatry*.
- Pancani, L., Marinucci, M., Aureli, N., & Riva, P. (2020). Forced social isolation and mental health: a study on 1006 Italians under COVID-19 quarantine. *PsyArXiv Preprints*.
- Schmidt, B., Crepaldi, M. A., Bolze, S. D. A., Neiva-Silva, L., & Demenech, L. M. (2020). Impactos na Saúde Mental e Intervenções Psicológicas Diante da Pandemia do Novo Coronavírus (COVID-19)
- Silva, P. A. D. S., Furtado, M. D. S., Guilhon, A. B., Souza, N. V. D. D. O., & David, H. M. S. L. (2012). A saúde do homem na visão dos enfermeiros de uma unidade básica de saúde. *Escola Anna Nery*, 16(3), 561-568.
- Silva, P. A. D. S., Furtado, M. D. S., Guilhon, A. B., Souza, N. V. D. D. O., & David, H. M. S. L. (2012). A saúde do homem na visão dos enfermeiros de uma unidade básica de saúde. *Escola Anna Nery*, 16(3), 561-568. Souza
- Souza, A. S. R., Souza, G. F. D. A., & Praciano, G. D. A. F. (2020). A saúde mental das mulheres em tempos da COVID-19. *Revista Brasileira de Saúde Materno Infantil*, 20(3), 659-661. Qiu J, Shen B, Zhao M, Wang Z, Xie B, Xu Y. A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations. *General psychiatry* [Internet]. 2020[cited 2020 de May de 06].
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in china. *International Journal of Environmental Research and Public Health*, 17(5), 1729.
- Zandifar A, Badrfam R. Iranian mental health during the COVID-19 epidemic. *Asian J Psychiatr*. 2020 Jun;51: 101990. doi: 10.1016/j.ajp.2020.101990. Epub 2020 Mar 4. PMID: 32163908; PMCID: PMC7128485.

BUFFERING EFFECT FOR 2ND COVID-19 LOCKDOWN: THE ROLE OF ACADEMIC E-LEARNING ADOPTION AMONG GENERATION Z

Jessica Ranieri, Federica Guerra, & Dina Di Giacomo

Department of Life Health and Environmental Sciences, University of L'Aquila (Italy)

Abstract

Background. The undergraduate community is composed of Generation Z members who constitute a social generation of digital natives who are technologically skilled. Their widespread exposure to technology accounts for their comfort with and strong knowledge of digital media. The government adoption of e-learning in academic education during the coronavirus disease (COVID-19) pandemic may be beneficial to such digitally skilled individuals.

Some studies have underscored the e-learning adoption adverse psychological impact on the mental health of the younger generation. In fact, the findings underscore an increase in psychological distress, excessive fear of infection, pervasive anxiety, frustration and boredom, a high level of stress, and post-traumatic stress symptoms.

We aimed to detect the protective factor for academic community during social restriction for pandemic in 2nd Italian lockdown analysing the adaptive behaviour of undergraduate in 3 field panels of academic education (life sciences, physical and engineer sciences, human and social sciences). We aimed to determine the psychological impact of prolonged e-learning on emotional regulation among undergraduate students. A secondary objective was to identify key components for preventive interventions targeted toward the academic community by investigating the buffering effect of e-learning in academic education on exposure to the pandemic.

Methods. An online cross-sectional survey was conducted on 570 university students (aged 18–26 years) pursuing degrees in life sciences, physical and engineering sciences, and social sciences in Italy. They were recruited using snowball sampling. We administered emotional (PDEQ, CSSQ, CAS), personality traits (BFI-10) and affinity for e-learning (AEQ) measures.

Results. Our findings suggest that a majority of the university students developed peritraumatic dissociative experience and stress, but not dysfunctional coronavirus anxiety during the 2nd COVID-19 lockdown in Italy. Nevertheless, the present findings also highlight the fragility of younger Gen Z undergraduate students who are beginning their academic journey amid the COVID-19 pandemic. Further, coronavirus distress significantly predicted mental health through the mediating effect of personality traits and e-learning affinity.

Conclusions. Therefore, health care professionals are encouraged to implement psychological support interventions that strengthen one's ability to manage stressful situations and reinforce their status as a digital native. Consequently, they may realize the power of their personal strengths, which in turn may mitigate their stress and peritraumatic dissociative experience when they deal with challenges, enhance their competence, and enable them to adopt effective coping strategies.

Keywords: *COVID-19, generation Z, buffering effect, e-learning, university students.*

1. Introduction

During the COVID-19 pandemic, many countries decided to close all learning institutions including universities to prevent the spread of coronavirus. The COVID-19 pandemic has had a catalytic effect on the changes in educational processes worldwide. It caused an abrupt shift from face-to-face to online classes¹. Several studies showed a psychological impact of the Covid-19 emergency on college students. Stress significantly decreases learning and negatively affects psychological well-being of students². However, few studies have taken into account the features inherent the Z Generation³.

Gen Z defines the current college population. Indeed, Generation Z constitutes agile and active generation in the digital online environment which is smartphone natives savvy with mobile technology⁴.

The massive adoption of e-learning in academic education during the pandemic may have been a positive change for digitally skilled individuals, such as Gen Z members. Our aim was to investigate the affinity for e-learning as a resilience strategy for Gen Z during Covid-19.

2. Design

An online cross-sectional survey was conducted in December 2020 among university students pursuing degrees in life sciences, physical and engineering sciences, and social sciences in Italy. During this period, the total confirmed cases of COVID-19 was 1.870.576 in Italy⁵. They were recruited from a dedicated university community using social media platforms using snowball sampling. Data were collected anonymously.

3. Objectives

Aim of the present study was to detect the protective factor for academic community during social restriction for pandemic in 2nd Italian lockdown (December 2020) analysing the adaptive behaviour of undergraduate in 3 field panels of academic education (life sciences, physical and engineering sciences, human and social sciences). We aimed to determine the psychological impact of prolonged e-learning on emotional regulation among undergraduate students. A secondary objective was to identify key components for preventive interventions targeted toward the academic community by investigating the buffering effect of e-learning in academic education on exposure to the pandemic.

4. Methods

4.1. Participants

The participants were 570 Italian undergraduate students aged 18–26 years old (mean age = 22.2, SD \pm 2.32). Demographic characteristics of the participants: 74% (n.422) of them were females, and 26% (n.158) males; 4.4% were living in Northern (n.25), 16.1% Central (n.92), and 79.5% Southern Italy (n.453). The inclusion criteria were as follows: (a) aged 18–26 years, (b) an undergraduate student, and (c) provision of informed consent.

4.2. Outcomes and covariates

The socio-demographic data were assessed using a socio-demographic form. Psychological battery has been composed of n.5 self-reports evaluating anxiety symptoms, personality traits, peritraumatic dissociation, and stress to measure the presence/absence of psychological symptoms and related severity. An ad hoc questionnaire was used to assess e-learning affinity.

Coronavirus Anxiety Scale (CAS)⁶. The CAS is a brief 5-item mental health screening tool that can be used to detect dysfunctional anxiety associated with the COVID-19 crisis. Specifically, it assesses the cognitive, behavioural, emotional, and physiological dimensions of coronavirus anxiety. Each item is rated on a 5-point scale that ranges from 0 (not at all) to 4 (nearly every day), and these ratings indicate the frequency with which the symptom has been experienced during the past two weeks. A total score \geq 9 is indicative of dysfunctional anxiety.

Big Five Inventory-10 (BFI-10)⁷. The BFI-10 evaluates the five personality dimensions on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree), each with two items: OPenness (OP), COncscientiousness (CO), Emotional Stability (ES), EXtraversion (EX), and AGreeableness (AG).

Peritraumatic Dissociative Experiences Questionnaire (PDEQ)⁸. It is a 10-items self-report questionnaire measuring peritraumatic dissociation. The PDEQ has well-established psychometric properties, with higher total scores indicating increased peritraumatic dissociation. A score above 15 is indicative of significant dissociation.

COVID-19 Student Stress Questionnaire (CSSQ)⁹. The CSSQ measures COVID-19-related sources of stress among undergraduate students. It consists of 7 items, which are rated on a 5-point scale that ranges from zero ('Not at all stressful') to four ('Extremely stressful'). The CSSQ consists of the following three subscales, which assess COVID-19-related stressors among students: Relationships and academic life; Isolation; and Fear of contagion. This scale also yields a global stress score, which can range from 0 to 28.

Affinity for e-learning Questionnaire (AEQ). The AEQ is an experimental self-report measure that assesses affinity for e-learning. It is composed of 10 items, which are rated on a five-point Likert scale that ranges from 'Completely disagree' to 'Completely agree'. It assesses self-confidence in relation to service access, convenience and flexibility, lesson attendance, involvement, and information

technology skills. A pilot study was conducted using a sample drawn from the target population (not included in this study) to examine the reliability of the AEQ. The internal consistency of the scale was high ($\alpha = 0.8$).

4.3. Statistical analyses

The data analysis was performed using Jamovi statistical software, with a fixed α -value ≤ 0.05 . All demographic data were analyzed and presented as number (N) and percentage (%). Using ANOVA test as appropriate, we compared emotional severity by demographic variables. Pearson’s correlation analysis was conducted to examine the relationships between the study variables.

5. Results

The mean age of the participants (n. 570) was 22.2 years (SD = 2.32, range: 18–26), and 74% of them were women. A majority of the participants were pursuing a bachelor’s degree (55,1%). Moreover, 62,3% of the participants were off-campus students, and 41,4% (n.236) belonged with scientific academic discipline.

A considerable part of the sample (86,5%) showed significant peritraumatic dissociative experience (PDEQ) and 62,3% resulted in high level stressed emotional condition. 29,6% showed coronavirus anxiety. For dimensions of personality status, the prevalence for each traits were: 47,7% moderate level of conscientiousness (47,2% high, 5,1% low level); 78,4% moderate level of emotional stability (12,6% high and 8,9% low level); 48,6% moderate level of openness (42,5% high, 8,9% low level); 53,2% moderate extroversion level (25,3% low, 21,6% high level); then, 65,6% moderate level of agreeableness (22,3% high, 12,1% low level).

We conducted comparative analyses using grouped data. The participants were divided into two groups based on their median age (22 years): younger Gen Z group (n = 305) and older Gen Z group (n = 265). One-way ANOVA was conducted to examine age differences in emotional variables. These group comparisons revealed that there was a significant difference between the younger and older Gen Z groups in PDEQ ($p = 0.002$) and in AEQ ($p < .001$). Specifically, high peritraumatic dissociation and lower affinity e-learning levels were reported by the younger Gen Z group.

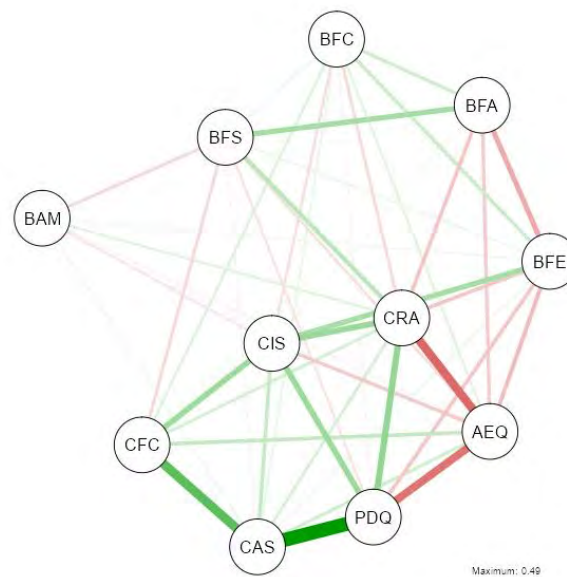
Then, the participants were divided into three groups based on their academic education field: Life Sciences (LS) group (n = 143), Physical and Engineer Sciences (PES) group (n = 236), and Human and Social Sciences (HSS) group (n = 191). One-way ANOVA was conducted to examine field panel differences in emotional and personality variables. These group comparisons revealed that there was a significant difference between HSS and LS groups on Extroversion (BFE), HSS reported high extroversion personality trait ($p = 0.02$); between HSS, LS and PES groups on Isolation (CIS), HSS and PES reported high isolation ($p = 0.007$); and between HHS and LS groups on Coronavirus Anxiety (CAS) ($p = 0.001$), high Anxiety levels were reported by HHS group (see Table 1).

Table 1. Raw score of the sample groups on psychological assessment.

| Tests/Groups | Young | | | | | | Old | | | | | |
|--------------|------------------------|----|---------------------------------------|----|---------------------------------|----|------------------------|----|--------------------------------------|----|----------------------------------|----|
| | Life sciences (n = 83) | | Physical&en gineer sciences (n = 141) | | Human&so cial sciences (n = 81) | | Life sciences (n = 60) | | Physical&en gineer sciences (n = 95) | | Human&so cial sciences (n = 110) | |
| | X | SD | X | SD | X | SD | X | SD | X | SD | X | SD |
| PDEQ | 27.4±10.1 | | 30.1±9.82 | | 28.1±10.5 | | 24.6±10.3 | | 26.1±9.94 | | 27.3±10.00 | |
| BFI | | | | | | | | | | | | |
| Ag | 6.27±1.48 | | 6.41±1.51 | | 6.23±1.69 | | 6.18±1.60 | | 6.03±1.57 | | 6.10±1.61 | |
| Co | 6.96±1.80 | | 7.33±1.46 | | 7.41±1.72 | | 7.57±1.61 | | 7.42±1.55 | | 7.27±1.77 | |
| ES | 6.20±1.47 | | 6.27±1.30 | | 6.00±1.21 | | 6.02±1.30 | | 6.14±1.15 | | 6.09±1.23 | |
| Op | 7.19±1.82 | | 7.06±1.81 | | 7.02±1.96 | | 7.17±2.04 | | 6.97±1.99 | | 7.09±2.03 | |
| Ex | 5.59±2.11 | | 5.91±2.06 | | 6.16±1.82 | | 5.58±2.02 | | 5.98±1.68 | | 6.20±2.05 | |
| CSSQ | | | | | | | | | | | | |
| CRA | 16.6±5.92 | | 17.2±4.89 | | 16.9±5.35 | | 16.0±5.52 | | 16.2±6.22 | | 17.2±5.23 | |
| CIS | 9.01±3.89 | | 8.73±3.30 | | 8.64±3.74 | | 8.87±3.56 | | 8.57±4.05 | | 8.84±3.76 | |
| CFC | 4.94±2.16 | | 5.58±1.99 | | 5.27±2.19 | | 4.47±2.25 | | 5.09±2.26 | | 5.48±1.89 | |
| | 2.66±1.15 | | 2.90±0.98 | | 2.96±0.95 | | 2.65±1.12 | | 2.53±1.27 | | 2.85±1.05 | |
| AEQ | 27.7±9.54 | | 28.1±7.90 | | 29.4±8.90 | | 30.5±9.65 | | 31.4±9.91 | | 31.0±9.94 | |
| CAS | 5.93±5.39 | | 6.23±4.40 | | 6.79±5.04 | | 3.87±3.79 | | 5.47±4.97 | | 7.19±5.40 | |

Finally, we examined the correlations between e-learning affinity, emotional indices and personality traits. Pearson's correlation analysis revealed that there was a negative relationship between scores on the PDEQ and Conscientiousness (BFI) ($r = -0.09$; $p = 0.02$), and affinity e-learning ($r = -0.42$; $p < .001$); a positive relationship between PDEQ and CAS anxiety score ($r = 0.64$; $p < .001$) and CSSQ CRA, CIS and CFC ($p = <.001$). There was a negative relationship between Agreeableness (BFI) and CSSQ CRA ($r = -0.08$; $p = 0.04$). There was a positive relationship between Conscientiousness (BFI) and affinity e-learning (AEQ) ($r = 0.11$; $p = 0.007$) and a negative relationship with CSSQ CRA ($p = 0.001$) and CIS ($p = 0.02$). There was a negative relationship between Emotional Stability (BFI) and AEQ and CFC ($p = 0.02$). There was a positive relationship between Extroversion (BFI) and Isolation (CIS) ($r = 0.12$; $p = 0.002$). There was a positive relationship between Openness (BFI) and coronavirus anxiety (CAS) ($r = 0.08$; $p = 0.04$) and Relationship and academic life (CSSQ) ($r = 0.08$; $p = 0.03$). There was a negative relationship between anxiety (CAS) and AEQ ($r = -0.22$; $p < .001$) (see Figure 1).

Figure 1. Correlation matrix partial plot.



6. Discussion

This cross-sectional study was focused on protective factors for Gen Z community during prolonged academic e-learning for pandemic in 2nd Italian lockdown (December 2020); we wanted to investigate the e-learning affinity as a protective factor for traumatic distress.

A significant proportion of students developed peritraumatic dissociation and high level stressed emotional symptoms. The younger Gen Z appeared to be less resilient. Specifically, younger students reported higher peritraumatic dissociative experience and lower e-learning affinity levels. Among academic education fields, Human and Social Sciences students reported higher extroversion personality trait, isolation stress, and dysfunctional coronavirus anxiety symptoms. Socio-demographic characteristics, student residential status (on-campus vs. off-campus students), study area, and the geographical location of the university did not exert a significant effect on stress.

Moreover, we wanted to examine the relationship between emotional regulation, personality traits, e-learning affinity and risk for mental health. High level of conscientiousness (tendency to be persistent and determined in achieving personal goals) and acceptability (the tendency to be sympathetic, cooperative, and accommodating) appear to have acted as a protective factor against peritraumatic dissociation, relationship and academic life, and isolation stress. In contrast, low level of emotional stability (the tendency to be resilient and do not react easily to stress) is correlated to fear of coronavirus contagion, and high level of openness (the tendency to be interested in having experiences that expand their minds) is correlated to anxiety and relationship and academic life stress.

Another interesting finding pertains to the effect of e-learning affinity on emotional regulation. Specifically, higher levels of e-learning affinity may weaken peritraumatic dissociation, dysfunctional coronavirus anxiety, relationship and academic life and isolation stress.

The impact of the prolonged academic e-learning on the mental health of academic community was strong and unmanageable by themselves; individual resources did not help undergraduate students to overcome the distress. Gen Z appeared to be exposed to mental distress and needed help. Our findings provided details for protective and predictive risk factors.

7. Conclusions

The present findings suggest that, because coronavirus distress is a significant predictor of mental health through the mediating effect of e-learning affinity and personality traits, health care professionals should design and implement interventions and programmes that focus on COVID-19-peritraumatic dissociation and stress. Health care professionals are encouraged to implement psychological support interventions that strengthen one's ability to manage stressful situations and reinforce their status as a digital native.

References

- Adedoyin O, & Soykan E. (2020). Covid-19 pandemic and online learning: the challenges and opportunities. *Interactive Learning Environments*.
- Appolloni A, Colasanti N, Fantauzzi C, Fiorani G, & Frondizi R. (2021). Distance Learning as a Resilience Strategy during Covid-19: An Analysis of the Italian Context. *Sustainability*, 13(3):1388.
- Dimock, M. Defining generations: Where Millennials end and Generation Z begins. January 7, 2019, <https://www.pewresearch.org/fact-tank/2019/01/17/where-millennials-end-and-generation-z-begins/>
- Guido, G, Peluso, AM, Capestro, M, & Miglietta, M (2015). An Italian version of the 10-item Big Five Inventory: an application to hedonic and utilitarian shopping values. *Personality and Individual Differences*, 76, 135–140.
- <https://opendatadpc.maps.arcgis.com/apps/opsdashboard/index.html#/b0c68bce2cce478eaac82fe38d4138b1>
- Lee, S (2020). Coronavirus Anxiety Scale: A brief mental health screener for COVID-19 related anxiety. *Death Studies*, 44:7, 393-401.
- Marmar, C., Weiss, DS, & Metzler, TJ (1997). The Peritraumatic Dissociative Experiences Questionnaire. In J. P. Wilson & T. M. Keane (Eds.), *Assessing psychological trauma and PTSD* (pp. 412–428): Guildford Press.
- Quintiliani L, Sisto A, Vicinanza F, Curcio G, & Tambone V. (2021) Resilience and psychological impact on Italian university students during COVID-19 pandemic. *Distance learning and health, Psychology, Health & Medicine*.
- Zurlo MC, Cattaneo Della Volta MF; & Vallone F (2020). COVID-19 Student Stress Questionnaire: Development and Validation of a Questionnaire to Evaluate Students' Stressors Related to the Coronavirus Pandemic Lockdown. *Front. Psychol.* 11:576758.

ANXIETY AND DEPRESSION IN PATIENTS SUFFERING A MYOCARDIAL INFARCTION DURING THE COVID-19 PANDEMIC

Márcia Moura Schmidt^{1,2}, Amanda Bittencourt Lopes da Silva¹,
Samanta Fanfa Marques¹, & Cynthia Seelig¹

¹Institute of Cardiology of Rio Grande do Sul (Brazil)

²Graduate Program in Health Sciences: Cardiology (Brazil)

Abstract

Introduction: Acute myocardial infarction is an experience that may cause severe emotional impact to the individual who presented it. The anxiety and depression felt is caused not only by the infarction episode itself, but also by the current uncertain state of the world during and because of the COVID-19 pandemic, something which can heighten these negative feelings throughout the entire population, especially in those considered to be in high risk groups. **Objective:** The objective of the present study is to estimate the prevalence of anxiety and depression among patients infarcted during the current coronavirus pandemic in the state of Rio Grande do Sul. This study will compare clinical characteristics and risk factors between groups with and without anxiety and depression. **Methods:** Acute myocardial infarction patients who were submitted to percutaneous coronary intervention from February to June 2020 at a reference hospital in cardiology were considered eligible. The patients were interviewed via phone calls. The clinical characteristics and intra-hospital events were obtained from the hospital's REDCap Database. The level of anxiety and depression suffered was evaluated utilizing the HADS (Hospital Anxiety and Depression Scale). Patients considered as suffering from anxiety and depression were those who obtained scores for the possible and probable presence of those mood disorders. Patients were divided into groups with and without anxiety and depression. The categorical variables were expressed through frequency and percentage and analyzed by the Chi-square test and the continuous variables were described by average and standard deviation, and analyzed by Student's t-test. **Results:** A total of 55 patients were interviewed. The majority of these patients were male (74,5%) and white (80%). The average age of those participating in the study was 58 ± 12 years, and the female participants were older than the males. The average number of years of education was 8 ± 4 years. The prevalence of anxiety was 38,2% and of depression 30,9%. **Conclusions:** The prevalence of anxiety and depression was higher than those described in the literature for this population, which supports the hypothesis that the pandemic may be aggravating the patient's emotional state. Another group will be interviewed for the control group.

Keywords: Anxiety, depression, myocardial infarction, COVID-19.

1. Introduction

Patients with heart disease generally experience negative psychological states (Mal, Awan, Ram, & Shaukat, 2019). The acute myocardial infarction (MI), popularly known as heart attack, occurs due to thrombosis and sudden occlusion of a coronary artery due to atherosclerotic plaque rupture, fracture or erosion.

Despite the great medical advances in relation to the physical sequelae of post myocardial infarction (MI) patients, the sequelae psychological causes are still not fully recognized. MI causes a severe impact to the patient, significantly reducing the quality of life, increasing the subject's rehospitalization rate as well as their levels of stress and exhaustion (Kumar & Nayak, 2017). Increasingly, attention is being paid to mood disorders in patients recovering from acute myocardial infarction, especially since depression was first reported to be associated with increased mortality in this group of patients.

Depression is three times more common in patients after a myocardial infarction than those who have never suffered one (Thombs, Bass, Ford, Stewart, Tsilidis, Patel, Fauerbach, Bush & Ziegelstein, 2006). A studies reported that about 31% of patients in post-MI experience anxiety, with women presenting a higher incidence (Kumar & Nayak, 2017).

Generally, in the event of a pandemic, people's physical health and the fight against the pathogenic agent are the primary focus of attention for managers and health professionals (Ferguson, Laydon, Nedjati Gilani, Imai, Ainslie, Baguelin & Ghani, 2020). However, measures that may reduce the psychological impacts of the pandemic cannot be overlooked at this time (Wang, Pan, Wan, Tan, Xu, Ho & Ho, 2020).

2. Objective

The present study aims to estimate the prevalence of anxiety and depression on patients infarcted during the current COVID-19 pandemic at Institute of Cardiology of Rio Grande do Sul, by comparing clinical characteristics and risk factors between groups with and without anxiety and depression.

3. Methods

3.1. Inclusion and exclusion criteria

Cross-sectional study with post-myocardial infarction patients, according to the V Guideline of the Brazilian Society of Cardiology on the treatment of acute myocardial infarction with ST segment elevation (2015). Exclusion Criteria: Previous documented history of dementia, cognitive difficulties, or psychiatric diagnosis.

3.2. Logistics

Infarcted patients were contacted between February and June 2020, via telephone calls, in order to explain the purpose of the present study. The interviews were carried out after the consent form was read to the patient and the patient consented to participate. The patient sent an SMS message with the word "yes" to the researchers' phones, expressing their agreement to participate in the study.

3.3. Assessment

The instrument used was the HADS (Hospital Anxiety and depression Scale), a scale translated and validated by Botega, Bio, Zomignani, Garcia Jr. and Pereira (1995). The goal is to screen mild degrees of affective disorders in non-psychiatric environments and that is why it has been used in patients with organic illness. It consists of 14 multiple choice items, seven of which are aimed at assessing the anxiety (HADS-A) and seven for assessing depression (HADS-D). Each item can be scored from 0 to 3, reaching a maximum of 21 points in each subscale. Scores of 8 to 11 points denote possible and from 12 to 21 denote probable cases of anxiety or depression. In this study, the cut-off points assumed was a score equal to or greater than 8.

3.4. Statistical analysis

The sample calculation was performed in the WINPEPI program, version 11.65, considering a power of 80% and a significance level of 5% and a proportion of 0.6 between the groups with and without depression. The data were based on the article by Tombs (2006) that showed several prevalence's of depression in studies with the HADS scale. There is a variation of 11% to 17% in one study and, in another, 15.5% (CI-13 to 18%). So, considering a 0.6 ratio between depressed and non-depressed, 49 participants were required. The data were analyzed using SPSS software, version 26.0. Continuous variables were presented as mean and standard deviation and categorical variables using frequency. They were compared using the Student's t-test or Chi-square.

3.5. Ethical and legal considerations

This protocol is in accordance with the Helsinki declaration and was approved by the local ethics committee.

4. Results

Fifty-five patients who responded to the survey were analyzed. Of these patients, the majority were male (74.5%) and white (80%). The mean age of the sample was 58.65 ± 12.24 years, with females being older than males. The average number of years of education of the participants is 7.83 ± 3.63 years and the average of ejection fraction was $49.92\% \pm 15.32\%$.

In this sample group, 38.2% of the infarcted patients presented anxiety, and 30.9% presented depression during the current COVID-19 pandemic.

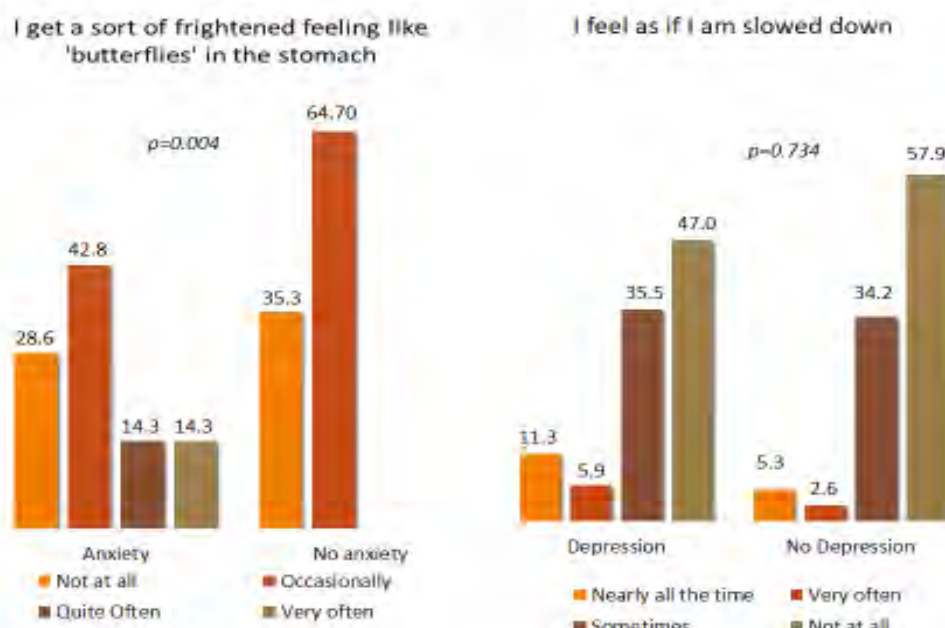
Table 1 shows the presence of anxiety and depression according to risk factors. Patients with chronic renal failure, trivascular coronary lesions and those who were being treated with acetylsalicylic acid displayed a greater tendency to anxiety. With respect to depression, the levels of depression were higher in those who use acetylsalicylic acid. We observed a higher percentage of females in the anxious and depressed group than males, but the difference between the two was not statistically significant.

Table 1. Anxiety and depression rates according to previous history.

| | Anxiety | No Anxiety | <i>p</i> | Depression | No Depression | <i>p</i> |
|----------------------------------|---------|------------|--------------|------------|---------------|--------------|
| Sexo | | | | | | |
| Male | 36.60% | 63.40% | 0.677 | 29.30% | 70.70% | 0.652 |
| Female | 42.90% | 57.10% | 0.677 | 35.70% | 64.30% | 0.652 |
| Risk Factors | | | | | | |
| Smoking | 42.90% | 41.20% | 0.948 | 41.20% | 42.10% | 0.304 |
| Hypertension | 47.10% | 50.00% | 0.389 | 47.10% | 57.90% | 0.456 |
| Diabetes | 33.30% | 44.10% | 0.428 | 41.20% | 39.50% | 0.905 |
| Dyslipidemia | 9.50% | 29.40% | 0.083 | 11.80% | 26.30% | 0.227 |
| Premature Family History for CAD | 19.00% | 21.00% | 0.890 | 18.00% | 21.00% | 0.770 |
| Cronic Kidney Falirure | 9.50% | 0.00% | 0.067 | 5.90% | 2.60% | 0.552 |
| Acetylsalicylic treatment | 28.60% | 9.10% | 0.061 | 28.60% | 16.20% | 0.061 |
| Three vessel disease | 23.80% | 15.60% | 0.088 | 23.50% | 16.70% | 0.134 |

Regarding the HADS scale, it was observed that that the patients suffering from anxiety felt tense and wound up for a significant period of time compared with those not suffering from anxiety (42.9% vs 8.8%). Among those suffering from depression, the majority (58.9% vs 5.3%) felt pleasure occasionally while watching or listening to a TV or radio program or while reading something. All questions were statistically significant among participants with and without anxiety and depression, with the exception of one item on the depression scale which affirmed: "I feel as if I am slowed down" (Figure 1).

Figure 1. HADS Scale response example.



5. Discussion

In this study we found 38.2% of the infarcted patients displayed anxiety, and 30.9% displayed depression during the current COVID-19 pandemic. The study conducted by Kala in which he evaluated patients after the infarction episode, found three months after AMI, 10.4% had levels of depression and 4.5% of anxiety (Kala, Hudakova, Jurajda, Kasperek, Ustohal, Parenica & Kanovsky, 2016). In another study that measured the presence of anxiety and depression in infarcted patients using HADS, it was found that 23.3% of patients had anxiety and 18.6% depression (Larsen, Christensen, Nielsen & Vestergaard, 2014). Both studies displayed a lower prevalence of anxiety and depression than that was found in this study.

It was also possible to perceive a greater tendency towards anxiety in patients with chronic renal failure, three-vessel disease and those in continuous treatment with acetylsalicylic. The emotional state of patients with chronic diseases has been extensively studied (Lebel, Mutsaers, Tomei, Leclair, Jones, Petricone-Westwood, Rutkowski, Ta, Trudel, Laflamme, Lavigne & Dinkel, 2020) Since they have to deal with the persistence and unpredictability of their illness, they often report feeling anxious and worried. With respect to depression, the levels of depression were higher in those who use acetylsalicylic acid, which may indicate chronic heart disease, as shown in the literature the association between depression and comorbidities (Carvalho, Bertolli, Paiva, Rossi, Dantas, & Pompeo, 2016). It was observed that women tend to suffer more from anxiety and depression when compared to men, which is in accordance with the literature (Tombs et al., 2006). In this study, statistical significance was not reached but this may be due to the sample size and the number of women in the study, which is always fewer than that of men in terms of heart disease.

As we found all the statistically significant issues among the participants with and without anxiety and depression, we can assume that the test is valid to dignify them from the cut-off point of 8, which proposes to classify the subjects with possible anxiety or depression. The screening process was adequate and provided sufficient suitable candidates. With reference to "I feel as if I am slowed down", this was not significant as it may be a common symptom in post-infarction patients, due to the fear of overexertion and suffering another infarction or some other complication.

The experience of acute myocardial infarction is often traumatic for the subject and may have sequelae in addition to the physical. The COVID-19 pandemic appears as yet another risk factor for mood disorders, as the population has seen their lives change completely from one day to the next: physical and social isolation, unemployment, constant fear of an unknown and potentially fatal virus. We found prevalences of anxiety and depression higher than those described in the literature for this population, which corroborates the hypothesis that the pandemic may be aggravating the emotional state of patients after a heart attack.

This study has some limitations, such as: the small number of participants and the absence of a control group. What is presented here are partial results only however these data made it possible to establish psychological post infarction care routines, reducing the risks of psychological factors. As for future perspectives, for control purposes, we intend to interview a group between 55 and 75 years old, none of whom suffer from cardiovascular diseases.

6. Conclusion

Post-infarction patients often suffer from anxiety and depression. During the pandemic, we found a tendency among those with chronic kidney disease, trivascular coronary injury and previous treatment with acetylsalicylic acid to be more anxious. Also those who were already using this medication were more prone to depression. The prevalence of anxiety and depression found in this sample of post-infarction patients is higher than that described in the literature. A control group will be evaluated.

References

- Botega, N. J., Bio, M. R., Zomignani, M. A., Garcia Jr, C., & Pereira, W. A. (1995). Mood Disorders Among Inpatients in Ambulatory and Validation of the Anxiety and Depression Scale Had [transtornos Do Humor Em Enfermaria De Clínica Médica E Validação De Escala De Medida (HAD) De Ansiedade E Depressão.]. *Public Health Magazine*, 29, 359-363.
- Carvalho, I. G., Bertolli, E. D. S., Paiva, L., Rossi, L. A., Dantas, R. A. S., & Pompeo, D. A. (2016). Anxiety, depression, resilience and self-esteem in individuals with cardiovascular diseases. *Latin American Journal of Nursing*, v.24.

- Ferguson, N., Laydon, D., Nedjati Gilani, G., Imai, N., Ainslie, K., Baguelin, M., ... & Ghani, A. (2020). Report 9: Impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand. Imperial College London. DOI: <https://doi.org/10.25561/77482>.
- Kala, P., Hudakova, N., Jurajda, M., Kasperek, T., Ustohal, L., Parenica, J., ... & Kanovsky, J. (2016). Depression and anxiety after acute myocardial infarction treated by primary PCI. *PLoS One*, *11*(4): 1-9. DOI:10.1371/journal.pone.0152367
- Kumar, M., & Nayak, P. K. (2017). Psychological sequelae of myocardial infarction. *Biomedicine & Pharmacotherapy*, *95*, 487-496.
- Larsen, K. K., Christensen, B., Nielsen, T. J., & Vestergaard, M. (2014). Post-Myocardial Infarction Anxiety or Depressive Symptoms and Risk of New Cardiovascular Events or Death: A Population-Based Longitudinal Study. *PSYCHOSOMATIC MEDICINE*, *76*(9): 739-746.
- Lebel, S., Mutsaers, B., Tomei, C., Leclair, C.S., Jones, G., Petricone-Westwood, D., Rutkowski, N., Ta, V., Trudel, G., Laflamme, S.Z., Lavigne, A.A., Dinkel, A. (2020). Health anxiety and illness-related fears across diverse chronic illnesses: A systematic review on conceptualization, measurement, prevalence, course, and correlates. *PLOS ONE*, *15*(7):1-48.
- Mal, K., Awan, I. D., Ram, J., & Shaukat, F. (2019). Depression and Anxiety as a Risk Factor for Myocardial Infarction. *CUREUS*, *11*(11): 1-5. DOI: 10.7759 / cureus.6064
- Sociedade Brasileira de Cardiologia. V Diretriz de Tratamento do Infarto Agudo do Miocárdio com Supradesnível do Segmento ST. *Arquivos Brasileiros de Cardiologia*, 2015; *105*(2), 1-121.
- Thombs, B. D., Bass, E. B., Ford, D. E., Stewart, K. J., Tsilidis, K. K., Patel, U., ... & Ziegelstein, R. C. (2006). Prevalence of depression in survivors of acute myocardial infarction. *Journal of General Internal Medicine*, *21*(1), 30-38.
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International Journal of Environmental Research and Public Health*, *17*(5), 1729: 1-25.

FACTORS CONTRIBUTING TO WELL-BEING: COMPARING FUNCTIONAL SOMATIC SYMPTOM DISORDERS AND WELL-DEFINED AUTOIMMUNE DISORDERS

Kendra Hebert, & Lisa Best

Department of Psychology, University of New Brunswick, Saint John, NB (Canada)

Abstract

Functional somatic symptom disorders (FSSDs) are defined by persistent and chronic bodily complaints without a pathological explanation. Mindfulness involves the focus on the present moment by noticing surroundings, thoughts, feelings, and events, being nonreactive, being non-judgemental, and self-accepting. Psychological flexibility (PF) involves a focus on the present and the prioritization of thoughts, emotions, and behaviours that align with individual values and goals (Francis et al., 2016). Although PF does not involve a mindfulness practice, the two constructs are related. Research indicates consistent reported positive associations between mindfulness, PF, psychological wellbeing, and medical symptoms. In this study, individuals with FSSDs (fibromyalgia, chronic fatigue syndrome) were compared to those with well-defined autoimmune illnesses (multiple sclerosis, rheumatoid arthritis; AD) to determine how psychosocial factors affect wellness. Participants (N = 609) were recruited from social media and online support groups and completed questionnaires to assess physical health (Chang et al., 2006), psychological wellness (Diener et al., 1985), anxiety (Spitzer et al., 2006), depression (Martin et al., 2006), psychological flexibility, (Francis et al., 2016) and mindfulness (Droutman et al., 2018). Results indicated that having an FSSD and higher depression was associated with both lower physical and psychological wellness. Interestingly, different aspects of psychological flexibility predicted physical and psychological wellness. These results suggest that different aspects of PF are associated with better physical and psychological health. As PF is modifiable, individuals with chronic conditions could receive training that could ultimately improve their overall health.

Keywords: *Functional somatic symptom disorder, autoimmune disorder, well-being, mindfulness.*

1. Introduction

For individuals facing incurable chronic illnesses, obtaining the highest possible quality of life (QoL) is essential and depends upon physical and psychological wellness as well as optimal social functioning (McCabe & McKern, 2002). It is important to educate patients to help them learn and adopt effective coping strategies and improve access to physical and psychological support. Functional somatic symptom disorders (FSSD) are characterized by lasting bodily complaints such as pain and fatigue that do not have a pathological explanation (Henningsen et al., 2007). Although diagnosis is based on a process of symptom elimination (Henningsen et al., 2007), clear diagnostic criteria have been developed for the three most well-defined FSS illnesses: fibromyalgia syndrome (FMS), chronic fatigue syndrome (CFS), and irritable bowel syndrome (IBS; Henningsen et al., 2007). CFS is categorized by persistent or relapsing debilitating chronic fatigue and other non-specific symptoms (e. g., muscle weakness, pain, cognitive deficits) that have no other underlying cause. FMS is characterized by chronic widespread pain (Wolfe et al., 2010); fatigue, cognitive impairments, headaches, abdominal pain or cramps, and depression are non-specific symptoms (Wolfe et al., 2016). Given the wide variety of symptoms and lack of diagnostic tests, diagnosis of FSSDs is difficult and can result in patient frustration.

Although similar symptoms are associated with well-defined autoimmune diseases (AD), such as multiple sclerosis (MS) and rheumatoid arthritis (RA), clear medical tests support diagnosis. MS is an autoimmune disease characterized by chronic inflammation due to the immune system attacking myelin sheaths central nervous system axons (Compston & Coles, 2002), which causes lesions that can affect all central nervous system function (Mohr & Cox, 2001). Although symptoms vary greatly, vision problems, loss of function and feeling in limbs, bladder and bowel incontinence, pain, and loss of balance are common (Jellinger, 1999). Rheumatoid arthritis (RA) is a chronic inflammatory joint disease caused by

infiltration of joints by T cells, B cells, and monocytes, destroying cartilage and bone leading to inflammation and damage (Aletaha & Smolen, 2018). Symptoms include pain and swelling and misaligned joints (Sokka et al. 1999). Manifestations outside of joints can occur including rheumatoid nodules (firm subcutaneous lumps near bony prominences) and rheumatoid vasculitis (necrotizing inflammation of arteries; Aletaha & Smolen, 2018). Individuals who have symptoms of MS or RA are typically referred for medical tests, with diagnosis occurring soon after test results are available.

1.1. Modifiable factors that could improve physical and psychological wellness

One of the main goals of CBT is to decrease pain and distress and increase both social and physical functioning (Turk et al., 1983). One CBT model is Acceptance and Commitment Therapy (ACT; Hayes et al., 2016). The goal of ACT is to increase psychological flexibility (PF; Hayes et al., 2016), which is a person's ability to detect and acknowledge interfering thoughts, emotions, and physical sensations without acting on them (Wicksell et al., 2012). PF facilitates appropriate behaviours that are aligned with personal values and long term-goals (Wicksell et al., 2012). After undergoing ACT, Wicksell and colleagues (2012) found improvements in self-efficacy, pain related functioning, depression, anxiety, and psychological inflexibility in FMS patients. Among FMS patients, a decrease in psychological inflexibility facilitated improvement in pain disability (Wicksell et al., 2012).

Mindfulness is a personal process that involves a focus on the present moment (Droutman et al., 2018) that is accomplished by noticing surroundings, thoughts, feelings and events, being nonreactive, being non-judgemental, and self-accepting (Droutman et al., 2018). It is both a regulated and maintained attention to existing sensory, emotional, and cognitive events that are changeable and transient, without allowing emotions to cloud judgement (Zeidan et al., 2012). Further, it can be developed by mental training, such as meditation, which changes how a person evaluates sensory events (Zeidan et al., 2012). The strong positive relationship between mindfulness and satisfaction with life has been well-established (Kong et al., 2014). Geiger et al. (2016) found that mindfulness-based interventions improved multiple aspects of emotional wellbeing including anxiety, depression, stress, and pain acceptance. Mindfulness can improve pain management associated with chronic pain and reduce stress-related outcomes and disease in chronic illness populations (Creswell et al., 2019).

1.2. Purpose of the study

Disease characteristics are largely unchangeable and can have a negative impact on well-being. Psychological flexibility and mindfulness are skills that can be taught and can improve physical and psychological wellness and decrease symptom severity in individuals with incurable chronic illnesses such as FMS (Wicksell et al., 2012). Therefore, our goal was to examine if psychological flexibility and mindfulness predict physical and psychological wellness beyond the effects of disease characteristics and related symptoms, such as pain, depression, and anxiety.

2. Methods

We recruited individuals diagnosed with FSSD (FMS, CFS) and AD (MS, RA) from online forums and support groups. Overall, 609 participants completed the study; however, many respondents reported comorbidities and thus, the resulting data analyses were based on 111 participants with only FMS (282 total), 78 with only CFS (212 total), 97 with only MS (116 total) and 103 with only RA (167 total). We used Qualtrics, an online questionnaire platform, for data collection. Individuals were sent to a short description of the study and a link to the consent form. After completing informed consent and demographic questions, the remaining questionnaires were presented in random order.

2.1. Measures

The **Edmonton Symptom Assessment Scale** (ESAS; Chang et al., 2000) was used to assess the severity of self-reported medical symptoms. The ESAS is a 9-item self-report scale in which the current severity of symptoms is rated on a 0 (not experienced) to 10 (most severe) scale. Items include physical symptoms such as pain and tiredness, and psychological symptoms such as depression, and well-being). ESAS: Physical was defined as the mean of the items focused on physical wellness (nausea, shortness of breath, appetite, pain, fatigue). The **Satisfaction with Life Scale** (SWLS) assesses global satisfaction with life (Diener et al., 1985). It contains five statements and uses a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), with high scores indicating high satisfaction with life. **Generalized Anxiety Disorder -7** (GAD-7; Spitzer et al., 2006), is a seven-item scale that assesses experienced anxiety symptoms in the last two weeks. Individual item scores range from 0 (not at all) to 3 (nearly every day). The **Patient Health Questionnaire Mood Scale** (PHQ-9; Martin et al., 2006) was used to assess self-reported depression. Scores can be divided into four categories ranging from major depressive

disorder (most severe), other depressive disorder depressive-screen positive (DS+) and depressive-screen negative (DS). Participants rated their subjective depression in the last two weeks from 1 (not at all) to 7 (nearly half of all days) on nine items such as, “feeling down, depressed, or hopeless”. **The Adolescent and Adult Mindfulness Scale** (AAMS; Drouman et al., 2018) measures key components of mindfulness which includes a focus of the present moment (AAMS: AA), being nonreactive (AAMS: NonR), being non-judgmental (AAMS: NonJ), and self-acceptance (AAMS: Acc). It consists of 24 statements such as “I notice when my moods begin to change,” with individual scores ranging from 1 (never true) to 5 (always true), with higher scores indicating increased mindfulness. Psychological flexibility was assessed using the **Comprehensive Assessment of Acceptance and Commitment Therapy** processes (CompACT; Francis et al., 2016). This comprehensive measure of psychological flexibility is theorized using the ACT model (Hayes et al., 2016) and contains 23-items scored on a Likert scale from 1 (strongly disagree) to 7 (strongly agree), where high scores equate with high psychological flexibility. Subscale scores include Openness to Experience (CompACT: OE), Behavioural Awareness (CompACT: BA), and Valued Action (CompACT: VA).

3. Results

Descriptive statistics on the variables of interest are presented in Table 1. Overall, compared to the AD group, the FSSD group had higher levels of ESAS-Physical and PHQ-9, as well as lower SWLS. These scores indicate important differences between the groups in terms of overall depression and life satisfaction. Individuals who have been diagnosed with a FSSD have moderate levels of depression (Martin et al., 2006) and life satisfaction that is lower than average.

Table 1. Mean and standard deviation of Variables Associated with Physical and Psychological Wellness.

| | Functional Somatic Symptom Disorder (FSSD) | | Well-defined Autoimmune Disorders (AD) | | <i>t</i> (<i>p</i>) |
|---------------|--|----------|--|----------|-----------------------|
| | M | <i>s</i> | M | <i>s</i> | |
| SWLS | 19.14 | 1.37 | 23.21 | 10.41 | -3.77*** |
| PHQ-9 | 12.29 | 5.20 | 9.98 | 5.44 | -3.74*** |
| GAD-7 | 1.39 | 0.78 | 1.23 | 0.76 | -1.76 |
| ESAS-Physical | 4.51 | 1.67 | 3.70 | 1.91 | -3.92*** |
| AAMS: AA | 3.53 | 0.82 | 3.28 | 0.79 | -2.76** |
| AAMS: NonR | 2.95 | 1.17 | 3.07 | 1.19 | 0.941 |
| AAMS:NonJ | 3.23 | 0.87 | 3.36 | 0.81 | 1.43 |
| AAMS:Acc | 3.57 | 1.00 | 3.74 | 0.86 | 1.56 |
| CompACT: OE | 3.99 | 1.17 | 4.03 | 0.95 | 0.341 |
| CompACT:BA | 2.89 | 0.98 | 2.87 | 1.00 | -0.135 |
| CompACT:VA | 3.92 | 1.29 | 3.78 | 1.35 | -0.887 |

Note. *** $p < .001$, ** $p < .01$

There were statistically significant correlations between mindfulness, psychological flexibility, and wellness (see Table 2). Both AAMS (apart from Acting with Awareness) and CompACT subscales were consistently associated with anxiety (GAD-7), depression (PHQ-9), and self-reported medical symptoms (ESAS-Total). The associations between mindfulness and psychological flexibility were more variable, especially in participants who reported a FSSD. To examine if mindfulness and psychological flexibility contributed to physical and psychological wellness, two hierarchical regressions were conducted. In both regressions, Block 1 included demographic variables (biological sex, age, illness category), Block 2 included measures of wellness (PHQ-9, GAD-7, SWLS or ESAS: Physical), and Block 3 included AAMS and CompACT subscales. The first regression predicting ESAS: Physical was statistically significant, $F(13,272) = 12.15$, $p < .001$, $R^2 = .38$. Block 1 contributed 7.7% of the variability; being female and having an FSSD were associated with higher ESAS: Physical. Block 2 contributed 35.6% of the variability; increased PHQ-9 and GAD-7 and lower SWL was associated with higher ESAS: Physical. Block 3 added an additional 2.3% of the variability, with PF: BA adding to the model. The regression to predict psychological wellbeing (SWLS) was also statistically significant, $F(13, 272) = 11.06$, $p < .001$, $R^2 = .36$. Block 1 contributed 4.2% of the variability in SWLS; individuals with FSSD reported lower SWL. Block 2 contributed 21% of the variability, with higher ESAS: Physical and PHQ-9 scores predicting lower SWL. Block 3 contributed an additional 10.4% of the variability, with PF: VA adding significantly to the model.

Table 2. Correlations between AAMS subscales and wellbeing.

| | GAD-7 | | PHQ-9 | | SWL | | ESAS-Physical ¹ | |
|--------------------|----------|----------|----------|----------|---------|---------|----------------------------|----------|
| | FSSD | AD | FSSD | AD | FSSD | AD | FSSD | AD |
| Mindfulness | | | | | | | | |
| AA | .024 | -.116 | .088 | -.078 | .056 | .135 | .008 | -.088 |
| NonR | -.495*** | -.441*** | -.362*** | -.344** | .119 | -.006 | -.332*** | -.152 |
| NonJ | -.261** | -.171* | -.306*** | -.140 | -.033 | -.055 | -.036 | -.078 |
| Acc | -.602*** | -.570*** | -.525*** | -.566*** | .156 | .239** | -.263** | -.378*** |
| PF | | | | | | | | |
| OE | -.607*** | -.603*** | -.432*** | -.521*** | .160 | .375*** | -.205* | -.398*** |
| BA | -.378*** | -.548*** | -.377*** | -.525*** | .082 | .316*** | -.284** | -.442*** |
| VA | -.450*** | -.388*** | -.395*** | -.404*** | .410*** | .502*** | -.236* | -.294*** |

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. ¹High ESAS scores indicate more severe symptoms.

4. Discussion

The goal of the current study was to determine how psychological flexibility and mindfulness were associated with greater physical and psychological wellness in individuals diagnosed with a chronic autoimmune disorder. Although autoimmune diseases, such as MS and RA, can be diagnosed using specific medical tests, the diagnosis of a FSSD involves a method of exclusion via symptom analysis, resulting in a longer time to diagnosis. The uncertainty in diagnosis and ambiguous treatment strategies can have detrimental effects on physical and psychological wellness (Asbring & Narvanen, 2002). In this study, individuals with FSSD reported more physical and psychological symptoms and had lower subjective well-being than those with AD. Individuals with a FSSD had SWL scores that were significantly lower than individuals reporting an AD, and relative to norms, the scores of individuals with an FSSD were < 20 , indicating problems in at least one area of their life (likely their health; Diener, n.d.)

Certain aspects of mindfulness, including being non-reactive and self-accepting appear to be important in understanding the relationship between physical symptoms, psychological distress, and overall subjective well-being across both illness groups. At the correlational level, there were no significant differences between the illness groups in mindfulness, except for the mindfulness subscale measuring being present and focusing on the current moment. Individuals with AD had made more use of this aspect of mindfulness, which is defined by an awareness of surroundings, thoughts, feelings, and events (Drouman, 2018). Overall, higher mindfulness was inversely related to physical and psychological symptoms and was positively associated with measures well-being.

Psychological flexibility has been shown to mediate the relationship between symptom severity and well-being. Wicksell et al. (2012) found that in fibromyalgia patients, psychological flexibility training decreased pain and psychological symptoms and improved overall quality of life. Although psychological flexibility scores were similar for the individuals with FSS and AD, there were statistically significant relationships between many aspects of physical health, psychological distress, and subjective well-being. Interestingly, in the current study, different aspects of psychological flexibility predicted physical and psychological wellness. Living in accordance with one's values (valued action component of psychological flexibility) was important in predicting subjective well-being (SWLS), which replicates Proctor and Best (2019) who examined the association between PF and wellness in brain injury patients. Interestingly, present moment awareness (CompACT: BA) predicted better physical wellness. These results suggest that different types of PF are indicative of different aspects of health and suggest that CompACT training should focus on the complex interaction between overall wellness and psychological flexibility.

References

- Aletaha, D., & Smolen, J., S., (2018) Diagnosis and management of rheumatoid arthritis: A review. *The Journal of the American Medical Association*, 320(13), 1360-1372.
- Åsbring, P., & Närvänen, A. L. (2002). Women's experiences of stigma in relation to chronic fatigue syndrome and fibromyalgia. *Qualitative health research*, 12(2), 148-160.
- Chang, V. T., Hwang, S.S., & Feuerman, M. (2000). Validation of the Edmonton Symptom Assessment Scale, *Cancer*, 88(9), 2164-2171.
- Compston, A., & Coles, A. (2002). Multiple sclerosis. *The Lancet*, 359(9313): 1221-1231.
- Creswell, J.D., Lindsay, E.K., Villalba, D.K., Chin, B. (2019). Mindfulness training and physical health: mechanisms and outcomes. *Psychosomatic Medicine*, 81(3), 224-232.

- Diener, E. (n.d.). Understanding the Scores on the Satisfaction with Life Scale. Retrieved from: <http://labs.psychology.illinois.edu/~ediener/SWLS.html>
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985) The satisfaction with life scale. *Journal of Personality Assessment*, 49(1), 71-75.
- Droutman, V., Golub, I., Oganessian, A., & Read, S. (2018). Development and initial validation of the Adolescent and Adult Mindfulness Scale (AAMS). *Personality and Individual Differences*, 123, 34-43.
- Francis, A. W., Dawson, D. L., & Golijani-Moghaddam, N. (2016). The development and validation of the comprehensive assessment of acceptance and commitment therapy processes (CompACT). *Journal of Contextual Behavioral Science*, 5(3), 134-145.
- Geiger, P. J., Boggero, I. A., Brake, C. A., Caldera, C. A., Combs, H. L., Peters, J. R., & Baer, R. A. (2016). Mindfulness-based interventions for older adults: A review of the effects on physical and emotional well-being. *Mindfulness*, 7(2), 296-307.
- Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2016). Acceptance and commitment therapy: Model, processes and outcomes. *Behavioral Research and Therapy*, 44(1), 1– 25
- Henningsen, P., Zipfel, S., & Herzog, W. (2007). Management of functional somatic syndromes. *The Lancet*, 369(9565), 946-955.
- Holmes, G. P., Kaplan, J. E., Gantz, N. M., Komaroff, A. L., Schonberger, L. B., Straus, S. E., Jones, J. F., Dubois, R. E., Cunningham-Rundles, C., Pahwa, S., Tosato, L., Zegans, L. S., Purtilo, D. T., Brown, N., Schooley, R. T., & Brus, I. (1988). Chronic fatigue syndrome: A working case definition. *Annals of Internal Medicine*, 108(3), 387-389.
- Jellinger, K. A. (1999). The clinical neuropsychiatry of multiple sclerosis. *European Journal of Neurology*, 6(6), 728-728.
- Kong, F., Wang, X., Zhao, J. (2014). Dispositional mindfulness and life satisfaction: the role of self-evaluations. *Personality and Individual Differences*, 56, 165-169.
- Martin, A., Reif, W., Klaiberg, A., & Braehler, E. (2006). Validity of the Brief Patient Health Questionnaire Mood Scale (PHQ-9) in the general population. *General Hospital Psychiatry*, 28(1), 71-77.
- McCabe, M.P., & McKern, S. (2002). Quality of Life and multiple sclerosis: Comparison between people with multiple sclerosis and people for the general population. *Journal of Clinical Psychology in Medical Settings*, 9(4), 287-295.
- Mindfulness based interventions for older adults: A review on the effects on physical and emotional well-being. *Mindfulness*, 7(2), 296-397.
- Mohr, D., & Cox, D. (2001). Multiple sclerosis: Empirical literature for the clinical health psychologist. *Journal of Clinical Psychologist*, 57(4), 479-499.
- Proctor, C & Best, L. (2019, March 7-9). *The utility of Acceptance and Commitment Therapy (ACT) after brain injury* [Poster presentation]. International Convention of Psychological Science (ICPS), Paris, France.
- Sokka, T., Kautiainen, H., Möttönen, T., & Hannonen, P. (1999). Work disability in rheumatoid arthritis 10 years after diagnosis. *Journal of Rheumatology*, 26(8), 1681-1685.
- Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing Generalized Anxiety Disorder: The GAD-7. *Archives of Internal Medicine*, 166(10), 1092–1097.
- Turk, D. C., Meichenbaum, D., & Genest, M. (1983). *Pain and behavioral medicine: A cognitive-behavioral perspective*. New York: Guilford Press.
- Wicksell, R. K., Kemani, M., Jensen, K., Kosek, E., Kadetoff, D., Sorjonen, K., Ingvar, M., & Olsson, G.L. (2012) Acceptance and commitment therapy for fibromyalgia: A randomized controlled trial. *European Journal of Pain*, 17(4), 599-611.
- Wolfe, F., Clauw, D., Fitzcharles, M. A., Goldenberg, D. L., Katz, R. S., Mease, P., Russell, A. S., Russell, I. J., Winfield, J. B., & Yunus, M. B. (2010). The American College of Rheumatology preliminary diagnostic criteria for fibromyalgia measurement of symptom severity. *Arthritis Care and Research*, 62(5), 600-610.
- Wolfe, F., Egloff, N., & Häuser, W. (2016). Widespread pain and low widespread pain index scores among fibromyalgia-positive cases assessed with the 2010/2011 fibromyalgia criteria. *The Journal of Rheumatology*, 43(9), 1743-1748.
- Zeidan, F., Grant, J. A., Brown, C. A., McHaffie, J. G., & Coghill, R. C. (2012). Mindfulness meditation-related pain relief: Evidence for unique brain mechanisms in the regulation of pain. *Neuroscience Letters*, 520(2), 165–173.

EMOTIONAL IMPACT IN FRONTLINE AND SECONDLINE HEALTHCARE PROFESSIONALS: COVID-19 AND II WAVE

Federica Guerra¹, Jessica Ranieri¹, Claudio Ferri^{1,2}, & Dina Di Giacomo¹

¹Department of life, Health and Environmental Sciences, University of L'Aquila (Italy)

²Internal Medicine Division, S. Salvatore Hospital, ASL 1 AQ (Italy)

Abstract

Introduction. The rapid spread of coronavirus disease 2019 (COVID-19) has created unprecedented global challenges for health systems. National Healthcare Systems Hospitals adopted protective measures and medical equipment resources, exposing healthcare workers at risk for stress syndromes, subclinical mental health symptoms, and long-term occupational burnout. Health workers have had to deal with the most severe clinical cases in intensive care specialized operative division. Since the first months of the epidemic spread, some studies have established shown that nurses have shown symptoms of severe anxiety associated with peritraumatic dissociative experiences. Most of the studies examined the emotional impact of COVID 19 on health professionals but did not focus on different consider professionals roles and hospital departments workload.

Objective. The aim of our study was to analyze the emotional characteristics of health workers during the II wave of coronavirus (November-December 2020), comparing the frontline (COVID 19) and second line (chronic diseases) hospital divisions and analyzing the differences between the health roles.

Methods. We conduct a pilot study among health-workers. A sample of 28 healthcare workers (aged 23-62 years) were recruited from frontline and secondline hospital departments (L'Aquila, IT). The administered psychological battery was composed of n. 4 self-reports evaluating emotional variables (depression, anxiety, and stress) (DASS-21), personality traits (BFI-10), burnout risk (MBI), and perceived stress (PSS).

Results. The results highlighted significant differences: older health workers were found to be more vulnerable than those who younger health workers; another interesting point was that healthcare workers serving in frontline wards showed symptoms of depersonalization. No significant difference for the type of role held.

Conclusions. A prevention program should be activated to preserve frontline and older workers mental health. Earlier support could mitigate the effect of the pandemic experience, reducing the risk for emotional health workers' fragility.

Keywords: Covid-19, healthcare workers, emotional impact, clinical psychology, mental health.

1. Introduction

The covid-19 pandemic has put healthcare workers around the world in an unprecedented situation. Healthcare professionals have had to balance their physical and mental health care needs with those of critically ill patients with limited or inadequate resources and align their desire and duty to patients with those to family and friends. This could create some moral injuries or mental health problems. Hospitals have had to put protective measures and medical equipment resources in place, exposing health care workers to the risk of stress syndromes, mental health symptoms subclinical and long-term professional burnout; depression, anxiety, peritraumatic dissociative experience and mental illness were detected as a response in acute COVID-19. Healthcare workers at greater risk of exposure to the virus suffer a greater psychological impact than those with less exposure. Ranieri et al., conducted a study on female nurses during the pandemic, highlighting anxiety and post-traumatic stress disorder; individual resources including personality dimensions did not mediate emotional distress or the likely risk of PTSD: the impact of the pandemic on the mental health of nurses was strong and unmanageable by itself. In China, frontline health workers who directly care for COVID-19 patients experienced stress, anxiety and insomnia and showed higher levels of severe mental health symptoms than those in secondary roles. Most of the studies looked at the emotional impact of COVID 19 on healthcare workers but did not focus on different roles of health-workers and hospital ward workload.

2. Study design

Participants have been enrolled in Hospital of L'Aquila (Italy). Informed consent was obtained from each participant at the time of enrolment and the study adhered to the Declaration of Helsinki.

A pilot study was conducted among healthcare workers, working in internal medicine and nephrology, oncology, and general and transplant surgery at the hospital, during the second wave of Coronavirus (November and December 2020). Trained clinical psychologists, blind to the objectives of the study, conducted the psychological screening in a quiet, dedicated room. The duration of the evaluations was 15 minutes. Data were collected anonymously.

3. Objectives

The aim of our study was to investigate the emotional conditions of healthcare workers (OSS, nurses, and doctors) during the II wave of COVID-19 and the role of personality characteristics in coping with stressful situations.

4. Methods

Ethical Approval

This study was approved by the Internal Review Board (IRB) of the University of L'Aquila, Italy (Prot. No. 31457/2020). Written informed consent was obtained following the Helsinki Declaration (WMA).

4.1. Participants

Eligible participants were 28 healthcare workers (nurses, n=10; doctor, n=12; oss, n=6), aged 23-62 years old (mean age 39,8; sd \pm 12). Participants were recruited in three worked unit: internal medicine and nephrology (named frontline) (n 11; 39,2%), oncology (named secondline) (n 6, 21,4%) and general and transplant surgery (named secondline) (n 11, 39,2%). Further, 23 participants were women (82,1%), and 5 participants were men (17,8%).

4.2. Measurement

The characteristic of the participant, age, relationship status and qualification were assessed using a socio-demographic form. We also assessed personality traits, depression, anxiety, and stress symptoms, peritraumatic dissociation, perceived stress, and burnout. Psychological battery has been composed of n.4 self-reports evaluating the depression, anxiety, and stress (DASS-21), personality traits (BFI-10), burnout (MBI) and perceived stress (PSS). Big Five Inventory-10 (BFI-10). The BFI-10 (Guido et al., 2015) evaluates the five personality dimensions on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree), each with two items: openness (OP), conscientiousness (CO), emotional stability (ES), extraversion (EX), and agreeableness (AG). Depression, Anxiety and Stress Scale (DASS-21) (Bottesi et al., 2017). The DASS is a clinical assessment that measures the three related states of depression, anxiety, and stress. It has 21 questions and takes about 3 minutes to complete. Each subscale measuring the emotional traits is composed of 7 items. Peritraumatic Dissociative Experiences Questionnaire (PDEQ) (Weiss et al, 2017). It is a 10-items self-report questionnaire measuring peritraumatic dissociation. The PDEQ has well-established psychometric properties, with higher total scores indicating increased peritraumatic dissociation. A score above 15 is indicative of significant dissociation. Maslach Burnout Inventory (MBI) (Maslach C. et al., 1981). The MBI is a 22 items self-report questionnaire measuring the incidence of burnout and of its three domains: emotional exhaustion, depersonalization and reduced professional achievement. Perceived Stress Scale (PSS) (Cohen S., 1988). It is a 10-items self-report questionnaire measuring perceived stress on a 4-point scale ranging from 0 (never) to 4 (very often).

5. Statistical analysis

Descriptive statistics and analysis of variance (ANOVA) test as appropriate, we compared emotional severity by demographic variables during the second wave of the COVID-19 in Italy. Spearman rank order correlation was used to examine correlations among depression, anxiety, stress, peritraumatic stress, perceived stress, burnout, and personality traits. All statistical analyses were conducted using Jamovi and the α -value was set as $p \leq 0.05$.

6. Results

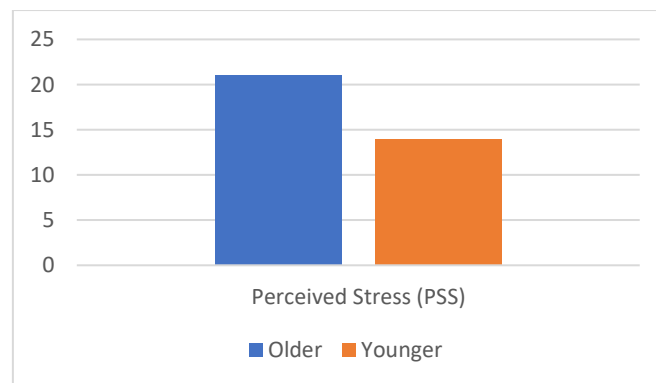
Comparing total psychological test scores by age group (median = 40) and by department (frontline and secondline), the data showed signs of burnout and psychological distress particularly in older health workers working on the frontline (see Table 1).

Table 1. Raw scores of the sample groups on psychological assessment.

| Tests/Groups | Younger | | | | Older | | | |
|----------------|-----------------|-----------|------------------|-----------|-----------------|----|-------------------|----|
| | Frontline (n 7) | | Secondline (n 7) | | Frontline (n 4) | | Secondline (n 10) | |
| | X | SD | X | SD | X | SD | X | SD |
| PSS | 12.9±6.82 | | 15.1±7.27 | | 17.3±4.50 | | 22.5±7.38 | |
| MBI | Ee | 8.57±4.08 | 12.9±7.86 | 22.8±12.2 | 14.7±7.35 | | | |
| | De | 2.71±2.36 | 3.57±4.76 | 12.3±7.63 | 3.80±6.61 | | | |
| | Re | 40.3±7.04 | 41.4±5.00 | 39.0±5.48 | 36.6±6.33 | | | |
| DASS-21 | Dep | 3.71±5.35 | 10.3±9.55 | 15.0±10.6 | 9.80±8.56 | | | |
| | Anx | 2.86±3.63 | 12.9±11.2 | 9.00±6.83 | 5.00±4.45 | | | |
| | Str | 13.4±5.86 | 12.0±7.75 | 15.0±10.9 | 15.6±7.76 | | | |
| BFI-10 | Agr | 5.71±1.70 | 7.14±1.21 | 4.50±1.29 | 5.10±1.52 | | | |
| | Con | 8.14±1.68 | 9±1.91 | 9.25±1.50 | 8.20±1.87 | | | |
| | Em. Stab | 6.00±1.41 | 7±1.63 | 7.00±1.41 | 6.20±1.69 | | | |
| | Ext | 6.14±1.95 | 6.29±2.69 | 7.50±2.08 | 6.10±1.97 | | | |
| | Ope | 8.14±1.68 | 6.86±1.68 | 6.75±1.71 | 5.60±2.17 | | | |

First, we compared (Kruskal-Wallis One-way ANOVA non-parametric) demographic variables with emotional variables. The analysis revealed that there was a significant difference between age group. The older healthcare worker showed greater perceived stress (PSS) than the younger group (p=0.014) (Figure 1).

Figure 1. Representation of perceived stress (PSS) score by Age group.



No significant difference between worked, qualification (doctor, nurse, OSS) or demographic characteristic (gender, marital status) and the other emotional variables (DASS-21 and MBI).

Correlation analysis (Spearman test) was performed among BFI-10, DASS-21, PSS and MBI. We examined the correlation between burnout level and emotional indices. Spearman’s correlation analysis revealed that there was a negative relationship between scores on the reduced professional achievement (MBI) and perceived stress (PSS) (r = -0.43; p=0.022). Furthermore, positive correlation was highlighted between MBI and DASS-21 and then PSS. In particular, depression (DASS-21) shows positive correlations with emotional exhaustion (MBI) (r=0.497; p=0.007) and perceived stress (PSS) (r=0.600; p=0.001); anxiety (DASS-21) shows positive correlations with emotional exhaustion (MBI) (r= 0.502; p=0.006),

depersonalization ($r=0.446$; $p=0.017$) and depression ($r=0.548$; $p=0.003$); stress (DASS-21) shows positive correlations with perceived stress ($r=0.561$; $p=0.002$), depression ($r=0.683$; $p=0.001$) and anxiety ($r=0.578$; $p=0.001$).

Afterward, we wanted to explain the relation between emotional traits and BFI-10 indexes. Agreeableness, extroversion, and openness showed correlation with MBI and PSS. In particular, agreeableness showed negative correlation with emotional exhaustion (MBI) ($r= -0.516$; $p=0.005$), depersonalization ($r= -0.540$; $p=0.003$), and perceived stress (PSS) ($r= -0.412$; $p=0.029$); extroversion showed negative correlation with perceived stress (PSS) ($r= -0.408$; $p=0.031$); openness showed negative correlation with perceived stress (PSS) ($r= -0.403$; $p=0.033$) and positive correlation with reduced professional achievement (MBI) ($r=0.491$; $p=0.008$). There was no significant difference in conscientiousness and emotional stability.

7. Discussion and conclusion

This pilot study was focused on the screening of mental health in healthcare worker during 2nd wave of COVID-19; we wanted to investigate the role of the personality traits such as a protective psychological factor. Age and type of hospital ward influenced the emotional impact and level of burnout in the healthcare professions.

Faced with the second wave of the COVID-19 pandemic, healthcare workers showed in the short time the risk of developing emotional exhaustion and depersonalization (from high risk to low risk) and perceived stress related to depression, anxiety, and stress. Elderly and healthcare professionals working in the frontline unit showed a higher risk of developing emotional distress and burnout. This outcome may be attributable to the greater exposure with COVID-19 patients compared to the other two departments that dealing with chronic diseases (secondline) and a social factor such as having a family and this could explain the greater discomfort of older health workers for fear of infecting loved ones (e.g children, husband). Indeed, among the mental health risk factors for healthcare professionals, a study identified mental exhaustion, anxiety about being infected and infecting the family.

The dimensions of the personality related to the emotional variables were the agreeableness (based on positive feeling, sincere and trusting), the extroversion (based on sociability, friendliness and energy) and the openness (open to experience, intellectually curious, open to emotions, sensitive to beauty).

This study highlights that age and personality traits may mediate the likely risk of burnout symptoms (in particular, emotional exhaustion and depersonalization) and perceived stress: Young health care workers appeared with increased emotional well-being. Their high level of agreeableness helps them overcome the impact of the public emergency. Conversely, a high level of openness predicts a high risk of burnout syndrome during development

Our study showed that personality traits can influence the psychological wellness during emergency.

The present findings suggest the need for regular screening of psychological distress even in healthcare workers, paying to attention to the personality traits, age, and hospital ward, especially in emergency situations such as the COVID-19 pandemic.

References

- Blake H., Bermingham F., Johnson G., Tabner A. (2020). Mitigating the Psychological Impact of COVID-19 on Healthcare Workers: A Digital Learning Package. *Int. J. Environ. Res. Public Health*, 17, 9.
- Bottesi G., Ghisi M., Altoè G., Conforti E., Melli G., Sica C., (2015) The Italian version of the Depression Anxiety Stress Scales-21: Factor structure and psychometric properties on community and clinical samples. *Comprehensive Psychiatry* 60, 170-181
- Cohen, S. and Williamson, G. (1988). Perceived Stress in a Probability Sample of the United States. *The Social Psychology of Health*. Newbury Park
- Greenberg N, Docherty M, Gnanapragasam S, Wessely S. (2020). Managing mental health challenges faced by healthcare workers during covid-19 pandemic. *BMJ*, 368.
- Guido G., Peluso A.M., Capestro M., Miglietta M. (2015). An Italian version of the 10-item Big Five Inventory: An application to hedonic and utilitarian shopping values Personality and Individual Differences 76,135-140
- Marmar C., Metzler J. T., Otte C., McCaslin S., Inslicht S.S., Haase H.C. (2007). The Peritraumatic Dissociative Experiences Questionnaire an International Perspective. *Cross-Cultural Assessment of Psychological Trauma and PTSD*, 197-217

- Maslach C., Jackson E., S. (1981). The measurement of experienced burnout. *Journal of Organization Behavior*, 2, 99-113
- Mosheva M., Gross R., Palmor H.M., Ohayon H.I., Kaplan R., Cleper R., Kreiss Y., Gothelf D., Pessach M.I. (2021). The association between witnessing patient death and mental health outcomes in frontline COVID-19 healthcare workers. *ADAA*
- Ranieri J., Guerra F., Di Giacomo D. (2020). Predictive risk factors for post-traumatic stress symptoms among nurses during the Italian acute COVID-19 outbreak. *Health Psychology Report*, 8,1.
- Robles R., Palacios M., Rangel N., Real T., Becerra B., Fresán A., Vega H., Rodríguez E., Durand S., Madrigal E., (2020). A qualitative assessment of psycho-educational videos for frontline COVID-19 healthcare workers in Mexico. *ISSN, Vol. 43, 6*

LIVING WELL AFTER CANCER: THE IMPACT OF SOCIAL SUPPORT AND PRODUCTIVE LEISURE

Cecile J. Proctor¹, Danie A. Beaulieu¹, Anthony J. Reiman², & Lisa A. Best¹

¹*Department of Psychology, University of New Brunswick (Canada)*

²*Department of Oncology, Saint John Regional Hospital (Canada)*

Abstract

It is now recognized that the "cancer experience" extends beyond diagnosis, treatment, and end-of-life care. Relative to individuals who have not faced a cancer diagnosis, cancer survivors report increased mental health concerns and lowered physical and psychological well-being (Langeveld et al., 2004). Health-related quality of life encompasses overall physical (e.g., energy, fatigue, pain, etc.) and psychological functioning (e.g., emotional well-being, etc.), as well as general health perceptions (Hays & Morales, 2001). Nayak and colleagues (2017) reported that 82.3% of cancer patients had below-average quality of life scores, with the lowest scores found in the general, physical, and psychological well-being domains. Research suggests that various positive lifestyle variables, including social connectedness, leisure activity, and mindfulness practices are associated with increased quality of life in cancer patients (Courtens et al., 1996; Fangel et al., 2013; Garland et al., 2017). In this study, 350 cancer survivors completed an online questionnaire package that included a detailed demographic questionnaire with medical and online support and leisure activity questions. Additional measures were included to assess quality of life (QLQ-C30; Aaronson et al., 1993), social connectedness (Social and Emotional Loneliness Scale for Adults, SELSA-S; DiTommaso et al., 2004), and mindfulness (Adolescent and Adult Mindfulness Scale, AAMS; Droutman et al., 2018). Results show that increased QoL is predicted by increased medical support, lower family loneliness, self-acceptance, and engaging in a variety of leisure activities. Encouraging family support, including the patient in the decision-making process, encouraging a variety of physically possible leisure activities, and normalizing negative emotions surrounding diagnosis and disease symptoms are all ways that overall QoL can be improved.

Keywords: *Cancer, quality of life, leisure satisfaction, social connectedness, mindfulness.*

1. Introduction

Globally, 1 in 6 deaths are caused by cancer, making it the second leading cause of death (World Health Organization, 2021). It is recognized that the "cancer experience" extends beyond diagnosis, treatment, and end-of-life care. Relative to individuals who have not had a cancer diagnosis, cancer survivors report increased mental health concerns and lowered physical and psychological well-being (Langeveld et al., 2004). Health-related quality of life (QoL) encompasses overall physical (e.g., energy, fatigue, pain, etc.) and psychological functioning (e.g., emotional well-being, etc.), as well as general health perceptions (Hays & Morales, 2001). In Nayak and colleagues (2017), 82.3% of cancer patients reported below-average QoL scores, with the lowest scores found in the general, physical, and psychological well-being domains compared to the familial, cognitive, and economic well-being domains.

Research suggests that a variety of positive lifestyle variables, including social connectedness, leisure activity, and mindfulness practices, are associated with increased QoL in cancer patients (Courtens et al., 1996; Fangel et al., 2013; Garland et al., 2017). Many studies have found that social connectedness is related to improved cancer outcomes, including decreased risk of cancer mortality and favourable prognosis (Garssen, 2004; Kroenke et al., 2006). Cancer patients often report moderate to moderately high loneliness levels, which increase with time since the initial diagnosis (Deckx et al., 2014). Further, leisure satisfaction can be described as "the positive perceptions or feelings which an individual forms, elicits, or gains as a result of engaging in leisure activities and choices" (Beard & Ragheb, 1980, p. 22). Due to its debilitating consequences, cancer treatment and survivorship are negatively related to participation and satisfaction with leisure activities (Shipp et al., 2015). Chun and colleagues (2016) found that leisure satisfaction was a stronger predictor of an increased sense of purpose in cancer patients' life than leisure activities, lifetime trauma occurrence, and demographic factors. Moreover, dispositional mindfulness can be described as an individual's ability to "paying attention in a particular way: on purpose, in the present moment, and non-judgementally" (Kabat-Zinn, 1994, p. 4). In cancer patients, dispositional mindfulness

has been associated with lower symptom severity for anxiety, depression, and posttraumatic stress disorder (Liu et al., 2021) and increased focus on favourable experiences, which increased overall QoL (Garland et al., 2017).

2. Purpose of the current study

Considering the high prevalence of cancer and its associated detrimental consequences, more research on improving cancer survivors' QoL is needed. Given that modifiable factors can have a positive impact on both physical and psychological health outcomes, the general purpose of this study was to examine how medical and social support, engagement in leisure activities, and mindfulness practices improved the QoL in cancer survivors.

3. Method

In total, 350 cancer survivors ($M_{\text{age}} = 53.54$, $SD = 14.15$) completed an online questionnaire package (73.9% females). The reported age of diagnosis ranged from 7–83 years ($M_{\text{age}} = 46$), and the years since the diagnosis ranged from 0 to 43 years ($M = 6.5$ years). In terms of prognosis, 34% of respondents had an initial diagnosis of cancer in stages 0-2, while 54.5% reported that their cancer was at stages 3-4 at diagnosis (11.5% did not know their stage). At the time of the study, 23.7% of survivors had experienced a cancer relapse, and almost all (91.1%) of participants received some kind of treatment for their cancer since their initial diagnosis. Over half (62.6%) of the respondents were in a romantic relationship at the time of the study.

The online questionnaire package included a demographic questionnaire with questions about medical support (e.g., Looking back on all of your treatment, how often did you feel like you could talk to your doctors (or nurses) about any concerns related to your treatment?). Leisure engagement was measured by considering the varied leisure activities of participants; more leisure activities are associated with higher leisure engagement scores. The **Quality of Life of Cancer Patients Questionnaire** (QLQ-C30; Aaronson et al., 1993) was used to assess cancer patients' quality of life. The QLQ-C30 includes functional subscales (Physical, Role, Cognitive, Emotional, and Social; $\alpha = .55$ to $.86$), three symptom subscales (Fatigue, Pain, and Nausea and Vomiting; $\alpha = .75$ to $.88$), and a Global Health and Quality of Life subscale ($\alpha = .89$). The 30-item questionnaire uses a 4-point Likert scale ranging from 1 (*not at all*) to 4 (*very much*), with higher scores indicating better functioning. The **Social and Emotional Loneliness Scale for Adults** (SELSA-S; DiTommaso et al., 2004) was used to examine social connectedness. The SELSA-S includes three subscales: Social ($\alpha = .90$), Romantic ($\alpha = .87$), and Family ($\alpha = .89$). The 15-item questionnaire uses a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). A higher score on the SELSA-S represents high levels of emotional and social loneliness. The **Adolescent and Adult Mindfulness Scale** (AAMS; Droutman et al., 2018) was used to evaluating dispositional mindfulness. The AAMS includes four subscales: Attention and Awareness (AAMS: AA; $\alpha = .78$), Self Accepting (AAMS: SA; $\alpha = .77$), Non-Judgemental (AAMS: NonJ; $\alpha = .77$), and Non-Reactivity (AAMS: NonR; $\alpha = .77$). The 19-item questionnaire uses a 5-point Likert scale ranging from 1 (*never true*) to 5 (*always true*), with higher scores indicating increased mindfulness.

4. Results

Nolte et al. (2019) collected data from over 15,000 individuals (including 416 individuals who had a current cancer diagnosis) from Europe, Canada, and the United States to determine normative data for the QLQ-C30. The quality of life scores in the current study were similar to those reported by Nolte et al. (65.46 vs. 66.1; see Table 1) and slightly lower than the quality of life in a sample of individuals who were in remission or cured (Van Leeuwen et al., 2018).

Table 1. Mean/Standard Deviation on Relevant Variables as a Function of Time Since Diagnosis.

| | Overall | <2 Years | 2 – 5 Years | 5 – 10 Years | >10 Years |
|--------------------|-------------|-------------|-------------|--------------|-------------|
| QLQ-C30 Total | 65.46/18.44 | 62.13/18.03 | 64.54/19.00 | 65.80/19.80 | 67.61/19.09 |
| Leisure engagement | 17.63/2.54 | 17.88/2.84 | 17.91/2.65 | 16.89/2.11 | 17.20/2.32 |
| AAMS: AA | 3.20/0.88 | 3.12/1/06 | 3.22/0.87 | 3.30/0/75 | 3.32/0.91 |
| AAMS: NR | 3.55/1.00 | 3.35/0.96 | 3.57/1.05 | 3.65/0.84 | 5.52/1.03 |
| AAMS: NJ | 3.37/0.90 | 3.17/0.94 | 3.38/0.87 | 3.27/0.73 | 3.42/1.07 |
| AAMS: SA | 3.57/0.98 | 3.43/1.05 | 3.53/0.97 | 3.60/0.97 | 3.69/1/11 |
| SELSA: Family | 2.58/1.53 | 2.37/1.46 | 2.45/1/50 | 2.54/1.58 | 3.17/1/55 |
| SELSA: Romantic | 3.43/1/82 | 3.05/1.56 | 3.39/1.87 | 3.43/1.83 | 3.83/1.94 |
| SELSA: Social | 2.98/1.47 | 2.70/1.32 | 2.96/1.49 | 2.96/1.52 | 3.29/1.49 |
| Medical support | 2.59/0.83 | 2.71/0.69 | 2.63/0.85 | 2.59/0.77 | 2.43/0.92 |
| Age | 53.54/12.93 | | | | |

Further, in the current study, quality of life of participants did not improve in the years after their initial cancer diagnosis, $F(3,184)=0.39, p = .76$. Time since diagnosis did not affect overall social connectedness or leisure engagement.

A correlational analysis indicated that the correlations between the QLQ-C30 summary score and leisure engagement, medical support, and three mindfulness subscales of the AAMS (Self Accepting, Non-Judgemental, and Non-Reactivity) were statistically significant (see Table 2). Further, there were statistically significant correlations between AAMS: Non-Reacting, AAMS: Non-Judging, and AAMS: Self-Acceptance and QLQ:C30 Physical, Emotional, Cognitive, and Social Functioning scores. Higher leisure engagement was related to lower levels of loneliness and related specifically to the Self Acceptance subscale of the AAMS. Conversely, QoL scores were significantly and inversely related to family, social, and romantic loneliness.

A hierarchical regression predicting the QLQ-C30 summary Score was conducted. The model was statistically significant $F(13,117) = 6.64, p < .001$ and accounted for 42.4% of the variability in QoL. To predict overall QoL, age, sex, and disease variables (years since diagnosis, relapse) were entered in the first block, medical support and loneliness (family, social, romantic) were entered in the second block, and finally, mindfulness subscales and leisure engagement were entered in the final block. Block 1 was not statistically significant, indicating that demographic variables and disease characteristics did not contribute significantly to the overall model. Block 2 was statistically significant ($R^2change = .199$) with family loneliness ($p = <.001$) and medical support ($p = .05$) contributing significantly to the model. Block 3 was also significant ($R^2change = .186$) with AAMS: Self-Acceptance (mindfulness subscale; $p = .02$) and leisure engagement ($p = .01$) contributing significantly to the model. Thus, individuals who report lower family loneliness as well as greater medical support, self-acceptance, and leisure engagement had higher global quality of life.

Table 2. Correlations between Quality of Life (QLQ-C30), Years since Diagnosis, Loneliness, and Leisure Engagement.

| | QLQ-C30 | Leisure | AAMSAA | AAMS NR | AAMS NJ | AAMS SA | SELSA Family | SELSA Romantic | SELSA Social | Medical support |
|-----------------------|---------|---------|---------|---------|---------|---------|--------------|----------------|--------------|-----------------|
| QLQ-C30 | | | | | | | | | | |
| Leisure engagement | -.361** | | | | | | | | | |
| AAMS-AA | .001 | .217** | | | | | | | | |
| AAMS-NR | .363** | -.004 | -.060 | | | | | | | |
| AAMS-NJ | .262** | .098 | -.506** | .410** | | | | | | |
| AAMS-SA | .476** | .189* | -.065 | .585** | .547** | | | | | |
| SELSA-F | -.354** | -.396** | -.040 | -.238** | -.051 | -.289** | | | | |
| SELSA-R | -.187** | -.360** | -.065 | -.119 | -.023 | -.162* | .554** | | | |
| SELSA-S | -.240** | -.484** | -.131 | -.226** | -.006 | -.268** | .581** | .403** | | |
| Medical support | .259** | .251** | .013 | .153* | -.011 | .150* | -.370** | -.204** | -.335** | |
| Years Since Diagnosis | -.037 | -.102 | .059 | -.101 | -.031 | -.020 | .21** | .078 | .082 | -.096 |

Note. ** $p < .01$, * $p < .05$

5. Discussion

As the result of medical advances and novel treatment methods, many individuals will survive a cancer diagnosis and, at some point after treatment, return to everyday activities. Researchers have traditionally focused mainly on the impact that cancer has on physical and psychological health during diagnosis and treatment. Thus, the goal for many patients and their medical team has been to get through treatment with the goal of returning to a "normal" life, with "normal" activities. Although some psychological and emotional consequences of diagnosis and treatment are not as immediately significant, their importance for survivors increases in the months and years after a cancer diagnosis. Although QoL measures are created to assess global functioning and include scales to assess both current symptoms and overall physical, emotional, and cognitive functioning, other lifestyle factors influence physical health beyond the characteristics related specifically to cancer and its diagnosis. Thus, our goal was to examine how self-reported social support (family and medical) and leisure engagement affected overall wellness in a sample of cancer survivors.

In this study, disease characteristics, including the time that has passed since diagnosis and cancer relapse, did not significantly contribute to overall quality of life. Further, QLQ:C30 scores of current participants were significantly lower than scores of cancer survivors (Van Leeuwen et al., 2018), likely

because some of the current participants were newly diagnosed and not yet through their treatment. Although physical symptoms and functioning might improve in the years after treatment, education and programs focused on social and emotional functioning could improve overall quality of life. This research also highlights that the impact of medical and family support extends beyond disease characteristics in cancer survivors. Cancer survivors who have a strong support network, that includes their family and medical care team, and a higher level of autonomy in their treatment process report better physical and mental health functioning.

At the correlational level, increased mindfulness (apart from acting with awareness) was associated with higher quality of life. Further, in regression analyses, the self-acceptance component of mindfulness predicted overall quality of life, which lends insight into how different aspects of mindfulness can influence a patient's QoL. These results are in line with Best et. al (2019) who reported that aspects of mindfulness that focus on an awareness of bodily experiences might increase positive and negative physical experiences. In the current study, self acceptance, a mindfulness subscale that focuses on acceptance of personal emotions predicted higher QoL. Individuals that label their emotions “wrong” or think that they “shouldn't be feeling this way” have low levels of self-acceptance and lower quality of life. The current results replicate Garland et al. (2017) and indicate that being able to accept your own emotions, even if they are negative, was related to more positive outcomes.

Previous studies have examined the influence of leisure satisfaction by specifically examining how much an individual is enjoying their leisure activity as a predictor of health; however, this study examines how a variety of leisure activities impacts overall QoL. This is an important distinction; leisure engagement is not activity dependent but focuses on whether individuals “switch it up” and experience a variety of solitary and social activities. In this case, the more the better. Chun and colleagues (2016) found that increased leisure satisfaction in cancer survivors improved their sense of purpose in life and the current results extends these results. Further, the current results replicated research that has shown the positive impacts of leisure activities and mindfulness on overall QoL in cancer patients (Courtens et al., 1996; Fangel et al., 2013; Garland et al., 2017), but takes it a step further and examines what specific aspects of these variables are have the most impact.

Loneliness has been shown to negatively impact cancer outcomes (Garssen, 2004; Kroenke et al., 2006). We examined three types of loneliness (Family, Social, Romantic). All three components of loneliness were significantly correlated the overall QoL scores; however, only Family loneliness was a significant predictor in the current model. It is possible that given the age of the sample ($M_{age} = 53.54$) and the fact that 62.5% were currently in a romantic relationship, the measurement of “family” may include one’s romantic partner. Previous research further supports that higher family support in patients with chronic illness improves medical compliance, which may improve overall health (Mongan, 2017).

Medical support was also a statistically significant predictor of quality of life, indicating that having a positive relationship with healthcare providers has a positive impact. Medical support questions included ratings on how happy participants were with their involvement in their treatment choices and how much they felt listened to in the process. It is possible that when patients feel comfortable with their practitioners and understand their medical treatment, their treatment compliance and satisfaction with disease outcomes increases. Current literature supports that a positive patient-clinician relationship improves medical compliance in cancer patients (Chou et al., 2017).

6. Conclusion

This study further examined the relationship between QoL in cancer survivors and focused on modifiable lifestyle variables that could improve quality of life and functioning. Factors such as medical and family support, acceptance of one’s positive and negative feelings and integration of a variety of leisure activities into their life are significantly associated with higher levels of QoL. These findings are useful in the hands of health care practitioners who are interacting with patients during the course of cancer diagnosis and treatment. Encouraging family support, including the patient in the decision-making process, encouraging a variety of physically possible leisure activities and normalizing negative emotions surrounding diagnosis and disease symptoms are all ways that overall QoL can be improved.

References

- Aaronson, N. K., Ahmedzai, S., Bergman, B., Bullinger, M., Cull, A., Duez, N. J., Filiberti, A., Flechtner, H., Fleishman, S. B., & de Haes, J. C. (1993). The European Organization for Research and Treatment of Cancer QLQ-C30: A quality-of-life instrument for use in international clinical trials in oncology. *Journal of the National Cancer Institute*, 85(5), 365-376.

- Beard, J. G., & Ragheb, M. G. (1980). Measuring leisure satisfaction. *Journal of Leisure Research*, 12(1), 20-33.
- Best, L., Proctor, C., Freeze, T., Gaudet, D., Russel, R., McPhee., R (2019). *Relation between subjective and physical well-being and mindfulness*. Oral presentation at the InPact 2017 International Psychological Applications Conference and Trends. Zagreb, Croatia.
- Chou, P.-L., Rau, K.-M., Yu, T.-W., H., T-L., Sun, J.-L., Wang, S.-Y., & Lin, C.-C. (2017). Patient-clinician relationship seems to affect adherence to analgesic use in cancer patients: A cross sectional study in a Taiwanese population. *International Journal for Quality in Health Care*, 29(7), 935-940.
- Chun, S., Heo, J., Lee, S., & Kim, J. (2016). Leisure-related predictors on a sense of purpose in life among older adults with cancer. *Activities, Adaptation & Aging*, 40(3), 266-280.
- Courtens, A. M., Stevens, F. C. J., Crebolder, H. F. J. M., & Philipsen, H. (1996). Longitudinal study on quality of life and social support in cancer patients. *Cancer Nursing*, 19(3), 162-169.
- Deckx, L., van den Akker, M., & Buntinx, F. (2014). Risk factors for loneliness in patients with cancer: A systematic literature review and meta-analysis. *European Journal of Oncology Nursing*, 18(5), 466-477.
- DiTommaso, E., Brannen, C., & Best, L. A. (2004). *Social and Emotional Loneliness Scale for Adults-Short Version* [Database record]. PsycTESTS.
- Drennan, J., Treacy, M., Butler, M., Byrne, A., Fealy, F., Frazer, K., & Irving, K. (2008). The experience of social and emotional loneliness among older people in Ireland. *Ageing and Society*, 28(8), 113-1132.
- Droutman, V., Golub, Ilana, Oganessian, A., & Read, S. (2018). Development and initial validation of the Adolescent and Mindfulness Scale (AAMS). *Personality and Individual Differences*, 123, 34-43.
- Fangel, L. M. V., Panobianco, M. S., Kebbe, L. M., de Almeida, A. M., & de Oliveira Gozzo T. (2013). Quality of life and daily activities performance after breast cancer treatment. *Acta Paulista de Enfermagem*, 26(1), 93-100.
- Garland, E. L., Thielking, P., Thomas, E. A., Coombs, M., White, S., Lombardi, J., & Beck, A. (2017). Linking dispositional mindfulness and positive psychological processes in cancer survivorship: A multivariate path analytic test of the mindfulness-to-meaning theory. *Psycho-oncology*, 26(5), 686-692.
- Garssen, B. (2004). Psychological factors and cancer development: Evidence after 30 years of research. *Clinical Psychology Review*, 24(3), 315-338.
- Hays, R. D., & Morales, L. S. (2001). The RAND-36 measure of health-related quality of life. *Annals of Medicine*, 33(5), 350-357.
- Kroenke, C. H., Kubzansky, L. D., Schernhammer, E. S., Holmes, M. D., & Kawachi, I. (2006). Social networks, social support, and survival after breast cancer diagnosis. *Journal of Clinical Oncology*, 24(7), 1105-1111.
- Langeveld, N. E., Grootenhuis, M. A., Voute, P. A., De Haan, R. J., & Van Den Bos, C. (2004). Quality of life, self-esteem, and worries in young adult survivors of childhood cancer. *Psycho-Oncology*, 13(12), 867-881.
- Liu, X., Li, J., Zhang, Q., Zhao, Y., & Xu, W. (2021). Being beneficial to self and caregiver: The role of dispositional mindfulness among breast cancer patients. *Supportive Care in Cancer*, 29(1), 239-246.
- Mongan, R., & Fajar, F. (2017). Relationship between family support and medical compliance in patients with pulmonary tuberculosis in the working area of the community health center of Abeli, Kendari. *Public Health of Indonesia*, 3(1), 17-22.
- Nayak, M. G., George, A., Vidyasagar, M. S., Mathew, S., Nayak, S., Nayak, B. S., Shashidhara, Y. N., & Kamath, A. (2017). Quality of life among cancer patients. *Indian Journal of Palliative Care*, 23(4), 445-450.
- Nolte, S., Liegl, G., Petersen, M. A., Aaronson, N. K., Costantini, A., Fayers, P. M., ... & EORTC Quality of Life Group. (2019). General population normative data for the EORTC QLQ-C30 health-related quality of life questionnaire based on 15,386 persons across 13 European countries, Canada and the United States. *European journal of cancer*, 107, 153-163.
- Van Leeuwen, M., Husson, O., Alberti, P., Arraras, J. I., Chinot, O. L., Costantini, A., ... & van de Poll-Franse, L. V. (2018). Understanding the quality of life (QOL) issues in survivors of cancer: towards the development of an EORTC QOL cancer survivorship questionnaire. *Health and Quality of Life Outcomes*, 16(1), 1-15.
- Shipp, S., McKinstry, C., & Pearson, E. (2015). The impact of colorectal cancer on leisure participation: A narrative study. *British Journal of Occupational Therapy*, 78(5), 311-319.
- World Health Organization. (2021, March 3). Cancer. Retrieved March 20, 2021, from <https://www.who.int/news-room/fact-sheets/detail/cancer>

DOMESTIC VIOLENCE AGAINST WOMEN AND ITS IMPACT ON CHILDREN'S SCHOOL PERFORMANCE

Ediane Alves, & Paulo Prado

Graduate Program in Teaching and Formative Processes, São Paulo State University (Unesp) (Brazil)

Abstract

This research addressed the issue of domestic violence investigating whether and how it affects the school performance of the child who witnesses episodes of violence against the mother in the home. Personal characteristics and other environments in which these children and adolescents are inserted in, such as family, school and community interact with each other and can influence their school performance. Because the school is the second most common space for children, it is in it where family environment is expressed. The main objective of this study was to analyze whether and how domestic violence experienced by children affects their school performance. The data were collected throughout documentary research, one analyzing the information recorded in the files of the Reference and Service Center for Women (CRAM in Portuguese) and the Municipal Education Secretariat (SME). Records were selected from 20 children regularly enrolled in elementary public schools, whose mothers sought the services of CRAM. The dependent variable was school grades, which were analyzed according to a repeated measures design: during the occurrence of domestic violence episodes and after these episodes have ceased. Analyses were also conducted with the aim of verifying possible effects of other variables, such as school attendance, family socioeconomic status and mothers education level. The results showed that the students had lower school performance after the end of the episodes of violence. No effects of other variables were observed. Factors related to the phenomenon are discussed as possible causes: separation from the father, change of address, custody's change and others. Considering that the casuistry of this study was composed of students from low-income families, the results point to a kind of "Matthew effect", that is, a relationship between violence, poverty and ignorance in which everyone feeds each other forming a cycle quite hard to break. Therefore, it is necessary that public policies be formulated in the scope of education so that students who experience domestic violence receive specialized attention aiming at realizing their learning potential.

Keywords: *Domestic violence, violence against women, school performance, elementary school, basic education.*

1. Introduction

Domestic violence against women is a worldwide phenomenon that is not restricted to ethnicity, socioeconomic status, age or religion. Most domestic violence is marital and, in its majority, the victims are women. Given that the phenomenon in question occurs in the context of home, one must consider that this is the child's first social nucleus, therefore, its natural environment for growth and development. However, unfortunately the family is not always able to adequately fulfill its functions and, according to the Latin American Faculty of Social Sciences (FLACSO, 2015), 27.1% of femicides in Brazil occur at home. Thus, the environment that should be a safe place for the full development of children and adolescents becomes just the opposite. The investigation reported here was conducted in order to find out how domestic violence against women affects the children's academic performance.

2. Children and witnessed domestic violence

Many factors contribute to school success or failure. They are internal, such as cognition, temperament, personality traits, and external, such as social, cultural, family affection and many others. If the child is inserted in a friendly parental environment, with parents who have a good relationship with each other and with the children, the likelihood of them presenting appropriate behaviors and good school performance is greater. Rohenkohl and Castro (2012) found that children of couples with a high level of

conflict and low affection tend to have more behavioral and emotional problems compared to children from families whose parents have fewer conflicts and are more affectionate. Although the adversities of the family potentially trigger psychological and cognitive disorders that can affect school performance, on the other hand there are researches whose results (Brancalhone et al., 2004; Ghazarian and Buehler, 2010; Harold et al., 2007;) show that domestic violence solely did not affect adversely the school performance of children exposed to it.

3. Method

Present research was approved by Research Ethics Committee of São Paulo State University (Unesp), Institute of Biosciences, Modern Languages and Exact Sciences, Campus of São José do Rio Preto, Brazil. The information sources were Reference and Care Center for Women (CRAM, in Portuguese) and the Municipal Department of Education (SME), whose professionals in charge signed a free and informed consent term authorizing collecting data.

We analyzed the school performance of students regularly enrolled in elementary school from 2013 to 2018. All of them were children exposed to episodes of domestic violence committed against their mother by respective marital partner. Their exposure to such episodes was, therefore, not as victims, but as witnesses, with some exceptions described below. The dependent variables were grades and school attendance. The sources of information were CRAM's archives and SME's school reports. It is, therefore, a documentary research.

The inclusion criteria were: I- The woman broken the cycle of domestic violence; II- During the school periods observed, the child should be enrolled in Elementary School in the municipal education network.

3.1. Casuistry and procedure

The information extracted from the CRAM's and the SME's archives were recorded in a form elaborated by the authors, which consists of 32 items, subdivided into: mother's, violence perpetrator's and child's data. Initially, we collected data of 43 children. However, 23 of them did not meet at least one of the inclusion criteria. Thus, this number was reduced to 20 students (9 females) with ages varying from 8 to 13 years old when the mother resorted to CRAM services, all from low-income families.

As described below, we adopted a repeated measures design. So our definition of “during” and “after” violence episodes refers, respectively, to the search for CRAM services by the mother and to the interruption of violence resulting from the couple's divorce.

3.2. Data analysis

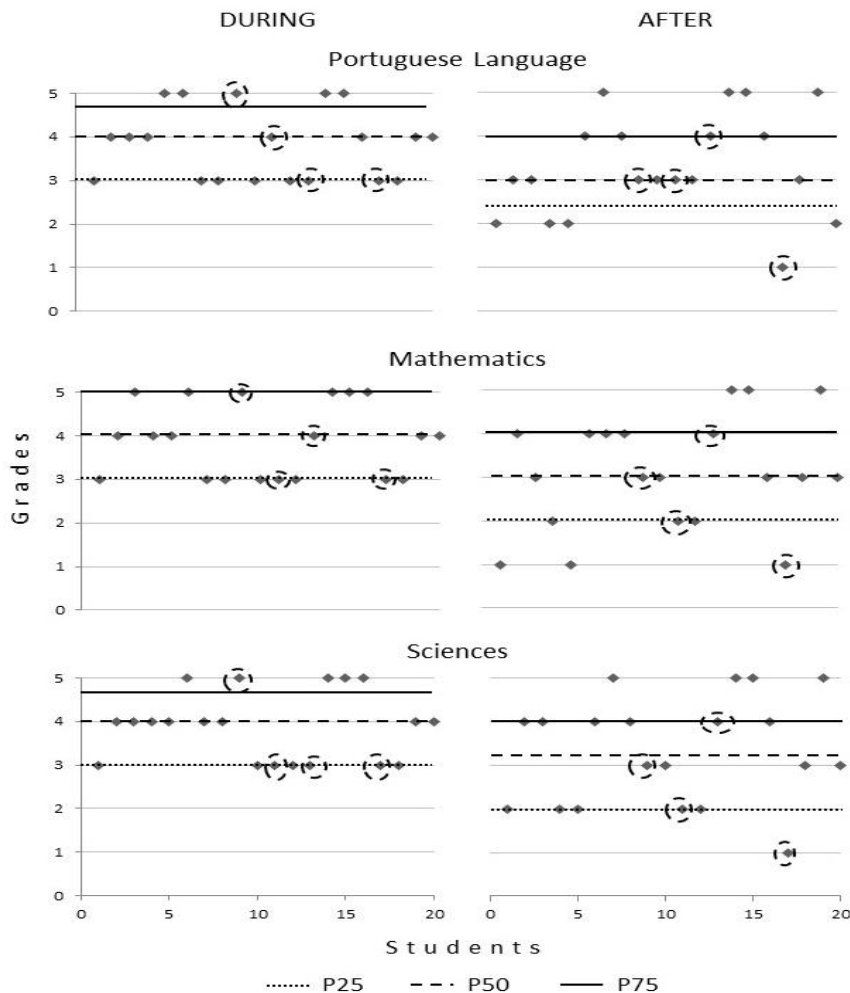
A repeated measures design was adopted to analyze the data at two different moments: during the occurrence of domestic violence episodes (T1), and after its end (T2). As the data did not present a normal distribution, we used non-parametric statistical tests. The package used was BioEstat (5.0). Comparison between the grades and the attendance in both moments was performed applying the Wilcoxon Test. For the analysis of possible influences of some other factors on school performance, we considered only the T1 grades. The Median Test was applied to verify a possible effect of the family's socioeconomic level on the students' school performance. In addition, the Mann-Whitney test was applied to verify the impact of the mother's schooling on the children's school performance. The school grades analyzed were its respective annual averages in Portuguese Language, Mathematics and Sciences, that is, the sum of the bimonthly grades divided by four. As for school attendance, the total number of absences in the analyzed period was also considered.

4. Results

During the violence episodes (T1), students attended from second to seventh grade. Collecting data was conducted about one year after such episodes have ceased (T2), when the students attended from third to ninth grade. At this time, 15 children lived with their mother, one with their father and four with their grandmother. Four students, besides to witnessing episodes of violence also suffered it directly in one or more of its following modalities: physical, psychological, sexual and negligence. About school performance, unlike scores produced by standardized tests, school grades are assigned through individual and idiosyncratic procedures, therefore subject to greater subjectivity and variability. As a way to check its consistency, we use correlation analysis. As a whole, considering the grades in T1 as well in T2, the observed Spearman's ρ was from .79 to .94 ($p < .0001$). There is, therefore, a high degree of consistency in the grades assigned by the different teachers, that is, in the evaluation they make about their students'

academic performance, which gives us certain peace of mind to use them as the relevant data of this study. We analyzed the possible effects of two independent variables on the students' school performance: the mothers' level schooling and the families' socioeconomic level. None of them had any influence on the dependent variable. Similarly, no significant correlations were found between school performance after the end of episodes of domestic violence and the time (in years) of exposure to them (Portuguese language: $\rho = -.242$; $p > .05$; Mathematics: $\rho = -.113$; $p > .05$ and Sciences: $\rho = -.046$; $p > .05$). Finally, no significant differences were found between students' absences during and after cessation of violence episodes ($Z = .0991$; $p > .05$). By the way, there were also no differences in school grades due to the number of absences, comparing the periods during and after episodes of domestic violence ($Z = 1.6$; $p = .12$). As for the difference in school performance during (T1) and after (T2) episodes of domestic violence, Wilcoxon test showed significant differences in Mathematics ($Z = 2.542$; $p = .01$) and Sciences ($Z = 2.131$; $p = .03$), but not in Portuguese ($Z = 1.757$; $p = .07$). Figure 1 shows the comparison between students' grades in the two periods and the performance of the students who directly suffered domestic violence. In general, there is a decrease in grades after the violence ceased. Diamonds surrounded by dashed line circle represent students who, in addition to having witnessed episodes of domestic violence, also suffered it directly. Visual inspection suggests that there is no marked drop in the performance of these students compared to those who have not suffered violence, except students 9 and 17.

Figure 1. Grades obtained during and after violence ceases, with emphasis on students who, in addition to exposure to domestic violence directly suffered some type of violence.



5. Discussion

Contrary to expectations, the end of episodes of domestic violence was followed by a deterioration in school performance. In Brazil, elementary education is divided into two stages. The first one includes from the first to the fifth grade, while the second stage comprise from the sixth to the ninth grade. Over the period covered by this research, most students advanced between grades and seven of

them moved from the first to the second stage. This variable, whose possible effects have not been analyzed, may be one of the main factors responsible for the observed drop in performance. Note that in more advanced grades the content of the respective subject matters tends to be more complex than in the previous ones. This means an increase in attentional and cognitive demand on a student who is facing situations such as parent's divorce, distancing from the father, change of address, transfer of custody etc., all requiring adaptation and potentially causer of emotional and social effects.

The small number of cases included in the present study and the fact that they all belong to only two social strata with small differences, but both of them with low income, prevented the effects of socioeconomic level on academic performance from being observed. However, there is robust evidence that students belonging to higher social classes perform better than those from lower classes (Caprara, 2017).

In addition to the considerations above, there are indications that domestic violence is associated with problems psychological in nature, such as depression, low self-esteem, fear and aggression, already documented in the literature, as pointed out by Corrêa and Williams (2000), which can also interfere negatively in school achievement. The phenomenon analyzed here is multi-determined which makes it difficult to isolate the effects of a single variable as proposed in the present study. The design with repeated measures may be a viable alternative, but doing so by documentary research restricts the collection of data to those available in the original sources of information. Longitudinal studies with this type of design and the application of standardized tests would also be hard to perform, since information about families in which violence occurs is confidential and of restricted access. In view of these considerations, the adoption of designs between groups emerges as a viable alternative, with the possibility of using standardized tests, which allow greater control of variables and the production of more reliable data. In this case, the use of large samples is the best option to produce data with greater reliability and generality. On the other hand, it is a methodological option that makes research more expensive. Small samples make research cheaper, but the data generated is less robust.

Although breaking the cycle of violence was not enough to positively influence students' academic achievement, the results provided by this study can be useful for families facing this type of problem. They can also be useful for teachers, helping them to avoid assigning students derogatory and stigmatizing labels and, instead taking their poor performance as a possible indicator of family problems in the absence of other limiting factors. Above all, the phenomenon in question must be taken into account in the development of public policies that search for communication and integration between the systems of protection for women and education. Otherwise, it will be producing a kind of "Matthew effect", nurturing violence, since children who grow up in violent homes tend to reproduce it in their future relationships either as authors or as victims (Miranda, Paula and Bordin, 2010) and also promoting the perpetuation of social inequalities (Caprara, 2017).

References

- Brancalhone, P. G., Fogo, J. C., & Williams, L. C. A. (2004). *Crianças expostas à violência conjugal: valiação do desempenho acadêmico*. *Psicologia: Teoria e Pesquisa*, Brasília, DF, v. 20, n. 2, p. 113-117, Maio/Ago. 2004. DOI: <http://dx.doi.org/10.1590/S0102-37722004000200003>. Retrieved from: https://www.scielo.br/scielo.php?script=sci_arttext&pid=S0102-37722004000200003
- Caprara, B. M. (2017). *Classes sociais e desempenho educacional no Brasil*. (Doctoral dissertation). Retrieved from <https://www.lume.ufrgs.br/handle/10183/172397>
- Corrêa, L. C., & Williams, L. C. A. (2000). *O impacto da violência conjugal sobre a saúde mental das crianças*. In: REUNIÃO ANUAL DE PSICOLOGIA, 30., 2000, Brasília, DF. *Psicologia no Brasil: diversidade e desafios: resumos de comunicações científicas*. Brasília, DF: Sociedade Brasileira de Psicologia, 2000. p. 235. Retrieved from: <https://www.sbponline.org.br/arquivos/2000.PDF>
- Ghazarian, S., & Buehler, C. (2010). *Interparental conflict and academic achievement: An examination of mediating and moderating factors*. *Journal of Youth and Adolescence*, New York, v. 39, n. 1, p. 23-35, 2010. DOI: 10.1007/s10964-008-9360-1. Retrieved from: https://www.researchgate.net/publication/41103530_Interparental_Conflict_and_Academic_Achievement_An_Examination_of_Mediating_and_Moderating_Factors
- Harold, G. T., Aitken, J. J., & Shelton, K. H. (2007). *Inter-parental conflict and children's academic attainment: a longitudinal analysis*. *The Journal of Child Psychology and Psychiatry*, London, v. 48, n. 12, p. 1223-1232, Dec. 2007. Retrieved from: <https://www.ncbi.nlm.nih.gov/pubmed/18093028>

- Miranda, M. P. M., Paula, C. S., & Bordin, I. A. (2010). *A violência conjugal física contra a mulher na vida: prevalência e impacto imediato na saúde, trabalho e família*. Revista Panamericana de Salud Publica, Washington, DC, v. 27, n. 4, p. 300-308, 2010. DOI: 10.1590/ S1020-49892010000400009. Retrieved from: <https://www.scielo.org/article/rpsp/2010.v27n4/300-308/>
- Rohenkohl, L. M. I. A., & Castro, E. K. (2012). *Afetividade, conflito familiar e problemas de comportamento em pré-escolares de famílias de baixa renda: visão de mães e professoras*. Psicologia: Ciência e Profissão, Brasília, DF, v. 32, n. 2, p. 438-451, 2012. DOI: <https://doi.org/10.1590/S1414-98932012000200012>. Retrieved from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1414-98932012000200012&lng=en&nrm=iso
- Waiselfisz, J. J. (2015). *Mapa da violência 2015: homicídio de mulheres no Brasil*. Brasília, DF: OPAS/OMS. ONU Mulheres; SPM; Rio de Janeiro: Flacso, 2015. Retrieved from: http://www.onumulheres.org.br/wp-content/uploads/2016/04/MapaViolencia_2015_mulheres.pdf

RELATIONSHIPS BETWEEN MODELS OF FAMILY EDUCATION AND DEVIANT BEHAVIORS AMONG TEENAGERS

Thu Huong Tran¹, Thu Huong Tran¹, Thi Ngoc Lan Le², Thi Minh Nguyen³,
& Thu Trang Le⁴

¹Department of Social Psychology, Faculty of Psychology, VNU-University of Social Sciences
and Humanities in Hanoi/Affiliation (Vietnam)

²Postgraduate, Faculty of Psychology, VNU-University of Social Sciences and Humanities
in Hanoi/Affiliation (Vietnam)

³Vietnam Court Academy, The Supreme People Court, Hanoi/ Affiliation (Vietnam)

⁴People's Police Academy, Hanoi/ Affiliation (Vietnam)

Abstract

Background: An important predictor of adolescents' developmental outcomes is a model of family education, described in terms of parental behaviors. Various parental behaviors were strongly associated with increasing risk of deviant behaviors at school. **Methods:** The study was conducted on 566 adolescents, comprising 280 males (49.5%) and 286 females (50.5%), of grade 11th and 12th, of age rang 16-17 years from different government colleges in Vietnam. There were 2 self-reported scales to be used: Parental behavior scale; Adolescent deviant behaviors; Data was analyzed by using reliability analysis to examine the psychometric properties of the scales. **Results:** There was a strong, negative correlation between school deviant behaviors in adolescents and the parental support model (with $r_{\text{father}} = -.53$, $r_{\text{mother}} = -.61$, p -value $< .01$); a strong, positive correlation between the school deviant behaviors and the parental psychological control model (with $r_{\text{mother}} = .45$ and $r_{\text{father}} = .47$, p -value $< .01$). **Conclusions:** In family education, positive behaviors used by parents such as supportive, warmth and moderate control would have a positive impact on the adolescent's behavioral development; conversely, parents' psychological control would negatively affect and give rise to deviant behaviors among adolescents.

Keywords: Family educational model, parenting behavior, deviant behavior, adolescents, relationships.

1. Introduction

Over the past 10 years, incidences of deviant behaviors among adolescents in Vietnam have become more serious. Recent studies on deviant behaviors have mostly referred to noticeable slices, such as school violence, sexual violence, spreading bad news on the internet, acts in violation of laws, abortion, unsafe sex (SAVY 2, 2010), cheating, being rude to teachers, using drugs, bullying schools ... (Hoang Gia Trang, 2003/2015); of which, acts of bullying, insulting, threatening others in public places have become more striking. It seems that the family, school and society are gradually losing control over adolescents with deviant behaviors and the use of educational authority to deal with these problems has not had expected outcomes.

The World Health Organization defines adolescence as the period between child and adult age, from 10 to 19 years. Despite the differences in the concepts of adolescence, all studies in the world and in Vietnam confirm that this is a period of storm and stress with strong changes in all aspects: biological, cognitive, emotional, behavioral and, interpersonal relationships (Truong Thi Khanh Ha, 2013). This age is influenced by diversified environmental-related effects (especially from family-attached relationships, interpersonal relationships outside the family) and thus, the frequency of deviant behaviors, risky behaviors in adolescents also becomes more numerous than other age groups (Eisenberg, Damon & Lerner, 2006).

Deviant behaviors are considered socially unacceptable behaviors (Cheng, 2012), an unusual, abnormal, unexpected behavior, attitude, opinion or different from the behaviors, attitudes and opinions of the majority; these may be antisocial behaviors (Eisenberg, Damon & Lerner, 2006; Giacalone & Greenberg, 1997), or dysfunctional, inadequate behaviors (Vardi & Weitz, 2004; Mushtaq & Kausar, 2018). It is important to consider factors for decreasing (protective factors) or increasing (risk factors) these behaviors. The protective factors are related to individual characteristics of the student and the family environment, school environment. Protective factors may be a social support from people who are

important, meaningful and positive to young people (Bearn et al., 2002; Burton & Marshall, 2005), a feeling of belonging an environment (Coker & Borders, 2001). An important predictor of adolescents' developmental outcomes is a model of family education, described in terms of parental behaviors. Various parental behaviors were strongly associated with increasing risks of deviant behaviors at school (Barrera & Li, 1996; Rutter, Giller & Hagel, 1998; Brook & al., 1997). Numerous studies have shown that family education had a significant influence on adolescent deviant behaviors (Cheng, 2001), such as parental supervision and control (Laser, Luster & Oshio, 2007). Weak parental involvement and low parental control are related to deviant behaviors in children (Sampson & Laub, 1994: 523).

In Vietnamese culture, parenting is greatly influenced by three traditional religions (including Buddhism, Confucianism and Taoism), ancestor cult and collective values (Coulet, 1933, cited by Tran Thu Huong, 2007; Luong Can Liem, 1992/2005). The attachment among family members is also a protective factor against deviant behaviors. In contrast, the majority of adolescents who have ever engaged in risky behavior refer to causes such as family conflict and lack of harmony with parents.

Therefore, this study aims to find and clarify the relationship between family education models (modeled by parental behaviors) and deviant behaviors among Vietnamese teenagers (focusing on high school students). At the same time, some independent variables such as age, gender, academic achievement, parental educational level and occupation, were included in the analysis to examine their influence on the above relationship and to find a predictive model for deviant behaviors.

2. Methods

This research was conducted on 566 students in Vietnamese high schools, including 280 males (49.5%) and 286 females (50.5%), of grade 11th (n = 405) and 12th (n = 161), of age rang 16-17 years, from October 2019 to September 2020. The majority of participants (88.3%) were intact families. The level of students' academic achievement varied, around 7.2% of them had a good level (n = 41), 10.4% were at weak and average level (n = 59), and 82.3% were fairly good (n = 466). This was a cross-sectional research. The convenience sampling was performed.

Parental Behaviors Scale (Family Education) were measured using a 23-item scale proposed by Brian, Barber, Stolz, Olsen, Collins and Burchinal (2005), and 2 items built by research team. This 25-item scale was a child-report measure which comprised of three subscales: Parental Support, Parental Psychological Control and Behavioral Control. The alpha's Cronbach coefficient of the whole scale for the father is: .71 and for the mother is .65. *Parental support* was measured using the 10-item subscale from the revised Child Report of Parent Behavior Inventory (Schaefer, 1965; Schuldermann & Schuldermann, 1988). The alpha's Cronbach coefficient of this sub-scale for fathers is: .85 and for mothers is .73. The *parental psychological control* subscale consisted of 8 items extracted from Psychological Control Scale-Youth Self-Report (PCS-YSR; Barber, 1996) and 2 items which were built to rely on cultural characteristics of Vietnamese students in high. The alpha's Cronbach coefficient of this sub-scale for the father is: .77 and for the mother is .83. *Parental behavioral control* was measured using 5-item scale that was opted in family research with adolescents (e.g., Brian, Barber, Stolz, Olsen, Collins and Burchinal, 2005). The alpha's Cronbach coefficient of the sub-scale in the father is: .71 and in the mother is .66.

Adolescent-Reported Deviant Behaviors Checklist enumerated 37 problem behaviors in Vietnamese high-school students. To design a scale adapted to the sociocultural, educational and political characteristics in Vietnam, the research team has consulted, synthesized and opted for 27 items in international self-report delinquency studies (e.g., Elliot & Agenton, 1980; Junger - Tas, Terlouw & Klein, 1994; Ni He & Marshall, 2012). The remaining 10 items were designed by the research team based on the behavioral cultural rules of the Ministry of Education and Training in Vietnam, in consultation with head teachers and asking students about problematic behaviors occurring at school. This scale is structured into 4 sub-scales, including: 1/The violation of learning rules and school rules (17 items, $\alpha=.91$); 2/School conducts (8 items, $\alpha=.87$); 3/Bullying behaviors at school (7 items, $\alpha=.87$); and 4/Behavior related to sexuality (5 items, $\alpha=.85$).

3. Results of research

3.1. Evaluations of school deviant behaviors in adolescents

Independent sample T- test analyses of school deviant behavior groups between two groups of boys and girls showed that the boys had higher levels of school deviant behaviors than girls in all 4 groups of school deviant behaviors (see *Table 1*).

Table 1. Comparison of the average scores of school deviant behaviors in high school students.

| Groups of school deviant behaviors | Boys | | Girls | |
|---|----------|-----------|----------|-----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Violation of learning rules and school rules $t_{(566)}=3.96, p=.000$ | 2.06 | 0.73 | 1.87 | 0.37 |
| School conducts $t_{(566)}=4.95, p=.000$ | 1.89 | 0.85 | 1.62 | 0.35 |
| Bullying behaviors at school $t_{(566)}=4.66, p=.000$ | 1.73 | 0.78 | 1.48 | 0.37 |
| Behavior related to sexuality $t_{(566)}=6.364, p=.000$ | 1.66 | 0.81 | 1.32 | 0.33 |

As can be seen, the deviant behaviors in school often and firstly belonged to the behaviors related to learning; in other words, deviant behaviors frequently revolved around issues associated with a student's consciousness, attitudes, responsibilities and obligations. Comparing groups of students with different school deviant behaviors with the Independent sample T-test and the One-way ANOVA statistical methods, the research team noted that private school students had more school deviant behaviors than public school students in all four groups of deviant behaviors. Students with average academic performance had a higher level of deviant behaviors than the groups of students with good and excellent performance, especially in the two groups of deviant behaviors as regards to violations of learning rules and school conducts. The less time parents spent with their children (1 hour or less), the higher the student's level of deviant behavior, and vice versa. The time that parents spent with their children is a proof of a family's quality of life, and at the same time shows parents' concerns for their children and the feelings of members of their family. Parental marital status influenced the degree of deviant behaviors in high school students. For intact families, the level of school deviation among students was lower than for "separated" or "divorced" families. This means that, in insufficient families, children might lack the attention, care and supervision of a parent. The traumas that children had to suffer from living in an insufficient family can also cause the occurrence of their deviant behaviors.

3.2. Parenting behavior models reported by adolescents

Table 2. Comparison of the average scores for all dimensions of the parenting behaviors reported by students.

| | T-value = 2 | | | | | | |
|---------------------------------|-------------|-----------|------------------------|-------------|------------|----------------|--------|
| | <i>t</i> | <i>df</i> | <i>Sig. (2-tailed)</i> | <i>Mean</i> | <i>M.D</i> | <i>95% C.I</i> | |
| | | | | | | - | + |
| Supportive Father | -9.417 | 565 | 0.00 | 1.78 | -.21692 | -2.622 | -.1717 |
| Psychological control of Father | .099 | 565 | 0.92 | 2.00 | .00199 | -.0373 | .0413 |
| Behavior control of Father | -13.787 | 565 | 0.00 | 1.66 | -.33834 | -.3865 | -.2901 |
| Supportive Mother | 2.030 | 565 | 0.04 | 2.04 | .04527 | .0015 | .0891 |
| Psychological control of Mother | 3.739 | 565 | 0.00 | 2.08 | .07827 | .0372 | .1194 |
| Behavioral control of Mother | -13.751 | 565 | 0.00 | 1.70 | -.31625 | -.3614 | -.2711 |

The data in Table 2 were analyzed by the One sample T-test with T-value = 2 showing that, of three dimensions of parenting behaviors reported by high school students, the psychological control aspect was still the common behavior above all others in parents, followed by the parental support aspect (it should be noted that the students' assessment of this aspect for mothers was quite far from fathers' support), and finally was the behavioral control.

The results on the manifestation levels of parenting behaviors showed that, among three mentioned groups, the psychological control dimension was "high" (strong/tight), being the most dominant; in which, the distance between fathers (53.4%) and mothers (67.3%) was quite clear. Second was the dimension of strong parental support, this rate was 64.8% for mothers, while 41.7% for fathers. As many as two-third of the students on the survey rated their parents having loose behavioral control, only 32.3% for their fathers and 35.9% for their mother as having strict behavioral control.

Thus, the fact that children evaluated the mother's behavioral aspects (strong supportive behavior, at the same time, tight psychological control) higher than the father's ones clearly reflected the role and cohesion of father and mother in Vietnamese families; in which, the presence and influence of the mother dominates in the early stages of development of the child.

3.3. Correlation between school deviant behaviors in adolescents and parenting behaviors

The results in Table 3 pointed out: 1/There was a strong, negative correlation between school deviant behaviors in general and the parent support group with $r_{\text{father}} = -.53$, $r_{\text{mother}} = -.61$; 2/There was a strong, positive correlation between the school deviant behaviors and the psychological control group; in which, the correlation coefficients for mother and father were: $r_{\text{mother}} = .45$ and $r_{\text{father}} = .47$. This was also a significant correlation level, showing that in the family, a parent, especially the mother, strengthened

his/her management, supervision and manipulation of his/her child psychologically, the higher the risk of the child's school deviant behavior; 3/There was an negative, weak correlation between school deviant behaviors and behavioral control group; in which, the level of negative correlation for father ($r_{\text{father}} = -.30$) was higher than for mother ($r_{\text{mother}} = -.17$).

Table 3. Correlation coefficient between school deviant behaviors in general and parenting behaviors.

| <i>Dimensions of parenting behaviors (n=566)</i> | <i>School deviant behaviors in students</i> |
|--|---|
| Supportive Father | -.53** |
| Psychological control of Father | .45** |
| Behavioral control of Father | -.30** |
| Supportive Mother | -.61** |
| Psychological control of Mother | .47** |
| Behavioral control of Mother | -.17** |

**p <.01

The different groups of deviant behaviors had a quite tight correlation with three dimensions of parenting behaviors. Parent support dimension had a strong, negative correlation with all 4 groups of school deviant behaviors in high school students, in which, the correlation coefficients for mothers were higher than those for fathers. Parental Psychological control dimension had a significantly positive and quite tight with all four groups of deviant behaviors at school; in which, the correlation level for fathers and for mothers was quite similar, with p -value<.01. Finally, the parental behavior of psychological control was positively and quite strongly correlated with all four groups of deviant behaviors in high school students, with the r coefficient ranging from .39 to .46. So it can be affirmed that if the father or mother uses psychological control behavior, the child's trauma is the same.

4. Discussions and conclusions

In Vietnamese folk, when it comes to family education, people often refer to the idiom: "A child is spoiled by his mother, a grandchild is spoiled by his grandmother". However, the power in the Vietnamese family belong to the man, because they are responsible for making money, as well as economic holders in the family (land, farmland, and property are all owned by the father and "only pass in to the son") (Nguyễn Từ Chi, 1989). Thus, whether the father has implicitly assigned the responsibility of raising and educating the children through the woman (wife, mother); on the surface, does the father seem less present or absent in relationships with the child than the mother's image?

There was a question to be asked: why did students value their mothers both strongly supporting their children and controlling them psychologically closely? From a practical point of view, parental behaviors (or parental education in the family) and school deviant behaviors in high school students were correlated. The supportive behavior was considered as the most ideal of the three types of parenting behaviors. Mothers' supportive behaviors had an effective role of controlling, eliminating and minimizing the level of deviation more than that of fathers. Besides, the parental control of the child's behaviors was inversely correlated with all four groups of deviant behaviors, in which the father's supervision had more impact on the child's behaviors than that of the mother.

There may be a question posed instead of the conclusion of this paper, which is: whether parents have a lot of support and effective control in their children's behaviors is the best educational method to produce fewer school deviant behaviors in children or not? And vice versa, a weak support (neglect) and overly high psychological control and too high or too low behavioral control of parents are the highest risk for the formation and development of school deviant behaviors in high school students or not?

Acknowledgments

This research is funded by Vietnam National University, Hanoi (VNU) under project number QG.19.38.

References

- Barber, B. K. (1996). Parental psychological control: Revisiting a neglected construct. *Child Development*, 67(6), 3296–3319.
- Barrera, M., & Li, S. A. (1996). The relation of family support to adolescent's psychological distress and behavior problem. In G. R. Pierce, B. R. Sarason & I. G. Sarason (Eds), *Handbook of social support and the family*. New York: Plenum Press.

- Bean, R. A., Barber, B. K., & Crane, D. R. (2006). Parental support, behavioral control, and psychological control among African American youth: The relationships to academic grades, delinquency, and depression. *Journal of Family Issues*, 27(10), 1335–1355.
- Bộ Y tế (2010). *Điều tra quốc gia về vị thành niên và thanh niên Việt Nam (SAVY2)*
- Brian, Barber, B.K., Stolz, H.E., Olsen, J.A., Collins, W.A. & Burchinal, M. (2005). Parental Support, Psychological Control and Behavioral Control: Assessing relevance across time, culture and method. *Monographs of the Society for research in child development*, Serial No. 282, Vol. 70, No. 4, Published by: John Wiley & Sons, Inc., pp. i+v+vii+1-147.
- Brook, J. S., Wh, M., Balka, E. B., & Cohen, P. (1997). Drug use and delinquency: Shared and unshared risk factors in African American and Puerto Rican adolescents. *The Journal of Genetic Psychology*, 158, 25-39.
- Burton, J. M. & Marshall, L.A. (2005). Protective factors for youth considered at risk of criminal behavior: Does participation in extracurricular activities help? *Criminal Behavior & Mental Health*, 15(1), 46-64.
- Cheng, J. (2001). Family violence victimization as an influential cause to juvenile deviance. *Journal of Criminology*, 8, 215-246.
- Cheng, J. (2012). The effect factor for students' deviant behavior. *The Journal of Human Resource and Adult Learning*, Vol. 8, Num. 2, December 2012, pp 26-32.
- Coker, J. K., & Borders, L. D. (2001). An analysis of environmental and social factors affecting adolescent problem drinking. *Journal of Counseling & Development*, 79, 200-208.
- Elliott, D. S., Huizinga, D., & Ageton, S. S. (1985). *Explaining delinquency and drug use*. USA: Sage Publications.
- Giacalone, R. A., & Greenberg, J. (Eds.). (1997). *Antisocial behavior in organizations*. Sage Publications, Inc.
- Hoàng Gia Trang (2015), Giáo dục phòng ngừa hành vi lệch chuẩn ở HS THPT, *Tạp chí Khoa học giáo dục*, số 120, tháng 9.
- Junger – Tas, J., Terlouw, G.J & Klein, M W (1994). *Delinquent behavior among young people in the western world. First results of the international self report delinquency study*. Amsterdam: Kugler publications.
- Laser, J. A., Luster, T., & Oshio, T. (2007). Promotive and risk factors related to deviant behavior in Japanese youth. *Criminal Justice and Behavior*, 34(11), 1463-1480
- Luong Cân-Liêm (1992/2005). *Bouddhisme et psychiatrie*, Paris: L'Harmattan.
- Mushtaq, Sh. & Kausar, R. (2018). Exploring dimensions of deviant behaviour in Adolescent boys. *Journal of Behavioural Sciences*, Vol. 28, No. 1
- N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology: Social, emotional, and personality development* (p. 1–23). John Wiley & Sons, Inc.
- Nguyễn Từ Chi (1996). *Góp phần nghiên cứu văn hóa và tộc người*. Hà Nội: Tạp chí Văn hóa Nghệ thuật, Văn hóa thông tin.
- Ni He & Marshall, I.-H. (2012). A multi-city Assessment of Juvenile Delinquency in the U.S.: A Continuation and Expansion of the International Self-Report Delinquency Study (ISRDL). *2006IJCX0045/ISRDL-2 US Final Technical Report*. This document is a research report submitted to the U.S. Department of Justice.
- Rutter, M., Giller, H., & Hagel, A. (1998). *Antisocial behavior in young people*. Cambridge: Cambridge University Press
- Sampson, R. J., & Laub, J. H. (1994). Urban poverty and the family context of delinquency: A new look at structure and process in a classic study. *Child Development*, 65, 523-540.
- Schaefer, E. S. (1965). Children's reports of parental behavior: An inventory. *Child Development*, 36, 413-424.
- Schuldermann, S., Schuldermann, E. (1988). Questionnaire for Children and Youth (CRPBI-30). *Unpublished manuscript*. University of Manitoba; Winnipeg, Canada.
- Tran Thu Huong (2007). *Conduites à risque des adolescents vietnamiens et intégration de la Loi paternelle : Une étude appliquée à la prostitution et à la toxicomanie*. Thèse de doctorat, Toulouse 2, France.
- Trương Thị Khánh Hà (2013), *Giáo trình tâm lý học phát triển*. NXB Đại học quốc gia Hà Nội.
- Vardi, Y. & Weitz, E. (2004). *Misbehavior in organizations: Theory, Research and Management*. DOI: 10.4324/9781410609052. Lawrence Erlbaum Associates, Inc.

LEARNING STRATEGIES AND SCHOOL MOTIVATION IN EXPERIENTIAL LEARNING VS. TRADITIONAL LEARNING

Camelia Mădălina Răducu

Faculty of Psychology and Educational Sciences, University of Bucharest (Romania)

Abstract

Introduction: In recent years, European innovation policies in education have focused on preventing early school leaving and functional illiteracy. In this context of innovation in education, experiential learning has proven to have unique qualities for both teachers and students. Thus, the main motivation of this paper was to show that experiential teaching methods and techniques in primary education are able to produce significant improvements in learning strategies and school motivation in young students.

Objectives: The aim of this study was to explore the differences in learning strategies and school motivation on young students who had benefitted from Experiential Learning, in contrast with those following direct learning instructional methods

Methods: This study was performed using two groups of subjects. The first group (experimental group) included 60 students taught by experiential methods and the second group (control group) included 60 students taught by traditional methods. All students were in the fourth grade in an urban school. Differences in learning strategies and school motivation were explored by applying School Motivation and Learning Strategies Inventory - SMALSI (Stroud & Reynolds, 2006) to both the experimental group and the control group. SMALSI is structured in 9 dimensions - 6 strengths: study strategies, note-taking / listening skills, reading / comprehension strategies, writing skills / research, strategies used in tests, techniques for organizing / managing time; and 3 weaknesses are: low academic motivation, test anxiety, concentration difficulties / paying attention. To determine the differences in the students' mean scores, descriptive as well as inferential statistical analyses were performed on the data.

Results: The results showed that an experiential teaching model produces positive results in all evaluated strengths and in two of the three weak points investigated, namely in academic motivation and test anxiety. Statistically insignificant effects are in terms of attention / concentration difficulties, they may be more dependent on physiological and psychological maturation and less on the teaching methods, but also may be a direction of further research.

Conclusions: The findings of this study could significantly help teachers looking for viable solutions to optimize students school results, increase school motivation and improve learning strategies in primary school.

Keywords: *Experiential learning, learning strategies, school motivation, primary education, traditional learning.*

1. Introduction

The modernization of education in all its aspects is an increasingly pressing concern in recent years, the need for an in-depth reform being brought more and more often into educational debate. This concern is no longer only on the table of educators and teachers, parents, and children, but also on the table of psychologists, sociologists, health workers and other important political institutions, knowing that education is the key to building a prosperous, stable, supportive, and autonomous society.

In an actual analysis of the needs of education at the level of the individual, J. Delors (2013) enumerated four types of learning: learning to know, learning to do, learning to live with others and learning to become, that ensures success in adult life. It is required that these fundamental types of learning to be built gradually from the first years of schooling to be able to cope optimally with present and future challenges. That is why modern didactics draw attention to the need to shift the emphasis on learning knowledge on the development of personal, unique skills of cognitive, emotional, and social autonomy.

Starting from the desire to identify an experiential model that corresponds as much as possible to the expression abilities of the young pupils and at the same time serves the purpose of optimizing the instructive-educational process of learning to know, do, work with others and become the best own

version, has emerged a model that interweaves through the richness of techniques and provide freedom of creative expression, experiencing "here and now" the facets of reality. This empirical experiential model has its conceptual methodological roots in the theory of experiential learning developed by D. Kolb (1984).

2. Experiential learning

The concept of experiential education gained space at the beginning of the 21st century and has spread in various fields, bringing multiple benefits in domains like action learning (Francis et al., 2011), service learning (Bielefeldt, Dewoolkar, Caves, Berdanier, & Paterson, 2011), problem-based learning (Bethell & Morgan, 2011), adventure education (Timken & McNamee, 2012), and simulation and gaming (Shields, Zawadzki, & Johnson, 2011). In the educational field, Experiential Learning Theory (ELT) has been used and delivered instructional programs in K-12 education.

The construction of the theory of experiential learning was based on: The learning model proposed by John Dewey (1938), the research-action model of Kurt Lewin (1940) and Jean Piaget's Theory (1936, 1950) on learning and cognitive development. All these theories have led to the definition of learning as a "process in which knowledge is created through the transformation of experience." (Kolb, 1984, p. 67). This definition underlines that knowledge is a process of creative and recreational transformation through a cyclical process, comprised of four components: a concrete experience, reflection and observation, abstract conceptualization, and experimenting with novel situations.

The unique perspective on experiential learning that can be characterized by 6 principles described in the next sub-items:

- Learning should not be based on the outcome but on the process.
- All learning is relearning, a process in which students' ideas can be examined, tested, and adjusted, as the learning process continues.
- The learning process involves conflict and differences, as a student reflects, thinks, and acts to arrive at a resolution, which, with more learning, will put them back into the cycle of conflict and resolution.
- Learning is a holistic process, not only of cognition, but also of thinking, feeling, perceiving, and behaving.
- Learning evolves through an individual's interaction with the environment and the assimilation of new experiences into existing concepts from previous experiences.
- Learning is created and recreated by the learner (Kolb & Kolb, 2006).

In terms of experiential learning in primary schools in Romania, this is still in its infancy, being implemented locally with the help of pilot projects and demonstrating its effectiveness through a micro-study which showed that the experiential methodology applied in the case of students in primary classes can produce better results in standardized TIMMS and PIRLS tests in fourth grade (Raducu, 2019).

3. Objectives

The general objective of this study is to validate the experiential teaching model in primary education in order to optimize students' personal resources, learning strategies and school motivation.

The specific objectives are to develop students' learning strategies and school motivation through an alternative form of teaching, playful and student-oriented that incorporates concrete experience, reflective observation, abstract conceptualization, and active experimentation in an innovative teaching model. It is expected that by adopting a scientifically reasoned, creative teaching method based on the spiral of complete learning cycles that meet all the educational needs of the student, to improve study strategies and academic motivation by focusing on learning inside-out.

Research questions:

1. Is there a statistically significant difference in the study strategies used by students depending on the training program followed experiential vs. traditional?
2. Is there a statistically significant difference in the note - taking / listening skills used by students depending on the training program followed experiential vs. traditional?
3. Is there a statistically significant difference in the reading / comprehension strategies used by students depending on the training program followed experiential vs. traditional?
4. Is there a statistically significant difference in the writing / research skills used by students depending on the training program followed experiential vs. traditional?
5. Is there a statistically significant difference in the strategies used in tests used by students depending on the training program followed experiential vs. traditional?
6. Is there a statistically significant difference in the techniques of organizing and managing time used by students depending on the training program followed experiential vs. traditional?

7. Is there a statistically significant difference in the academic motivation of students depending on the training program followed experiential vs. traditional?

8. Is there a statistically significant difference in test anxiety of students depending on the training program followed experiential vs. traditional?

9. Is there a statistically significant difference in the concentration difficulties / attention of students depending on the training program followed experiential vs. traditional?

4. Methods

4.1. Design

The design of this research is an experimental one. The testing of the hypotheses of this study was performed by comparing the averages of the scores obtained in the SMALSI test of two independent samples: one trained by traditional methods and the other trained by experiential methods. The data were evaluated transversally in a single moment of the research.

The dependent variables of the research are represented by the learning strategies and the school motivation of the students, the measured operational constructs being constituted by 7 strong points of the students and 3 weak points. Strengths are: study strategies, note-taking / listening skills, reading / comprehension strategies, writing / research skills, test strategies, organizing techniques/ time management. Weaknesses are: low academic motivation, test anxiety, concentration difficulties / paying attention.

The independent variable is the type of training followed during the primary education cycle, namely training through traditional methodology or training through experiential methodology.

4.2. Data collection procedure

The data needed to conduct this study were collected in June 2019, by applying SMALSI test to 60 students (control group) trained by traditional methods and 60 students trained by experiential methods (experimental group). The students were in the fourth grade in an urban school from Bucharest. The questionnaires were applied in groups, in the presence of the teacher, who had the role of helping students to understand the items that raise comprehension problems. The application of the questionnaires was preceded by the request for parental consent.

4.3. Instruments

The instrument used was the School Motivation and Learning Strategies Inventory - SMALSI (Stroud & Reynolds 2006). The instrument is described below.

SMALSI - the children's version, is a self-assessment questionnaire, designed to assess 9 constructs mainly associated with school motivation and learning strategy, 6 of which focus on the student's strengths and 3 visit his weaknesses. Depending on the reading skills of the examined student, the SMALSI questionnaire will be completed in 20-30 minutes.

The result of the evaluation is the following indicators, specific for:

Student strengths:

Study Strategies (STUDY) investigates the ability to select important information, making connections between information already assimilated and recently assimilated, memorization strategies for encoding information. The STUDY scale contains 14 items.

Notation / Comprehension Skills (NOTAT) measures the ability to select important information for efficient notetaking and organization. The NOTAT scale contains 18 items.

Reading / Comprehension Strategies (READING) proposes measuring the ability to read, monitor and reread texts, including self-testing to ensure understanding of the content. The READ scale contains 15 items.

Writing / Research Skills (WRITING) investigates the ability to research topics in any way, organizing written projects, checking for mistakes made. The WRITING scale contains 11 items.

Test Strategies (TESTs) measure the effectiveness of participating in tests / examinations, including the elimination of improbable answers and strategic guessing. The TEST scale contains 12 items.

Time Management / Organizational Techniques (TIMORG) investigates the efficient use of time to complete homework, awareness of the time required for school assignments and the ability to organize materials received at school and study, structuring tasks, including homework and other projects. The TIMORG scale contains 18 items.

Student weaknesses:

Low Academic Motivation (MOTSCA) measures the lack of intrinsic motivation needed to get involved and succeed in academic tasks. The MOTSC scale contains 19 items.

Test Anxiety (TANX) assesses the student's experience of showing test / examination anxiety symptoms, poor test performance caused by excessive worry. The TANX scale contains 21 items.

Concentration / Attention Difficulties (DIFCON) investigates the difficulty of attending classes and other school tasks, focusing attention on performance, and avoiding disruptive elements. The DIFCON scale contains 18 items.

4.4. Statistical approach

According to the methodological recommendations, the testing of the hypotheses was preceded by the analysis of the correlation coefficients between the dependent variables and the socio-demographic variables that can play the role of covariant variables, since they can have effects on students' performance in assessments. Given that the relationships between socio-demographic variables and dependent variables are of low and very low intensity ($r < .30$), we cannot discuss the existence of covariant variables.

4.5. Results

Table 1. presents the descriptive statistics and Pearson correlation coefficients between the variables analyzes in this study.

Table 1. Descriptive statistics and Pearson correlation coefficients between the variables.

| Variabiles | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|------------|---------|---------|--------|---------|---------|---------|--------|--------|-------|
| 1 Study | - | | | | | | | | |
| 2 Notat | .83*** | - | | | | | | | |
| 3 Read | .19* | .23* | - | | | | | | |
| 4 Writing | .81*** | .79*** | .18* | - | | | | | |
| 5 Test | .77*** | .81*** | .21* | .86*** | - | | | | |
| 6 Timorg | .78*** | .80*** | .20* | .82*** | .89*** | - | | | |
| 7 Motsca | -.57*** | -.55*** | -.13* | -.62*** | -.57*** | -.58*** | - | | |
| 8 Tanx | -.60*** | -.51*** | -.26** | -.62*** | -.67*** | -.63*** | .62*** | - | |
| 9 Difcon | -.61*** | -.58*** | -.22* | -.64*** | -.63*** | -.66*** | .61*** | .63*** | - |
| <i>M</i> | 23.83 | 36.58 | 30.44 | 21.23 | 26.48 | 31.86 | 16.48 | 19.33 | 10.85 |
| <i>SD</i> | 2.57 | 3.75 | 16.93 | 2.58 | 3.16 | 3.92 | 2.97 | 5.00 | 2.82 |

The t test for independent samples was applied to compare the scores obtained by students in the SMALSI test according to the type of teaching. At the level of study strategies, students coming from the class with experiential teaching style ($M = 24.83$, $SD = 2.13$) have significantly higher scores ($t(118) = 4.62$, $p < .001$, $d = 0.84$) compared to participants who they benefited from the traditional teaching style ($M = 22.83$, $SD = 2.59$).

At the level of taking notes, students coming from the class with experiential teaching style ($M = 37.78$, $SD = 3.24$) have significantly higher scores ($t(118) = 3.68$, $p < .001$, $d = 0.67$) compared to participants who benefited from the traditional teaching style ($M = 35.38$, $SD = 3.87$).

At the level of reading strategies, students coming from the class with experiential teaching style ($M = 33.25$, $SD = 3.78$) have significantly higher scores ($t(118) = 0.12$, $p = .549$, $d = -0.02$) compared to participants who benefited from the traditional teaching style ($M = 30.63$, $SD = 23.74$).

In terms of writing skills, children who learn based on an experiential teaching style ($M = 22.00$, $SD = 2.50$) obtained significantly different scores ($t(118) = 3.39$, $p < .001$, $d = 0.62$) compared to students coming from classes with traditional teaching style ($M = 20.47$, $SD = 2.45$).

Regarding the strategies used in the test, the children who learn based on an experiential teaching style ($M = 27.48$, $SD = 2.83$) obtained significantly different scores ($t(118) = 3.65$, $p < .001$, $d = 0.67$) compared of students coming from classes with traditional teaching style ($M = 25.48$, $SD = 3.18$).

At the level of organizational techniques coming from the class with experiential teaching style ($M = 33.15$, $SD = 3.71$) they obtained significantly higher scores ($t(118) = 3.81$, $p < .001$, $d = 0.70$) compared to the participants who they benefited from the traditional teaching style ($M = 30.57$, $SD = 3.71$).

Regarding the academic motivation, the children who learn based on an experiential teaching style ($M = 15.67$, $SD = 2.78$) obtained significantly lower scores ($t(118) = -3.09$, $p < .001$, $d = -0.56$) compared to students who come from classes with traditional teaching style ($M = 17.28$, $SD = 2.95$).

Regarding test anxiety, children who learn based on an experiential teaching style ($M = 17.42$, $SD = 4.63$) obtained significantly lower scores ($t(118) = -4.51$, $p < .001$, $d = -0.82$) compared to students who come from classes with traditional teaching style ($M = 21.23$, $SD = 4.65$).

At the level of concentration difficulties, students coming from the class with experiential teaching style ($M = 10.63$, $SD = 2.97$) did not obtain significantly lower scores ($t(118) = -0.84$, $p = .201$, $d = 0.15$) compared with participants who benefited from the traditional teaching style ($M = 11.07$, $SD = 2.67$).

5. Discussions

The main aim of this research was to determine whether there are statistically significant results between learning strategies and school motivation depending on the training methodology followed, experiential or traditional, in primary school in 9 different areas: study strategies, note-taking / listening skills, reading / comprehension strategies, writing / research skills, strategies used in tests, time organization / management techniques, academic motivation, test anxiety, concentration difficulties / paying attention. The findings of this study could significantly help teachers looking for viable solutions to optimize students' school results in primary school, increase school motivation and improve learning strategies.

Frequently, learning strategies and academic motivation in the early stages of education have been considered predictors of success in adult life (Brackney & Karabenick, 1995). Moreover, we could consider that the identification of a student's strengths and weaknesses from the first years of schooling can be a factor in preventing repeated failures and stimulating academic success. Given that it is not always possible to investigate and monitor learning strategies for each student, due to limited resources, building a teaching model that can optimally stimulate all these psychological constructs can be an optimal solution to support both of students as well as teachers.

This paper takes a step further in discovering the link between learning strategies, school motivation in students and the type of training followed, traditional methods and techniques or through experiential methods and techniques. The results showed that an experiential teaching model produces positive results in all evaluated strengths: study strategies, note-taking / listening skills, reading / comprehension strategies, writing / research skills, test strategies, organizing techniques / time management, and in two of the three weak points investigated, namely in academic motivation and test anxiety. Statistically insignificant effects are in terms of paying attention / concentration difficulties, one explanation being that they may be more dependent on physiological and psychological maturation and less on the teaching methodology but is still a direction of further research.

References

- Bielefeldt, A. & Dewoolkar, M. & Caves K. & Berdanier, B. & Paterson, K. (2011). Diverse Models for Incorporating Service Projects into Engineering Capstone Design Courses. *International Journal of Engineering Education*. 27. 1206-1220.
- Brackney, B. E. & Karabenick, S. A. (1995). Psychopathology and academic performance: The role motivation and learning strategies. *Journal of Counseling Psychology*, v42 n4 p456-65
- Delors, J. (2013). The treasure within: Learning to know, learning to do, learning to live together and learning to be. What is the value of that treasure 15 years after its publication?. *International Review of Education*, 59(3), 319-330.
- Francis, H. & Cowan J. (2008). Fostering an action-reflection dynamic amongst student practitioners. *Journal of European Industrial Training*, 32 (5), pp. 336-346
- Kolb, A. & Kolb, D. (2006). Learning styles and learning spaces: A review of the multidisciplinary application of experiential learning theory in higher education. *Learning Styles and Learning: A Key to Meeting the Accountability Demands in Education*. 190-220.
- Kolb, D., Yeganeh, B. (1984). *Experiential learning: experience as the source of learning and development* Englewood Cliffs, NJ: Prentice-Hall.
- Morgan, K. & Bethell S. (2011). Problem-based and experiential learning: Engaging students in an undergraduate physical education module. *The Journal of Hospitality Leisure Sport and Tourism*. 10. 128-134. 10.3794/johlste.101.365.
- Raducu, C. (2019). Experiential vs. Traditional. *Journal of Experiential Psychotherapy* nr 22(3)(87)), pag 60-67
- Shields S. A. & Zawadzki M. J. & Johnson R.N. (2011). The Impact of Workshop Activity for Gender Equity Simulation in the Academy (WAGES-Academic) in Demonstrating Cumulative Effects of Gender Bias. *Journal of Diversity in Higher Education* 4, no. 2: 120–29.
- Stroud, K. C. & Reynolds, C. R. (2006). *School Motivation and Learning Strategies Inventory (SMALSI)*. Los Angeles, CA: Western Psychological Services.
- Timken, G. & McNamee, J. (2012). New Perspectives for Teaching Physical Education. *Journal of Teaching in Physical Education*. 31. 10.1123/jtpe.31.1.21.

CONCEPTUALIZATION OF TEACHER BURNOUT AND ONLINE BURNOUT PREVENTION AMONG HUNGARIAN TEACHERS

Szilvia Horváth¹, & Katalin N. Kollár²

¹*Doctoral School of Psychology, Eötvös Loránd University Faculty of Education and Psychology (Hungary)*

²*Department of Counselling and School Psychology, Eötvös Loránd University Faculty of Education and Psychology (Hungary)*

Abstract

In our study, we were testing an online burnout prevention programme among Hungarian teachers between 2016-2019, focusing on the background factors of the intervention effect size. Firstly, we conceptualized teacher burnout factors, and after exploratory and confirmatory factor analysis on the incoming sample (N=224), structure equation model has been built up which relate to work-stressors like effort-reward imbalance and over-commitment, burnout factors, perceived stress, general self-efficacy and depression. Secondly, by testing the stress-management intervention on a cumulated sample (N=37) which based on a mini randomized control trial and a quasi-experiment sample data, the intervention effect size has been evaluated, linear regression and structure equation modelling was used to explore the intervention' predictor and moderator variables.

Results of the conceptualization (N=224) show work stressors alone do not lead to burnout factors. Perceived stress is mediator from effort-reward imbalance to burnout factors. General self-efficacy modifies negative impact of perceived stress on personal accomplishment and directly depersonalization. Coping mechanism of depersonalization and personal accomplishment strengthens one-dimensional approach of burnout.

Results of the intervention evaluation show that significant high improvement can be achieved related to the emotional exhaustion (N=37 $d=0.89$, $p<.01$).

For prevention, all kind of stress-management techniques, improving teachers' perceptions of work success are presumable. In order to reach higher involvement of the participants for further research cultural adaptation is needed.

Keywords: *Burnout, teacher burnout, internet intervention, structure equation model.*

1. Introduction

Several studies have shown that teachers have high risk within the population regarding work-related burnout and chronic stress disease. Factually it means that 60-70% of the European teachers suffer from chronic stress disease, and 30% of them have burnout syndrome. In Hungary, 89% of the Hungarian teachers report about being overworked and work-related stress, 60% of them feel that they don't have control over their own responsibilities (Lubinszki, 2013).

International research, which focuses on the risk factors of teacher burnout, also investigates its organisational and individual aspect. Regarding the last one, they found that age, gender, marital status and education level as risk factors of teacher burnout. At organisational level role conflicts, effort-reward imbalances and perceived work stressors correlate mainly with the phenomenon of teacher burnout (Carod & Artal, 2013). Hungarian studies also confirm the individual risk factors in a coherent way with age: related burnout primarily a threat to younger (24- to 40-year-old) teachers, and among them, the rate of the carrier leaving is relatively high (30-40%) (Gáspár et al., 2006).

Social protection, recognition, the strength of safety nets and co-workers, management support, can be considered as protective factors to avoid burnout. Many studies have proven that the lack of management/leadership support increases the burnout risk to more than 50%, and the effects are reversed. The most important protective factor is any rewarding from the leadership regardless of the fact that contains neither financial or material allowance.

A previous study among Hungarian teachers from Salavecz et al. (2006a) focused on work stress and self-efficacy as determiners of teachers' mental health. The purpose of their study was twofold: firstly, to analyse the association between job stress and mental health among teachers, secondly to clarify the role of two individual factors, self-efficacy and over-commitment in the development regarding mental health state. Based on their results, it can be assessed that the personal characteristics and job stress influence differ due to the various mental health variables. Effort-reward imbalance is an important determiner of teachers' psychological health. Over-commitment and self-efficacy proved to be predictors of both burnout syndrome and vital exhaustion, while none of these individual factors proved to be determiners of depressive symptomatology. Authors point out that in designing intervention programmes which are aimed to preserve mental health that is worth to take into consideration such kind of studies focusing on the personal characteristics and also work-stress influences.

An important milestone in literature is the one-dimensional burnout approach (Demerouti, 2005; Shirom, Melamed, 2006; Toppi-nen-Tanner, 2011), which critics of the Maslach three factorial burnout model raise attention that depersonalisation should be considered as coping strategy and reduced self-efficacy is the long-term consequence of the existing stress.

Several studies reflect on the therapy and prevention of occupational burnout syndrome (e.g. van Dick and Wagner, 2001; Ahola et al., 2017; Salavecz, 2006; Kiss et al., 2018; Flook et al., 2013; Zolnierczyk-Zreda, 2005; Kemeny et al., 2012), which direction can be organisational and also self-focused. Regarding teacher burnout, the situation could be improved if the individual teacher was better trained to deal with the stressful aspects of teaching. There are programmes developed specifically for enhancing teachers' self-efficacy (Brockmeyer, 1997) or in a similar manner training to improve coping strategies could also be helpful (Tyler, 1998) as it also seems useful to improve interactions between colleagues to enhance workplace support.

Due to the COVID-19 situation and home-office, Internet-based prevention programs in the frame of occupational e-mental health have come to fore, as special forms of intervention for mental hygiene and reducing psychosocial stress at work. As Phillips et al. (2019) state, the question of the effectiveness of e-mental health interventions, in general, has been addressed in several systematic reviews and meta-analyses. E-mental health interventions were found to be effective in reducing stress in a general population with small to moderate effects. Heber et al. (2013) reported a small effect size for stress symptoms (Cohen's $d=0.43$), Jayawardene et al. (2017) in their meta-analysis of the effectiveness of online mindfulness interventions found a small treatment effect ($g=0.42$), Spijkerman et al. (2016) found a moderate effect size ($g=0.51$). While concerning the effectiveness results are still conflicting, it is important to identify factors that determine the effect of treatment outcome. Most of the study which explored the characteristics of the participants used online cognitive behavioural therapy (Ebert, 2013) and just one study (Junge et al., 2014) examined which employees might or might not benefit from internet-based problem-solving training as a specific kind of treatment and delivery.

2. Methods

In our trial, both treatment forms were used: at the first part of the intervention the participants took part in a regeneration training (Get.On: Fit im Stress®), which was followed by an internet-based problem-solving training. The participants were recruited on social media and by the recommendation of school psychologists, who are members of the National School Psychologist Methodological Base (Országos Iskolapszichológiai Módszertani Bázis). Because of the length of the training and taking into account the drop-out, we will only make findings of the sample in connection with the effectiveness of the regeneration training.

Period of data collection was 09.01.2016-04.01.2017 (Study 1) and 11.01.2018-05.01.2019 (Study 2) and the registered number of the participants was $N=187$ (Study 1), $N=40$ (Study 2). For intervention evaluation, a cumulated sample from the two studies was used, which consists of 37 participants (treatment sample $N=17$, control sample $N=20$). Statistical analysis has been based on the assessment of the following factors and variables: burnout (Maslach Burnout Inventory, 1981), general self-efficacy (Schwarzer, 1995), perceived stress (Cohen, 1983), effort-reward imbalance questionnaire (Siegrist, 1996), depression (Beck, 1961).

3. Results

Regarding the intervention, significant high improvement can be achieved related to the emotional exhaustion ($d=0.89$, $p<.01$), small improvement can be detected in perceived stress ($d=0.33$, $p<.05$). On the base of our income data, exploratory and confirmatory factor analysis has shown that emotional exhaustion as the main factor of burnout belongs to the 'stress' variables (like perceived stress,

effort-reward imbalance, over-commitment and depression) and beside general-efficacy, the two other burnout factors as depersonalisation, personal accomplishment belong to the ‘coping’ factors (N=224, $\chi^2=4.1$, $p<.01$, CFI=.91, rmsea=.11, all variables are significant in the model).

The conceptualisation of teacher burnout with a complex free pathway structure equation model on the income data highlighted that perceived stress is mediator from effort-reward imbalance to burnout factors, general self-efficacy modifies the negative impact of perceived stress on personal accomplishment and directly depersonalisation (N=224, $\chi^2=1.19$, $p=0.25$, CFI=.99, rmsea=.03, all variables are significant).

A variable that predicts outcome regardless of the treatment intervention is called a predictor; a variable that identifies for whom and under what conditions treatments have different effects called moderator (Kraemer et al., 2002). Linear regression and SEM modelling helped to point out predictor and moderator variables of the intervention related to changes in emotional exhaustion: the main predictor in treatment and control sample is incoming emotional exhaustion, moderator variable is depersonalisation. Results confirmed that higher the incoming depersonalisation of the participants in the treatment group is higher improvement can be detected by completing the training. In the control group, such an inverse relationship cannot be detected.

4. Discussion

In sum, results verify the one-dimensional burnout approach in the literature in the sense that depersonalisation and personal accomplishment can be considered as a coping mechanism of burnout and emotional exhaustion is the main factor of burnout, on which stress affects. Depersonalisation is a moderator also in agreement with the literature (Junge et al., 2014, Ebert et al., 2014)), when we consider that depersonalisation has significant positive correlation ($r=.48$, $p<.01$) with depression severity, which is also a significant moderator of emotional exhaustion at internet-based problem-solving training as well.

Nevertheless, there are some limitations of our study: a small sample size of intervention evaluation reduces the validity of the statements as well as biases that occur during data collection. However, the promising results call attention to the fact that there is room for the use of online burnout prevention programs among Hungarian teachers and to be more effective, the cultural adaptation of interventions is necessary.

References

- Ahola, K., Toppinen-Tanner, S., Seppänen J. (2017). Interventions to alleviate burnout symptoms and to support return to work among employees with burnout: Systematic review and meta-analysis. *Burnout research*, 4, 1–11.
- Beck, A.T., Ward, C.H. (1961). An inventory for measuring depression. *Arch Gen Psychiat*, 4, 561-571.
- Brockmeyer, R. (1997). *Selbstwirksame Schulen*. Oberhausen: Laufem.
- Cohen, Sh., Kamarck, T., Mermelstein, R. (1983). A Global Measure of Perceived Stress, *Journal of Health and Social Behavior*, 24, 385-3.
- Demerouti, E., Verbeke, W. J., Bakker, A. B. (2005). Exploring the relationship between a multidimensional and multifaceted burnout concept and self-rated performance. *Journal of management*, 31(2), 186–209.
- Ebert, D., Gollwitzer, M., Riper, H., Cuijpers, P., Baumeister, H., Berking, M. (2013) For whom does it work? moderators of outcome on the effect of a transdiagnostic internet-based maintenance treatment after inpatient psychotherapy: randomized controlled trial. *J Med Internet Res.*, 15, 191.
- Ebert, D., Lehr, D., Boß, L., Riper, H., Cuijpers, P., Andersson, G., Thiart, H., Heber, E., Berking, M. (2014). Efficacy of an Internet-based problem-solving training for teachers: Results of a randomized controlled trial, *Scandinavian journal of work, environment & health*
- Flook, L., Goldberg, S. B., Pinger, L., Bonus, K., & Davidson, R. J. (2013). Mindfulness for teachers: A pilot study to assess effects on stress, burnout, and teaching efficacy. *Mind, Brain, and Education*, 7 (3), 182-195.
- Gáspár, M. (2006). *A személyiség belső feltételeinek és stabilitásának alakulása a pályaszocializáció függvényében*. Budapest: OTKA pályázat
- Heber, E., Ebert, D., Lehr, D., Nobis, S., Berking, M., Riper, H. (2013). Efficacy and cost-effectiveness of a web-based and mobile stress-management intervention for employees: design of a randomized controlled trial. *BMC Public Health*, 13, 655.

- Jayawardene, W., Lohrmann, D., Erbe, R., Torabi, M. (2016). Effects of preventive online mindfulness interventions on stress and mindfulness: A meta-analysis of randomized controlled trials. *Preventive Medicine Reports*, 5, 150-159.
- Junge, M., Lehr, D., Bockting, C., Berking, M., Riper, H., Cuijpers, P., Ebert, D. (2014). For whom are Internet-based Occupational Mental Health Interventions effective? Moderators of Internet-based Problem-Solving Training Outcome, *Internet Interventions*
- Kemeny, M. E., Foltz, C., Cavanagh, J. F., Cullen, M., Giese-Davis, J., Jennings, P., Rosenberg, E. L., Gillath, O., Shaver, P. R., Wallace, B. A., & Ekman, P. (2012). Contemplative/emotion training reduces negative emotional behavior and promotes prosocial responses. *Emotion*, 12 (2), 338-350.
- Kiss, T., Polonyi, T., Imrek, M. (2018). Munkahelyi stressz és egészség. A burnout szindróma a 21. Században – Kutatás, mérés, elmélet és terápia, *Alkalmazott Pszichológia*, 18(2), 75–103.
- Kraemer, H.C., Wilson, G.T., Fairburn, C.G., Agras, W.S. (2002). Mediators and moderators of treatment effects in randomized clinical trials. *Arch Gen Psychiatry*, 59, 877-83.
- Lubinszki, M. (2013). A kiegészítő komplex értelmezése és prevenció lehetőségei a pedagóguspályán. In *Jubileumkötet a Miskolci Egyetem Bölcsészettudományi Kar 20 éves jubileumára* (pp. 263-276.). Miskolc: Miskolci Egyetem.
- Maslach, C., Leiter, M.P. (2016). Understanding burnout experience: recent research and its implications for psychiatry. *World Psychiatry*, 15(2), 103-111.
- Phillips, E.A., Gordeev, V.S., Schreyögg J. (2019) Effectiveness of occupational e-mental health interventions: a systematic review and meta-analysis of randomized controlled trials. *Scand J Work Environ Health*, 45(6), 560-576.
- Salavecz, Gy., Neculai, K., Jakab, E. (2006). A munkahelyi stressz és az énhatékonyság szerepe a pedagógusok mentális egészségének alakulásában. *Mentálhigiéné és Pszichoszomatika*, 7, 96-109.
- Schwarzer, R., Jerusalem, M. (1995). Generalized Self-Efficacy scale. In Weinman, J., Wright, S., Johnston, M. (Eds.), *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). NFER-NELSON, Windsor, UK
- Shirom, A., Melamed, S. (2006). A comparison of the construct validity of two burnout measures in two groups of professionals. *International Journal of Stress Management*, 13(2), 176-200.
- Siegrist, J. (1996). Adverse health effects of high-effort/low-reward conditions. *Journal of Occupational Health Psychology*, 1, 27-41.
- Spijkerman, M.P., Pots, W.T., Bohlmeijer, E.T. (2016) Effectiveness of online mindfulness-based interventions in improving mental health: A review and meta-analysis of randomised controlled trials. *Clin Psychol Rev.*, 45, 102-14.
- Toppinen-Tanner, S. (2011). Process of burnout: Structure, antecedents and consequences. *People and Work Research Reports*, 93, Finnish Institute of Occupational Health, Helsinki.
- Tyler, M. (1998). Stress-management training for teachers: A practical guide. In J. Dunham & V. Varma (Eds.), *Stress in teachers. Past, present and future* (pp. 160-182). London: Whurr.
- Van Dick, R., Wagner, U. (2001). Stress and strain in teaching: A structural equation approach. *British Journal of Educational Psychology*, 71, 243-259.
- Zolnierczyk-Zreda, D. (2005). An intervention to reduce work-related burnout in teachers. *Journal of Occupational Safety and Ergonomics*, 11, 423-430.

PROCRASTINATION AND SELF-CONCEPT IN MORE/LESS CONSCIENTIOUS STUDENTS

**Marianna Berinšterová, Miroslava Bozogaňová, Monika Magdová, Jana Kapová,
& Katarína Fuchsová**

*University of Prešov in Prešov, Faculty of Humanities and Natural Sciences, Institute of Pedagogy,
Andragogy and Psychology (Slovakia)*

Abstract

Given its significant negative consequences for university students, procrastination has been studied extensively and shown to be associated with conscientiousness as a personality trait. Involving 333 university students doing teacher training programmes (68.5% female; Mage=20.51 (SD=1.61); 83.48% undergraduates doing a bachelor's degree), our study aimed to explore the association between procrastination among more/less conscientious students and selected self-concept variables (self-control, self-efficacy, etc.). Our questionnaire was based on the Ten-Item Personality Inventory (Gosling, Rentfrow, Swann, 2003), the Self-Control Scale (Finkenauer, Engels, Baumeister, 2005), the Self-efficacy Scale (Kočš, Hefteyova, Schwarzer, Jerusalem, 1993), and the Procrastination Scale for Student Populations (Gabrhelík, 2008); our control variables were gender and well-being (Subjective Well-Being Scale, Chan-Hoong, Soon, 2011). The sample was divided into two groups – (1) less conscientious and (2) more conscientious) – using the method of visual binning in SPSS 20. A t-test for independent samples and linear regression were used for data analysis. The less conscientious students in our sample reported a higher level of procrastination ($t=6.479$; $df=310$; $p<0.001$; Cohen's $d=0.681$). A linear model was conducted for both groups (the dependent variable being the level of procrastination, the independent variables being gender and the levels of self-control, self-efficacy, and well-being). Both models were significant ((1) $F=8.449$; $p<0.001$; $R^2=32.6$; (2) $F=7.277$; $p<0.001$; $R^2=25.7$). Among the less conscientious students, the levels of self-control ($\beta=-0.546$; $t=-5.262$; $p<0.001$) and self-efficacy ($\beta=-0.238$; $t=-2.092$; $p<0.001$) were negatively associated with procrastination. Among the more conscientious students, the level of self-control ($\beta=0.404$; $t=-3.929$; $p<0.001$) was negatively associated with procrastination and “being a man” (0–man; 1–woman) ($\beta=-0.307$; $t=-3.219$; $p<0.05$) was significantly associated with the level of procrastination. The results of our study show trait and personality differences in the level of procrastination, highlighting the importance of self-control and self-efficacy development among university students. Interactive programmes with an impact on students' self-concept can be a significant contribution to students' ability to cope with their study requirements effectively. It could be argued that the limits of this study include cross-sectional and self-reported data.

Keywords: *Procrastination, self-efficacy, self-control, university students, trait conscientiousness.*

1. Introduction

Research into procrastination has recently attracted a lot of attention because the phenomenon is associated with serious negative consequences, typically expressed in study- and work-related performance and, subsequently, manifested through a lack of adequate satisfaction. Procrastination can be defined as a pathological, intentional, undesirable, and pointless habit, typically characterised by a tendency to delay the beginning or completion of inevitable tasks until later, associated with unpleasant conditions (anxiety, depression, shame, guilt, etc.), and representing an obstacle to goal achievement (Abbasi, Alghamdi 2015; Brownlow, Reainger 2012; Deepti, Muktiashupragya, Trapti 2017; Grunová 2015). In lay terms, procrastination is synonymous to putting off, hesitation, and laziness. Notwithstanding the fact that several scholars refer to procrastination as a purposeful strategy (Schraw, Wadkins, & Olafson, 2007), the notion is dealt with as a negative phenomenon herein.

It has been pointed out that procrastination in the sphere of university life is associated with unsatisfactory results, stress, and anxiety (Grunová 2015), low performance when it comes to completing study-related assignments (Hussain, Sultan 2010 in Khan et al. 2014), and a low level of autoregulation in

learning (Hussain, Sultan, according to Khan et al., 2014; Van Eerde, 2003). It is this particular kind of procrastination observable in university students that the present study focuses on.

Recent research has looked into procrastination predictors such as personality characteristics, sociodemographic variables, and environmental factors. As for gender differences, findings vary considerably. It has been revealed that men tend to procrastinate more than women (Grunová, 2015; Khan et al., 2014); other authors suggest, however, that it is women who procrastinate more often (Rodarte-Luna, & Sherry in Khan et al., 2014). As far as personality traits are concerned, recent research has focused on the correlation between procrastination and the Big Five. For example, several studies suggest a negative relationship between procrastination and conscientiousness (Schweigerová, Slavkovská 2015; Steel, Ferrari 2013 in Abbasi, Alghamdi 2015; Steel, Klingsieck, 2016). When seen as a form of emotional regulation, procrastination brings about a conflict between present and future selves (Pychyl, Sirois, 2016), which is ultimately reflected in the individual's wellbeing.

The association between procrastination and self-concept has been studied, for example, with regard to self-regulatory mechanisms. Negative correlations have been detected not only in relation to self-control as an ability to delay gratification (Schweigerová, Slavkovská 2015), but also in relation to the more general notion of self-regulation (Dunn 2014). As for other personality factors, again, there are conflicting findings. While some researchers point out there is no correlation between procrastination and self-efficacy (Cerino 2014), others have detected a negative correlation between the two (Schweigerová, Slavkovská 2015; Malkoç, Mutlu 2018).

Procrastination predictors have been studied in relation to relatively stable personality traits, but also in relation to situational variables. In our research, we studied the rates of procrastination in two groups of students: those who are conscientious and those who are less so. We focused on students doing teacher training programmes in particular because procrastination and stress are common predictors of professional and personal burnout (Montgomery & Rupp, 2005; Skaalvik & Skaalvik, 2009); given the nature of their work, teachers run a higher risk of developing the condition and, therefore, a higher level of self-regulation seems all the more desirable in this target group.

2. Research objectives

This study aimed to explore the association between selected self-concept variables (self-control, self-efficacy) and procrastination among more/less conscientious students.

3. Research sample and data collection

The research involved 333 university students doing teacher training programmes at Prešov University, 68.5% of them being female ($n = 228$) and 30.6 male ($n = 102$), aged between 17 and 27 ($M = 20.51$; $SD = 1.61$). The data collection process was anonymous and each questionnaire included a unique code.

4. Methods

The study included two items pertaining to the sphere of sociodemographic factors, namely gender and age.

With regard to personality traits, we focused on the following variables in particular:

- The only Big-Five factor included in the present study was *conscientiousness*, which we mapped using a TIPI questionnaire (Ten Item Personality Inventory; Gosling, Rentfrow, Swann, 2003).
- *Self-efficacy* was studied using the Generalized Self-Efficacy Scale (Košč et al., 1993).
- *Self-control* was measured using the Brief Self-Control Scale (Finkenauer, Engels, Baumeister, 2005).
- *Subjective well-being* was studied using the Subjective Well-Being Scale (Chan-Hoong, Soon, 2011).
- Finally, *procrastination* as a dependent variable was measured using the Lay's Procrastination Scale for Student Populations (Gabrhelík, 2008; Gabrhelík, Vacek, Mioviský, 2006).

5. Results

Our research involved differential statistics and a linear model for more conscientious and less conscientious students. The T-tests results for 2 independent samples (Table 1) showed that less conscientious students had a higher rate of procrastination.

Table 1. Differences in the levels of procrastination between less conscientious and more conscientious students.

| conscientiousness | N | Mean | SD | F | t | df | p | Cohen's d |
|-------------------|-----|--------|-------|-------|-------|-----|---|-----------|
| less | 158 | 61.360 | 10.02 | 4.679 | 6.497 | 310 | 0 | 0.681 |
| more | 154 | 53.175 | 12.15 | | | | | |

5.1. Linear model of procrastination

The linear model for less conscientious students was significant ($F=8.449$; $p<0.001$), accounting for 32.6 % of the total variation of the dependent variable. Both self-control and self-efficacy were negatively associated with the students' level of procrastination. Controlled variables did not contribute to the model significantly.

Table 2. Linear model of procrastination for less conscientious students.

| | B | SE | Beta | t | sig |
|----------------------|---------------|--------------|---------------|---------------|------------------|
| self-control | -0.768 | 0.146 | -0.546 | -5.262 | <0.001 |
| self-efficacy | -0.486 | 0.232 | -0.238 | -2.092 | 0,040 |
| well-being | 0.270 | 0.276 | 0.114 | 0.980 | 0.330 |
| sex | -1.515 | 1.904 | -0.082 | -0.796 | 0.429 |

The linear model for more conscientious students was significant ($F=7.277$; $p<0.001$), accounting for 25.7 % of the total variation of the dependent variable. Self-control was negatively associated with the students' level of procrastination. In contrast to the model for less conscientious students, the level of procrastination was not predicted through self-efficacy significantly. As for our controlled variables, sex (male) – but not well-being – was significantly associated with the model.

Table 3. Linear model of procrastination for more conscientious students.

| | B | SE | Beta | t | sig |
|---------------------|---------------|--------------|---------------|---------------|--------------|
| self-control | -0.864 | 0.22 | -0.404 | -3.929 | 0.001 |
| self-efficacy | -0.022 | 0.281 | -0.009 | -0.079 | 0.937 |
| well-being | -0.328 | 0.353 | -0.094 | -0.931 | 0.354 |
| sex | -7.935 | 2.466 | -0.307 | -3.219 | 0.002 |

6. Discussion and conclusions

The research presented here focused on selected self-concept elements (self-control and self-efficacy) in relation to procrastination, the target sample being two groups of university students characterised by two different levels of conscientiousness. Our decision to use conscientiousness as a differentiating criterion was led by the fact that many authors consider this variable to be a significant predictor – negatively associated with procrastination (Köverová, 2017; Abbasi, Alghamdi, 2015; Lee, 2005; Schweigerová, Slavkovská, 2015; Khan et al., 2014; Johnson et al., 1995). Our research shows that less conscientious students generally manifest a higher rate of procrastination – as corroborated by findings presented in a number of previous studies. In this connexion, Hřebíčková (2003) states that conscientious individuals are generally purposeful and ambitious, manifesting a high rate of self-discipline. If academic procrastination correlates with such characteristics negatively, it can be assumed that individuals who are highly prone to procrastinate manifest lower levels of self-control or self-efficacy.

Significant association with procrastination was detected in both our student groups with regard to self-control. University students with a higher level of self-control manifest a lower level of procrastination, which is in accordance with Schweigerová and Slavkovská's (2015) findings. Students' self-control can also be developed during their university study through specialised psychological training designed to help them cope with their difficulty concentrating, develop higher levels of perseverance, emotional intelligence, assertiveness, and self-control, handle disruptive influences, etc. Developing study habits (Duckworth, Taxer, Eskreis-Winkler, Galla, Gross, 2019) that eliminate study-related disruptive influences can be instrumental in developing and strengthening students' self-control, too.

In the linear models tested in our research, different research results were detected with regard to the association between procrastination and self-efficacy. Self-efficacy only proved to be a significant predictor of procrastination in the less conscientious group of students. For the sake of comparison, previous

research had revealed that conscientiousness – which can also be defined as goal-oriented behaviour, compliance with socially determined expectations, controlling one’s impulses, or being able to plan one’s actions (Roberts, Jackson, Fayard, Edmonds & Meints, 2009) – correlates with better academic performance, self-efficacy playing the role of a mediator in the relationship (Conrad, Patry, 2012). Our findings therefore suggest there is potential room for mediation analysis and studying self-efficacy as a mediator in the relationship between conscientiousness and procrastination.

The linear models of this study included two controlled variables, namely well-being and gender. While well-being did not prove to be significantly associated with procrastination in either model, gender as a significant predictor of procrastination was detected in the more conscientious group. More precisely, male gender was positively associated with procrastination-prone behaviour, which can be corroborated by at least a couple of facts: men differ from women in terms of their personality traits, including conscientiousness (Feyter et al. 2012; Karwowski et al., 2013); and gender plays the role of a mediator in the relationship between personality traits and procrastination (Nadeem et al., 2016). Moderation analysis based on “structural equation modelling” might therefore be a potential direction for further research.

Our research results can be practically applied in intervention programmes designed to support undergraduates’ self-control, self-efficacy, and conscientiousness. Although conscientiousness is generally regarded to be a stable personality trait, if you consider the definition of conscientiousness used in the methodology employed in our research, conscientiousness is essentially a combination of responsibility, motivation, and perseverance – i.e., qualities that can be directly influenced. In this connexion, Steel and Klingsieck (2016) point out that any advisory intervention designed to eliminate procrastination should be focused on conscientiousness as a personality trait.

Research studies suggest that interpersonal experience and social roles shape personality traits, making the individual think, feel, and act in a specific way (Lodi-Smith and Roberts, 2007, Roberts and Wood, 2006). The normative influence of desirable or required behaviour in small or large social groups can be an instrument of social control that shapes students’ conscientiousness. Most training programmes focused on self-control are carried out in adolescence – a period that is neurologically well-suited for shaping the individual’s ability to control their impulses and delaying gratification until later. However, research suggests that, when it comes to self-control, nervous system maturation is by no means the only factor at play and self-control is expressed through a variety of individual personality traits (Romer, Duckworth, Sznitman, Park, 2010) that can be cultivated in later stages of life.

References

- Abbasi, I. S., Alghamdi, N. G. (2015): The prevalence, predictors, causes, treatments, and implications of procrastination behaviors in general, academic, and work setting. *International journal of psychological studies*, 7(1), 59-66.
- Bolkan, S., Goodboy, A. K. (2011): Behavioral indicators of transformational leadership in the college classroom.
- Bolkan, S., Goodboy, A. K., Griffin, D. J. (2011): Teacher leadership and intellectual stimulation: Improving students’ approaches to studying through intrinsic motivation. *Communication research reports*, 28, 337–346.
- Brownlow, S., Reasinger, R. D. (2012): Putting off until tomorrow what is better done today: academic procrastination as a function of motivation toward college work. *Journal of social behavior and personality*, 15(5), 15-34.
- Cerino, E. S. (2014): Relationships between academic motivation, self-efficacy, and academic procrastination. *Journal of psychological research*, 19(4), 156- 163.
- Chan Hoong, L., & Soon, D. A. (2011). Study of Emigration Attitudes of Young Singaporeans. Singapore: Institute of Policy Studies, National University of Singapore. Available at <http://lkyspp.nus.edu.sg/wp-content/uploads/2013/06/wp19.pdf>
- Conrad, N., & Patry, M. W. (2012). Conscientiousness and academic performance: A mediational analysis. *International Journal for the Scholarship of Teaching and Learning*, 6(1), n1.
- De Feyter, T., Caers, R., Vigna, C., & Berings, D. (2012). Unravelling the impact of the Big Five personality traits on academic performance: The moderating and mediating effects of self-efficacy and academic motivation. *Learning and individual Differences*, 22(4), 439-448.
- Deepti, S., Muktiashupragya, S., Trapti, S. (2017): Procrastination versus planned procrastination - A study report. *International Journal of Humanities and Social Sciences*. 6(5), 1-12.
- Duckworth, A. L., Taxer, J. L., Eskreis-Winkler, L., Galla, B. M., & Gross, J. J. (2019). Self-control and academic achievement. *Annual Review of Psychology*, 70, 373-399.
- Dunn, K. (2014): Why wait? The influence of academic self-regulation, intrinsic motivation, and statistics anxiety on procrastination in online statistics. *Innovative Higher Education*, 39, 33–44.

- Finkenauer, C., Engels, R. C. M. E., Baumeister, R. F. (2005): Parenting behavior and adolescent behavioural and emotional problems: The role of self-control. *International Journal of Behavioral Development*, 29, 58-69.
- Gabrhelík, R. (2008): Akademická prokrastinace: Ověření sebeposuzovací škály, prevalence a příčiny prokrastinace. [Vyhřádané na http://is.muni.cz/th/114738/fss_d/Proc_disertace_gab.pdf]
- Gabrhelík, R., Vacek, J., Mioviský, M. (2006): Prokrastinace: Validizace sebeposuzovací škály na populaci studentů vysokých škol. *Československá psychologie*, 50(4), 361-371.
- Gosling, S. D., Rentrow, P. J., Swann, W. B., Jr. (2003): A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, 37, 504-528.
- Grunová, M. (2015): Akademická prokrastinace a její negativní dopady na vysokoškolské studenty. *Pedagogika.sk*, 6(4), 261-280.
- Hřebíčková, M. (2011): *Pětifaktorový model v psychologii osobnosti*. Praha, Grada Publishing.
- Johnson, J. L. (1995): An analysis of the contribution of the five factors of personality to variance in academic procrastination. *Personality and Individual Differences*, 18(1), 70-87.
- Karwowski, M., Lebeda, I., Wisniewska, E., & Gralewski, J. (2013). Big five personality traits as the predictors of creative self-efficacy and creative personal identity: Does gender matter?. *The Journal of Creative Behavior*, 47(3), 215-232.
- Khan, M. J., Arif, H., Noor, S. S., Muneer, S. (2014). Academic procrastination among male and female university and college students. *Journal of Social Sciences*, 8(2), 65-70.
- Košč, M., Heftyová, E., Schwarzer, R., Jerusalem, M. (1993): Slovakian Adaptation of the General Self-Efficacy Scale. [Available at <http://userpage.fu-berlin.de/~health/slovak.htm>]
- Köveřová, N. (2017): Demografické, osobnostné a motivačné prediktory prokrastinácie u stredoškolských študentov. In: Maierová, E., Viktorová, L., Suchá, J., Dolejš, M. (Eds.), PhD. Existence 2017: Sborník odborných příspěvků. Olomouc, Univerzita Palackého v Olomouci, 46-57.
- Lee, E. (2005): The relationship of motivation and flow experience to academic procrastination in university students. *The journal of genetic psychology*, 166(1), 5-14.
- Lodi-Smith, J., Roberts, B.W. (2007): Social investment and personality: A meta-analysis of the relationship of personality traits to investment in work, family, religion, and volunteerism. *Personality and social psychology review*, 11, 68-86.
- Malkoç, A., Mutlu, A. K. (2018): Academic self-efficacy and academic procrastination: Exploring the mediating role of academic motivation in Turkish university students. *Universal journal of educational research*, 6(10), 2087-2093.
- Montgomery, C., & Rupp, A. A. (2005). A meta-analysis for exploring the diverse causes and effects of stress in teachers. *Canadian Journal of Education/Revue canadienne de l'éducation*, 458-486.
- Nadeem, M., Malik, A. A., & Javaid, F. (2016). Link between personality traits and procrastination among university students. *Journal of educational research*, 19(2), 92.
- Pychyl, T. A., & Sirois, F. M. (2016). *Procrastination, emotion regulation, and well-being*. In Procrastination, health, and well-being (pp. 163-188). Academic Press.
- Qualitative research reports in communication, 12(1), 10-18.
- Roberts, B. W., Jackson, J. J., Fayard, J. V., Edmonds, G., & Meints, J. (2009). *Conscientiousness*. In M. R. Leary & R. H. Hoyle (Eds.), *Handbook of individual differences in social behavior* (p. 369-381). The Guilford Press.
- Roberts, B. W., Wood, D. (2006): *Personality development in the context of the neo-socioanalytic model of personality*. In: Mroczek, D. K., Little, T. D. (Eds.), *Handbook of personality development*. New Jersey, Lawrence Erlbaum Associates, 11-39.
- Romer, D., Duckworth, A. L., Sznitman, S., Park, S. (2010): Can adolescents learn self-control? Delay of gratification in the development of control over risk taking. *Prevention science*, 11(3), 319-330.
- Schraw, G., Wadkins, T., & Olafson, L. (2007). Doing the things we do: A grounded theory of academic procrastination. *Journal of Educational psychology*, 99(1), 12.
- Schweigerová, K., Slavkovská, M. (2015): *Akademická prokrastinácia v kontexte exekutívnych funkcií*. E psychologie, 9(2), 26 - 35.
- Skaalvik, E. M., & Skaalvik, S. (2009). Does school context matter? Relations with teacher burnout and job satisfaction. *Teaching and teacher education*, 25(3), 518-524.
- Steel, P., & Ferrari, J. (2013). Sex, education and procrastination: An epidemiological study of procrastinators' characteristics from a global sample. *European Journal of Personality*, 27(1), 51-58.
- Steel, P., & Klingsieck, K. B. (2016). Academic procrastination: Psychological antecedents revisited. *Australian Psychologist*, 51(1), 36-46.
- van Eerde, W. (2003). A Meta-Analytically Derived Nomological Network of Procrastination. *Personality and Individual Differences*, 35, 1401-1418.

TEACHERS' WELLBEING: THE ROLE OF CALLING ORIENTATION, JOB CRAFTING AND WORK MEANINGFULNESS

Lana Jurčec, Tajana Ljubin Golub, & Majda Rijavec
Faculty of Teacher Education, University of Zagreb (Croatia)

Abstract

People who consider their work as a calling find it fulfilling, purposeful, and socially useful, thus leading to higher levels of well-being. Since work is a central part of the identity of people with calling orientation and represents one of the most important domains of their lives, we assume that they are more prone to craft their job. They tend to make the physical and cognitive changes in the task or relational boundaries of their work in order to make it more meaningful. Both experiencing work as a calling and job crafting are found to be associated with numerous positive outcomes such as increased job satisfaction, psychological well-being and sense of meaning. This study adds to literature by exploring simultaneously the role of both calling orientation and job crafting in primary teacher's wellbeing.

The aim of the study was to explore the relationship between teachers calling orientation, job crafting, work meaningfulness and well-being. In light of the literature on work meaningfulness and psychological well-being, a serial mediation model was proposed with job crafting and work meaningfulness mediating the relationship between teacher calling orientation and teacher flourishing.

The sample consisted of 349 primary school teachers (95% female) from public schools in northern western region of Croatia. They have on average 22 years of teaching experience (ranged from 0-43 years). Self-report measures of calling orientation (Work-Life Questionnaire), job crafting (Job Crafting Scale), work meaning (Work Meaningfulness scale) and flourishing (Flourishing Scale) were used.

The findings revealed that the job crafting via increasing structural job resources mediated the relationship between calling orientation and work meaningfulness. Furthermore, the results supported the proposed serial mediation between calling orientation and flourishing via increasing structural job resources and increasing work meaningfulness.

Based on these findings, several practical implications can be noted. First, interventions aimed at helping teacher view their job as a calling should be promoted in schools. Second, teachers should be encouraged to cultivate job crafting as it is an important path to meaningfulness in work context and overall psychological wellbeing. This is specially the case for increasing structural job resources, such as autonomy and variety at work.

Keywords: *Calling, flourishing, job crafting, teachers, well-being.*

1. Introduction

Research suggests that people tend to frame their relationship to work in different ways: as job, career, and calling (Bellah, Madsen, Sullivan, Swidler & Tipton, 2008; Wrzesniewski, 2003). For some employees' work is "just a job", a source of financial security and is not a central part of their identity. Some see their work as career and are focused on advancement and achievement of professional goals (Bellah et al., 2008; Wrzesniewski, 2003). They invest more in their professional identity than those with a job orientation. Finally, employees with a calling orientation view their work as a fulfilling and intrinsically rewarding, purposeful, and socially useful. Therefore, work is a central part of their identity and represents one of the most important domains of their lives (Bellah et al., 2008; Wrzesniewski, 2003; Wrzesniewski, McCauley, Rozin, & Schwartz, 1997). Although, all abovementioned work orientations were researched, majority of studies focused on the calling orientation (e.g. Harzer & Ruch, 2012; Peterson, Park, Hall & Seligman, 2009).

It is generally believed that teachers tend to experience their work as a calling more often than employees in other professions (e.g., Hagmaier & Abele, 2012). Previous studies revealed that it is a rather frequent phenomenon, the percentage of teachers with calling orientation varying from 45% in United Kingdom to 83% in Croatia (e.g., Bullough & Hall-Kenyon, 2012; Rijavec, Pečjak, Jurčec & Gradišek, 2015).

The relationship between calling orientation and various positive outcomes including well-being is well established. Calling orientation has been found to be positively related to life and job satisfaction, work and life meaning and zest (e.g., Duffy & Dik, 2013; Duffy, England, Douglass, Autin, & Allan, 2017). Several studies confirmed strong links of calling orientation and perception of meaningful work (e.g., Bunderson & Thompson, 2009; Willemsse & Deacon, 2015). However, according to Work as Calling Theory (for review see Duffy, Dik, Douglass, England, & Velez, 2018; Duffy, Douglass, Autin, England, & Dik, 2016) calling and meaningful work each affect each other over time, meaning that perceiving a calling will lead to experience increased work meaning, which in turn will lead to an increased sense of living a calling and consequently to a positive outcome such as well-being. In calling theory both personal and contextual factors are highly relevant and if incongruence occur, person might promote the work meaningfulness through job crafting (Berg, Dutton, Wrzesniewski, 2013). Job crafting has been defined as process of self-initiated redefining and reimagining relational, behavioral, and cognitive work engagements in personally meaningful ways (Wrzesniewski & Dutton, 2001). However, it is yet not clear which components of job crafting are most relevant for increasing work meaningfulness. In addition, there is no study researching the role of job crafting and meaningfulness as mediators in the relationship between calling and well-being.

Based on the above-mentioned research, we assume that teachers with calling orientation are more prone to craft their job thus making it more meaningful, which in turn, increase teacher's well-being.

2. Objectives

The central aim of this study is to examine the relationship between perceiving work as a calling, job crafting, work meaningfulness and well-being in primary school teachers. First, we aimed to investigate what job crafting dimensions mediate in the relationship between calling orientation and work meaningfulness. Second, we aimed to test whether job crafting and work meaningfulness mediates between calling orientation and flourishing.

3. Method

3.1. Participants and Procedure

The sample consisted of 349 primary school teachers (95% female) from public schools in northern western region of Croatia. An average length of service was 22 years (ranged from 0-43 years of teaching experience). Questionnaires were administered during the primary teachers' professional meetings at the county level and lasted approximately 20 minutes. Participants were informed about the aim of the research, assured that all collected data would remain confidential, and used for research purposes only.

3.2. Instruments

Work-Life Questionnaire (Wrzesniewski et al., 1997) is a 3-item questionnaire measuring the attitude towards work. The questionnaire includes three brief scenarios, which describe individuals who approach work as a Job, a Career, and Calling. Each scenario is rated on a 4-point Likert scale to indicate their likeness to how similar they are to the person described (from 1 - *not at all like me*, through 4 - *very much like me*). In this study only the Calling scenario was used. Extract from the scenario (p. 24):

Person's work is one of the most important parts of his life. He is very pleased that he is in this line of work. He tends to take his work home with him and on vacations, too. He is very satisfied with his work and feels good about his work because he loves it, and because he thinks it makes the world a better place.

The job crafting scale (Tims, Bakker, & Derks, 2012) was used for assessing job crafting scale. The scale measures four dimensions of job crafting using 21 items. The four scales are *increasing structural job resources* (e.g., "I make sure that I use my capacities to the fullest"), *increasing social job resources* (e.g., "I ask others for feedback on my job performance") *increasing challenging job demands* (e.g. "If there are new developments, I am one of the first to learn about them and try them out"), and *decreasing hindering job demands* (e.g., "I try to ensure that my work is emotionally less intense"). Respondents indicate how often they engaged in each of the behaviors on a 5-point Likert scale ranging from 1 (*never*) to 5 (*very often*).

Work Meaningfulness scale (Bunderson & Thompson, 2009) measures perceived meaning at work with the five-item scale (e.g., "I have a meaningful job"). Individuals respond to each item on a 5-point Likert scale ranging from 1 (*not at all through*) to 5 (*completely*). Higher overall (average) score indicates greater work meaningfulness.

Flourishing Scale (Diener et al., 2009) is an eight-item measure of positive human functioning, including perceived success in areas such as competence, engagement with daily activities, meaning and purpose in life, positive relationships, and optimism (e.g. “I am competent and capable in the activities that are important to me”). Participants rated items on a 7-point scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher score indicates higher level of eudemonic dimensions of well-being. All scales were used previous in Croatian samples and shown adequate psychometric characteristics (Miljković, Jurcec, & Rijavec, 2016; Rijavec et al., 2016; Vid, Glavaš, & Rijavec, 2019).

4. Results

4.1. Descriptive statistics and correlations

The descriptive statistics and intercorrelations of all measured variables are presented in Table 1.

Table 1. The descriptive statistics and intercorrelations of calling work orientation, job crafting, work meaningfulness and flourishing.

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1. Calling | | .19** | .23** | -.09 | .07 | .40** | .28** |
| 2. Increasing structural job resources | | | .59** | .27** | .19** | .28** | .46** |
| 3. Increasing challenging job demands | | | | .18** | .33** | .16** | .31** |
| 4. Decreasing hindering job demands | | | | | .01 | -.08 | .05 |
| 5. Increasing social job resources | | | | | | .07 | .16** |
| 6. Work meaningfulness | | | | | | | .33** |
| 7. Flourishing | | | | | | | - |
| Min - max | 1.00-5.00 | 2.80-5.00 | 1.00-5.00 | 1.60-5.00 | 1.00-5.00 | 3.00-5.00 | 2.50-5.00 |
| Cronbach's alpha | n.a. | .86 | .88 | .73 | .84 | .80 | .90 |
| M | 3.42 | 4.28 | 3.35 | 3.16 | 2.83 | 4.71 | 5.83 |
| SD | 0.75 | 0.54 | 0.78 | 0.64 | 0.73 | 0.37 | 0.77 |

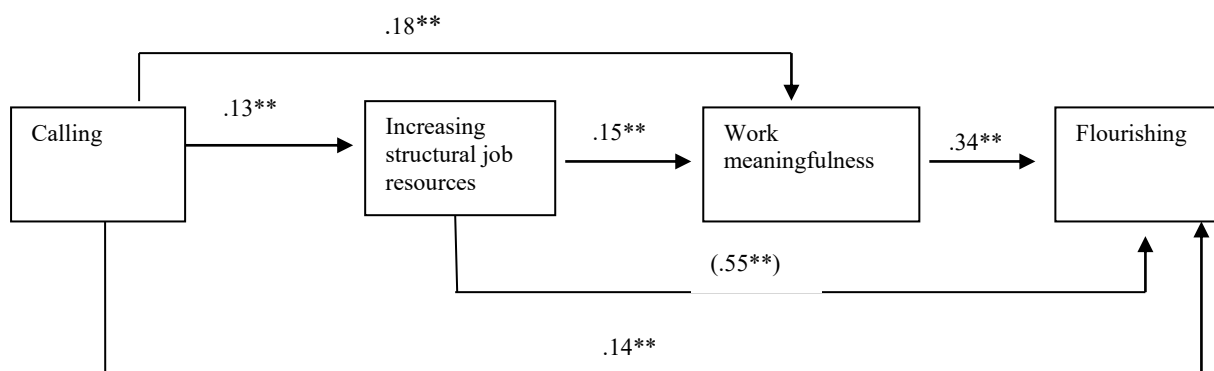
Note: * $p < .05$; ** $p < .01$

4.2. Mediating role of job crafting dimensions in the relationship between calling orientation and work meaningfulness

Parallel mediation analyses with four mediators using the PROCESS macro for SPSS were performed to test the hypothesized mediation role of job crafting dimensions in the relation between calling orientations and work meaningfulness. A Monte-Carlo (bootstrapping) approximation was obtained with 2000 bootstrap resamples (the 95% confidence). The models tested job crafting dimensions as mediators between calling and work meaningfulness. Results confirmed only the partial mediating role of increasing structural job resources (CI = .11 to .28)

Since only increasing structural job resources was found to mediate between calling orientation and work meaningfulness, we assessed the serial mediation of increasing structural job resources and work meaningfulness in the relationship between calling orientation and flourishing. Results confirmed the serial mediation (CI = .00 to .02) (Figure 1).

Figure 1. Increasing structural job resources and work meaningfulness as mediators between calling orientation and flourishing.



Note. Numerical values represent standardized path coefficients (β). P-values: * $p < .05$; ** $p < .01$; *** $p < .001$.

5. Discussion

This study proposed a model linking calling orientation with well-being. We hypothesized that both job crafting and work meaningfulness operate as mediators in the relationship between calling orientation and well-being. More specifically, it was proposed that perceiving work as a calling would lead to higher levels of job crafting, which in turn, would lead to the higher work meaningfulness and consequently higher flourishing.

Present study confirmed significant relationship between calling orientation and meaningful work as was expected by the previous studies (e.g., Bunderson & Thompson, 2009; Duffy, Allan, Autin, & Bott, 2013; Willemse & Deacon, 2015). The results of parallel mediation analyses revealed that job crafting via increasing structural job resource partially mediated the relationship between calling orientation and work meaningfulness. Furthermore, results of serial mediation showed that increased structural job resources and work meaningfulness foster teacher's well-being. Findings suggest that a sense of calling leads teachers to craft their jobs by increasing structural job resources through creating opportunities for professional development (e.g., skills, talents, competencies) and autonomy which in turn fulfill their work with meaning and purpose. This finding is consistent with studies finding that job crafting (Tims et al. 2012; Slemp & Vella-Brodrick, 2014) and meaningful work (Blake, Batz-Barbarich, Sterling, & Tay, 2019; Miljkovic, et al., 2016) predicted well-being.

Recent research has found that key mechanisms in transferring one's calling into job crafting behavior are career commitment, occupational self-efficacy and job autonomy (Chang, Rui, & Lee, 2020). Individuals who perceive their work as a calling are more aware of their goals and mission to achieve (Fried, Grant, Levi, Hadani, & Slowik, 2007) and motivated to gain responsibility for their own career development (Hall & Chandler, 2005) thus crafting their work to fit their capacities. This study found that increasing structural job resources leads to work meaningfulness which in turn transfers to higher wellbeing. On the other hand, increasing challenging job demands and social job resources were associated with higher flourishing, but these relationships were not mediated through work meaningfulness. Thus, these proactive work behaviors, as found in present study, directly and indirectly through making job more meaningful promote teachers flourishing. It is worth noting that decreasing hindering job demands was proactive behavior which was not related to teachers' wellbeing measured as flourishing. Further studies may investigate whether this component of proactive behavior is more related to lower level of work stress and burnout.

Limitation of the study includes teacher sample, and the study should be replicated with other samples of teachers. Besides corroborating the findings of this study, future study may further investigate the role of teachers age, work experience or organizational climate in school as possible moderator factors in the relationship between calling, job crafting behaviors and teachers' wellbeing. However, based on these findings, teachers should be encouraged to cultivate job crafting, especially structural job resources, as it is an important path to meaningfulness in work context and overall psychological well-being.

References

- Bellah, R. N., Madsen, R., Sullivan, W. M., Swidler, A., & Tipton, S. M. (1985). *Habits of the heart*. Berkeley: University of California Press
- Berg, J. M., Dutton, J. E., & Wrzesniewski, A. (2013). *Job crafting and meaningful work*. In B. J. Dik, Z. S. Byrne, & M. F. Steger (Eds.), *Purpose and meaning in the workplace* (p. 81–104). American Psychological Association. doi:10.1037/14183-005
- Blake A. A., Batz-Barbarich, C., Sterling, H. M. and Tay, L. (2019). Outcomes of Meaningful Work: A Meta-Analysis. *Journal of Management Studies*, 56(3), 500-528. doi:10.1111/joms.12406
- Bullough, R. V., Jr. & Hall-Kenyon, K. M. (2012). On teacher hope, sense of calling, and commitment to teaching. *Teacher Education Quarterly*, 39(2), 7 – 27.
- Bunderson, J. S., & Thompson, J. A. (2009). The call of the wild: Zookeepers, callings, and the double-edged sword of deeply meaningful work. *Administrative Science Quarterly*, 54(1), 32-57. doi:10.2189/asqu.2009.54.1.32
- Chang, P. C., Rui, H., & Lee, A. Y. (2020). How Having a Calling Leads to Job Crafting: A Moderated Mediation Model. *Frontiers in psychology*, 11, 1-11. doi:10.3389/fpsyg.2020.552828
- Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Biswas-Diener, R. (2009). New measures of well-being: Flourishing and positive and negative feelings. *Social Indicators Research*, 39, 247-266. doi:10.1007/978-90-481-2354-4_12
- Duffy, R. D., & Dik, B. J. (2013). Research on calling: What have we learned and where are we going? *Journal of Vocational Behavior*, 83(3), 428-436. doi:10.1016/j.jvb.2013.06.006

- Duffy, R. D., Allan, B. A., Autin, K. L., & Bott, E. M. (2013). Calling and life satisfaction: It's not about having it, it's about living it. *Journal of Counseling Psychology, 60*, 42–52. doi:10.1037/a0030635.435
- Duffy, R. D., Dik, B. J., Douglass, R. P., England, J. W., & Velez, B. L. (2018). Work as a calling: A theoretical model. *Journal of Counseling Psychology, 65*(4), 423-439. doi:10.1037/cou0000276
- Duffy, R. D., Douglass, R. P., Autin, K. L., England, J., & Dik, B. J. (2016). Does the dark side of a calling exist? Examining potential negative effects. *The Journal of Positive Psychology, 11*(6), 634-646. doi:10.1080/17439760.2015.1137626
- Duffy, R. D., England, J. W., Douglass, R. P., Autin, K. A., & Allan, B. A. (2017). Perceiving a calling and well-being: Motivation and access to opportunity as moderators. *Journal of Vocational Behavior, 98*, 127–137. doi:10.1016/j.jvb.2016.11.003
- Fried, Y., Grant, A. M., Levi, A. S., Hadani, M., & Slowik, L. H. (2007). Job design in temporal context: a career dynamics perspective. *Journal of Organisational Behaviour, 28*, 911–927. doi: 10.1002/job.486
- Hagmaier, T., & Abele, A. E. (2012). The multidimensionality of calling: Conceptualization, measurement and a bicultural perspective. *Journal of Vocational Behavior, 81*(1), 39-51. <https://doi.org/10.1016/j.jvb.2012.04.001>
- Hall, D. T., and Chandler, D. E. (2005). Psychological success: when the career is a calling. *Journal of Organisational Behaviour, 26*, 155–176. doi: 10.1002/job.301
- Harzer, C., & Ruch, W. (2012). When the job is a calling: The role of applying one's signature strengths at work. *The Journal of Positive Psychology, 7*(5), 362–371.
- Miljković, D., Jurčec, L., & Rijavec, M. (2016). The relationship between teachers' work orientations and well-being: mediating effects of work meaningfulness and occupational identification. In Z. Marković, M. Đurišić Bojanović & G. Đigić (Eds.), *Individual and Environment: International Thematic Proceedia* (pp. 303-312). Niš, Serbia: Faculty of Philosophy. doi:10.1080/17439760.2012.702784
- Peterson, C., Park, N., Hall, N., & Seligman, M. E. P. (2009). Zest and work. *Journal of Organizational Behavior, 30*, 161-172. doi:10.1002/job.584
- Rijavec, M., Pečjak, S., Jurčec, L., Gradišek, P. (2016). Money and Career or Calling? Intrinsic vs. Extrinsic Work Orientations and Job Satisfaction of Croatian and Slovenian Teachers. *Croatian Journal of Education, 18*(1), 201-223. doi:10.15516/cje.v18i1.1163
- Slemp, G. R., & Vella-brodrick, D. (2014). Optimising employee mental health: The relationship between intrinsic need satisfaction, job crafting, and employee well-being. *Journal of Happiness Studies, 15*(4), 957-977. doi:10.1007/s10902-013-9458-3
- Tims, M., Bakker, A. B., & Derks, D. (2012). Development and validation of the job crafting scale. *Journal of Vocational Behavior, 80*, 173–186. doi:10.1016/j.jvb.2011.05.009
- Vid, I., Glavaš, D., & Rijavec, M. (2019, December 12-14). *Uloga preoblikovanja posla u odnosu između proaktivne ličnosti i dobiti, zadovoljstva poslom i zanesenosti na poslu* [The role of job crafting in the relationship between proactive personality and well-being, job satisfaction and work related flow] [Poster presentation]. 2nd International Scientific Conference Brain and Mind: Promoting Individual and Community Well-Being, Zagreb, Croatia. <https://www.unicath.hr/conference/2019-psychology>
- Willemse, M., & Deacon, E. (2015). Experiencing a sense of calling: The influence of meaningful work on teachers' work attitudes. *SA Journal of Industrial Psychology, 41*(1), 1-9. doi:10.4102/sajip.v41i1.1274
- Wrzesniewski, A. & Dutton, J. E. (2001) Crafting a Job: Revisioning Employees as Active Crafters of Their Work. *Academy of Management Review, 26*(2), 179-201. doi: 10.2307/259118
- Wrzesniewski, A. (2003). Finding positive meaning in work. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 296–308). San Francisco: Berrett- Koehler.
- Wrzesniewski, A., McCauley, C. R., Rozin, P. & Schwartz, B. (1997). Jobs, careers, and callings: people's relations to their work. *Journal of Research in Personality, 31*, 21–33. doi:10.1006/jrpe.1997.2162

VICTIMIZED TEACHERS' EXPERIENCES ABOUT TEACHER-TARGETED BULLYING BY STUDENTS

Kristi Kõiv, & Minni Aia-Utsal

Institute of Education, University of Tartu (Estonia)

Abstract

The aim of this study was to gain insights into the bullying of teachers by their learners from the perspective of victims of teacher-targeted bullying by learners. This study followed a qualitative and descriptive research design stemming from semi-structured personal interviews with victims of teacher-targeted bullying. A thematic content analysis of the data generated from semi-structured personal interviews with six victimized teachers as a snowball sampling. The sample consisted of male (n=2) and female (n=4) participants from rural (n=3) and urban (n=3) school locations in Estonia. The focus of this study was to determine how the teachers who have experienced bullying by their students describe the nature, influence and reasons attributed to such bullying. The findings indicate that the victims of teacher-targeted bullying by students were exposed repeatedly over long time verbal bullying, ignoring the teacher and other threats and cyber-attacks directed against teachers, whereby line between learners' misbehavior at classroom and bullying behavior was recognized viewing bullying as group-based phenomenon. Bullying against teachers by pupils had a negative influence on the victims' teaching and learning, as well as their private lives; and victims perceived the lack of support from educational authorities.

Keywords: *Teacher-targeted bullying, victimized teachers, qualitative research.*

1. Introduction

In comparison with the international area of studies pertaining to school bullying and workplace bullying (Monks & Coyne, 2011), teacher-targeted bullying by students has received relatively little research attention. The term used to describe the bullying behavior of learners targeting the persons who are providing the knowledge is classified as Educator-Targeted Bullying or Teacher-Targeted Bullying (e.g. De Wet & Jacobs, 2006, De Wet, 2010, 2012; Kõiv, 2020; Ozkiliç & Kartal, 2012; Pervin & Turner, 1998) and in this approach as teacher-targeted bullying (TTB) involves the bullying of teacher by student with the three central components of a bullying definition – repetition, intention and power imbalance require consideration in teacher-learner relations at school context.

More than two decades have passed since the publication of Pervin and Turner's (1998) report the challenges for schools to notice the existence of TTB is still alive, despite the fact that for the past ten years, there was a substantial increase in the prevalence of teacher targeted bullying (Kõiv, 2015). Previous international studies (in Estonia, Finland, Ireland, Malaysia, New Zealand, South Africa, Turkey) on the TTB have predominantly examined the problem in terms of nature, prevalence, negative effects and risk factors among teachers (quantitatively: Benefield, 2004; Billett, Fogelgarn, & Burns, 2019; De Wet, 2006; De Wet & Jacobs, 2006; Kõiv, 2015; Özkiliç, 2012; Özkiliç & Kartal, 2012; Pervin & Turner, 1998; Santos & Tin, 2018; Uz & Bayraktar, 2019; Terry, 1998; Woudstra, Van Rensburg, Visser, & Jordaan, 2018; among teachers as victims of TTB (qualitatively: Bester, Du Plessis, & Treurnich, 2017; De Wet, 2010, 2012; quantitatively: Kauppi & Pörhölä, 2012a, 2012b; Kõiv, 2020), and also carried on via social media (qualitatively: De Wet, 2019). Although, teacher-directed violence is an issue analyzed in international arena (Longobardi et al., 2019) studies predominantly look at this phenomenon from the perspective of the teachers and only limited studies have focused on the teachers as victims' perspective.

Nevertheless, there is an agreement that adequate teaching and learning cannot take place when teachers are bullied by their learners (e.g. De Wet, 2010; Pervin & Turner, 1998). These challenges suggest that there is a need to gather data from victimized teachers reports about their experiences of TTB. Present study attempted to have a deeper focus on the personal experiences of schoolteachers from Estonia who were victims of learner bullying.

The aim of this study is to report on findings from a qualitative study on the teachers' subjective experiences and perceptions of having been victims of learner bullying in three areas: nature, influence

and reasons of the bullying of teachers by students. Research question was evoked: How teachers who were victims of learner bullying describe the teacher-targeted bullying at schools?

2. Methodology

2.1. Research design and sampling

This study followed a qualitative, exploratory and descriptive research design. The selection of the participants for this study was purposeful snowball sampling based on the fact they were victims of learner bullying at schools. The sample consisted of male (n=2) and female (n=4) participants from rural (n=3) and urban (n=3) school locations in Estonia. The mean age of the participants was 43 years (SD=4.21) ranging from 32 to 58-year old. The average number of years in the teaching profession for the participants was 22 years (SD=7.84).

2.2. Data collection

The questions were posed to the participants during the semi-structured interview based on questions developed from Pervin and Turner's (1998) measure of Teacher Targeted Bullying with focusing on participant's subjective experiences and perceptions in three areas – nature, influence and reasons attributed to teacher-targeted bullying.

The participants were contacted individually by the authors and after an informed consent process they agreed to participate in a semi-structured interview which was conducted at a neutral site outside the school environment. At the beginning of individual interview, a clear definition of bullying was presented (Kõiv, 2015) to help participants understand her/his perspective of bullying, which ensured the understandability of the research. Interviews were conducted until definite themes became evident and the information became saturated.

The ethical principles guided the study - confidentiality of the findings and protection of their identities, were explained to the educators. Despite the sensitivity of the topic, mutual trust and rapport were established. The individual interviews lasted between 45 minutes to one and half hour and the interviews were audio-recorded and transcribed.

2.3. Data analysis

Thematic content analysis was used to analyze the data gathered through transcribed interviews in the evaluation of key words, meanings, and themes during the data analyze process: data were segregated, grouped, regrouped, and re-linked in order to unify meaning and explanation. Data (interview transcripts) and investigator triangulation (two researchers read and coded the transcripts and took part in consensus discussions) were used to strengthen the study.

3. Findings

Based on the aim of this research three main themes and ten subthemes emerged from the collected data.

Theme 1: Nature of TTB

Characteristics of TTB

Victimized participant teachers described bullying as "...a negative behavior that occurs repeatedly over time and causes distress" with characteristics of power imbalance between bully as a pupil and target as teacher. The aggressive acts against the teachers were described as intentional, repetitional and long-lasting – the duration of victimizations last more than half years or whole school year with still being victimized by learners.

Bullying as a phenomenon was described by participants as a hidden process without or refuse to use the term "teacher targeted bullying" showing hidden vulnerabilities among the victims of student bullying as reflection of negative meaning of this term.

I never named it – I found that it's just a bad behavior, although I felt the behavior was intentionally directed towards me. I didn't say that it is a teacher targeted bullying by a student. I said that young man is interrupting.

Forms of TTB

The transcript of victimized participants' interview shows that the participants in this study were victims of verbal bullying (teasing, name calling, shouting, mimicking), threatening of physical (e.g. throwing school supplies) abuse, gesture bullying (threatening signs, dirty looks), exclusion (leaving out physically, ignoring on purpose), relational (gossiping, whispering, spreading rumors), and cyber bullying (visual and text messages) with verbal abuse and ignoring as the most prevalent forms. Victimized participants also described that TTB takes form of several manifestations of learner repeated disruptive behavior as breaking discipline rules in the classroom.

Context of the TTB

The victims of TTB describe bullying as a group-based phenomenon as group of students repeatedly behave in an adversarial way that undermines or harms the teacher during lessons. Teachers perceived that leaders of the peer group started aggressive acts toward them to gaining attention and gratification from other peers and being supported by bystanders in group context.

He indicated that he would not accept me as a teacher, refused to work, interrupted constantly in the lesson. He had many followers, he was the leader in the group. Peers laughed, went along with him and it was impossible to continue with the lesson...

Teachers as victims were targeted in the classroom during regular lessons, but also outside regular lessons by cyberbullying, whereby being bully-abused by both girls and boys.

Theme 2: Influence of TTB

Influence of TTB on victims' personal characteristics

From the interviews with victimized teachers, it became clear that they often feel helpless, feeling guilty, anger, humiliation in addressing acts of TTB. Also, the negative outcomes for the participants were connected to negative career implications and also with workplace and family stress. Many victimized teachers believed that their personal and work-related reputation and authority were damaged.

The positive personal outcomes included a belief of respondents that the experience of taking effective action against the TTB had some personal worth or value for improving self-confidence and suggestions for future self-assertion strategies and skills to prevent or intervene in bullying incidents.

I went in confidently and said that you will listen to me assertively. Afterwards we got along very well.

The influence of TTB on the teaching practice

Several participants pointed out that their estimation of the teaching profession has changed as a result of their own negative experiences and victims have questioning their own professional abilities as a result of their victimization. Victims of TTB expressed that they started to use more passive strategies for handling the TTB with lowering their expectations in terms of behavior and teaching activities toward the learners who bullied them. As a result, they started purposely ignore misbehavior of bullies in the classroom.

Theme 3: Reasons for TTB

Personal reasons

The participants paid attention to the personal risks connected with TTB as being easily provoked or intimidated by the perpetrators. The effects on the personal vulnerability of the TTB expressed in different ways. In some cases, participants acknowledged that they can be easily irritated as some learners purposely bully them, and if they lose his/her temper it brings him/her into disrepute with the principal. In some cases, it even resulted in the suspension of classes – when the teacher as victim of TTB lost his/her temper then he/she stopped teaching. In some cases, according to notions of participants, students often “run” to the class teacher and complain about the minor academical or methodological “mistakes” of teacher in classroom practice. Victimized teachers expressed the feelings of powerlessness describing learners who bully them intentionally trying to disempower them.

I understood that no one else couldn't solve this problem - this was the turning point. This was only a temporary solution and it shows me being even more weak, incompetent - she can't handle the situation by her own and has to ask somebody to help.

Reasons connected with students

Several participants mentioned that the negative attitude towards teachers and negative attitude toward schoolwork of student perpetrator is a risk for them for TTB victimization. Students partial or missed control over their learning outcomes with experiences of boredom was mentioned as the other reasons why learners bully their educators.

Student bullied because of boredom. He did his own thing because he found that studying is pointless. Now he went to other school and bullies teachers there.

Family related reasons

Parents' unwillingness to discipline their children at home and parents' negative attitudes towards teachers with justifying the aggression may be seen as purpose of TTB by present study participants. The victimized teachers believed that parents often reinforced such teacher targeted bullying behavior by not teaching children to take responsibility for consequences of their behavior. Also, the participants described and believed that bullies use a third party, such as their parents and his principal to bully them.

Parents do not admit that their child has done something wrong, they do not understand and they rather see that their child is being bullied by the teacher.

Institutional reasons

All victim-participants believed that the young and inexperienced of teachers may be purpose for TTB with mentioning that victimization may occur often when teacher is a beginner or the new at school. A half of the participants suggested that the listening and care attitude of their colleagues with

suggestions to discipline perpetuates of the TTB help them understand the situation and find self-management skills to trickle with bullying. On the contrary, the half of the participants said that they received no support from their colleagues and school management team help them to manage with bullying incidences by changing the class they teach. On a professional level participants' felt unsupported by school management team and teaching authorities. In some cases, the teachers were so overwhelmed by the bullying act that they felt compelled to leave the teaching profession as the negative impact on the victims' further career paths.

The school management usually do not understand - they do not comprehend that the teacher is being bullied. They think that teacher cannot maintain discipline. Officials in the educational field also do not understand – they speak about bullying between pupils, not teacher-targeted bullying by pupils.

Reasons connected with attitudes in society

The participants paid attention to the impact of broad societal reasons of the TTB. It was suggested by the participants that a lack of positive values in the community and in the educational authority level may be seen as underlying causes of the TTB with mentioning disregard or distort the phenomenon of TTB mainly through social media as blaming victims for their plight. At one side, majority of victimized teachers perceived that TTB is a very serious problem at the society and believed that this problem should be made public. At the other side, majority of victimized teachers perceived this phenomenon as a part of workplace context without possibilities to eliminate it completely.

...it doesn't matter what age or sex the bully is - it is like part of life - the bullying.

4. Discussion

This study focused on teachers who were victims of learner bullying and an analysis of the data generated from personal interviews with Estonian participant revealed that victimized teachers' conceptualization of the phenomenon of teacher-targeted bullying consists three central components – repetition, intention and power imbalance in teacher-learner relationship, accepting researchers definitions of bullying (e.g. Kõiv & Aia-Utsal, 2019), but victimized teachers tended to not use the term “teacher-targeted bullying” as a result of its negative and stigmatized characteristic.

In accordance with previous research (Wet, 2006, 2010; De Wet & Jacobs, 2006; Kauppi & Pörhölä, 2012a; Kõiv, 2015, 2020; Pervin & Turner, 1998; Santos & Tin, 2018; Terry, 1998; Woudstra et al., 2018) this study found that victims of TTB were exposed repeatedly over long time to verbal, non-verbal, indirect (e.g. exclusion) and physical abuse during regular classroom, whereby this study specifies results in the area of social context – the TTB was carried out by group of pupils; and learners disruptive group-based behavior may develop into the TTB if the misbehaving learners were perceived as willfully challenging the educators' authority in order to disempower them. Corroboratively, Kauppi, and Pörhölä (2012a) revealed that learners who willfully bully or victimize their teachers are basically trying to disempower them. Because the TTB bullying is rooted in both power dynamics (learner(s) achieve greater power over the teacher) and group dynamics within the peer group, there is an urgent need of peer group-level interventions for preventing TTB.

Through reflection participants identified influence of the TTB to their own personality and teaching styles and disciplinary strategies. Following previous studies (e.g. Billett, Fogelgarn & Burns, 2019; Woudstra et al., 2018) the TTB victimization experiences undermine teachers' confidence and authority as well as had the negative impact on the mental health of teachers.

Present study confirmed previous (De Wet, 2010; De Wet & Jacobs, 2006; Kõiv, 2019; Pervin & Turner, 1998; Özkilic, 2014; Özkilic & Kartal, 2012; Santos & Tin, 2018) works that victims of TTB had used more ignoring and passive strategies for handling the TTB cases with lowering their expectations in terms of co-operation and academic output toward learners who bullied them. The study data reveal not only negative, but also positive outcomes for the participants as improvement of self-confidence and self-assertion skills after effective handling bullying by taking action against the learners who bully them in the classroom. Also victimized teachers received some emotional support and consultation from colleagues to handle the TTB cases supporting previous (Billett, Fogelgarn, & Burns, 2019; De Wet, 2014; Kõiv, 2020; Kauppi & Pörhölä, 2012a; Pervin & Turner, 1998; Özkilic & Kartal, 2012; Woudstra et al., 2018) studies, but teachers as victims of student targeted bullying were highly vulnerable group with needs to have a sufficient support social network from school management teams and educational authorities.

The reasons for the TTB, as identified by the TTB victimized teachers, were found on the personal (teachers' vulnerability and students' negative attitudes and feeling of boredom), social group (school as institution and informal family group) and societal level supporting multi-level risk factors structure and essence of the TTB (De Wet, 2012) with highlights the importance of educational policies and practices regulating safety in schools to ensure productive learning environments and the need for full awareness of the phenomenon of TTB in society for improving social support networks in schools and in communities to prevent TTB.

However, the TTB is a real issue in real (school)life and deeper understanding of teachers' bullying experiences, their interpretations of the causes of bullying, and of how they were influenced by these experiences, may be a basis of better understanding of the problem in order to contribute to multilevel bullying prevention at school.

Limitations of the study are connected with the nature of qualitative research – a relatively small sample of participants and limitation of the generalizability of the findings gathered in this study. Also, there were ethical limitations connected with the difficulties to find participants as a reflection of challenges for socially sensitive research area.

References

- Benefield, J. (2004). *Teachers – the new targets of schoolyard bullies?* Paper to National Conference of the New Zealand Association for Research in Education, November 24–26, National Conference, Turning the Kaleidoscope, Westpac Stadium, Wellington, New Zealand.
- Bester, S., Du Plessis, A., & Treurnich, J. (2017). A secondary school teacher's experiences as a victim of learner cyberbullying. *Africa Education Review*, 14(3-4), 142–157.
- Billett, P., Fogelgarn, R., & Burns, E. (2019). *Teacher targeted bullying and harassment by students and parents*. Melbourne: La Trobe University.
- De Wet, C. (2006). Free State educators' experiences and recognition of bullying at schools. *South African Journal of Education*, 26(1), 61–73.
- De Wet, C. (2010). Victims of educator-targeted bullying: A qualitative study. *South African Journal of Education* 30(2), 189–201.
- De Wet, C. (2012). Risk factors for educator-targeted bullying: A social-ecological perspective. *Journal of Psychology in Africa*, 22(2), 239–243.
- De Wet, C. (2019). Understanding teacher-targeted bullying: Commenters' views. *Bulgarian Comparative Education Society*, 17(3), 94–100.
- De Wet, N. C., & Jacobs, L. (2006). Educator-targeted bullying: Fact or fallacy? *Acta Criminologica*, 19(2), 53–73.
- James, D. J., Lawlor, M., Courtney, P., Flynn, A., Henry, B., & Murphy, N. (2008). Bullying behaviour in secondary schools: What roles do teachers play? *Child Abuse Review*, 17(3), 160–173.
- Kauppi, T., & Pörhölä, M. (2012a). School teachers bullied by their students: Teachers' attributions and how they share their experiences. *Teaching and Teacher Education* 28(7), 1059–1068.
- Kauppi, T., & Pörhölä, M. (2012b). Teachers bullied by students: Forms of bullying and perpetrator characteristics. *Violence and Victims*, 27(3), 396–413.
- Kõiv K. (2015). Changes over a ten-year interval in the prevalence of teacher targeted bullying. *Procedia - Social and Behavioral Sciences*, 171, 126–133.
- Kõiv, K. (2019). Comparison of victimized and nonvictimized teachers' ways of handling schoolbullying incidents. *The European Proceedings of Social & Behavioural Sciences EpSBS*, LIII, 35–46.
- Kõiv, K. (2020). Description of teachers' experiences on being bullied by students. *European Proceedings of International Conference on Education and Educational Psychology EpICEEPSY 1*, 43–53.
- Kõiv, K., & Aia-Utsal, M. (2019). Social pedagogues' definitions of three types of bullying. In: P. Besedová, N. Heinrichová & J. Ondráková (Ed.). *The European Proceedings of Social & Behavioural Sciences EpSBS* (pp. 1–15). Barcelona, Spain: Future Academ.
- Longobardi, C., Badenes-Ribera, L., Fabris, M. A., Martinez, A., & McMahon, S. D. (2019). Prevalence of student violence against teachers: A meta-analysis. *Psychology of Violence*, 9(6), 596–610.
- Özkiliç, R. (2012). Bullying toward teachers: An example from Turkey. *Eurasian Journal of Educational Research*, 47, 95–112.
- Özkiliç, R., & Kartal, H. (2012). Teachers bullied by their students: how their classes influenced after being bullied? *Procedia - Social and Behavioral Sciences* 46, 3435–3439.
- Pervin, K., & Turner, A. (1998). A study of bullying of teachers by pupils in an inner London school. *Pastoral Care*, December, 4–10.
- Santos, A., & Tin, J. J. (2018). The nature, extent and impact of educator targeted bullying on school teachers in West Malaysia. *British Journal of Guidance & Counselling*, 46(5), 543–556.
- Terry, A. (1998). Teachers as targets of bullying by their pupils: A study to investigate incidence. *British Journal of Educational Psychology*, 68(2), 255–268.
- Uz, R., & Bayraktar, M. (2019). Bullying toward teachers and classroom management skills. *European Journal of Educational Research*, 8(2), 647–657.
- Woudstra, M. H., Van Rensburg, E. J., Visser, M., & Jordaan, J. (2018). Learner-to-teacher bullying as a potential factor influencing teachers' mental health. *South African Journal of Education* 38(1), 1–10.

THE ROLE OF ACHIEVEMENT GOALS IN MOTIVATIONAL REGULATION AND FLOW IN LEARNING

Tajana Ljubin-Golub

Faculty of Teacher Education, University of Zagreb (Croatia)

Abstract

Appropriate self-regulation in motivation and experiencing flow in learning and other academic activities are important factors for success in study and psychological wellbeing. Previous studies suggested that achievement goals have role in student's motivation for learning, but there is only partial knowledge regarding the role of achievement goals in motivational regulation and academic flow. The aim of this study was to explore: a) the role of achievement goals in motivational self-regulation and study-related flow; b) the incremental role of mastery self-talk motivational strategy in academic flow over the mastery-approach goal; c) the mediating role of mastery self-talk motivational strategy in the relationship between mastery-approach goal and academic flow. It was expected that both mastery-approach goal and mastery self-talk motivational strategy will have positive and incremental role in academic flow, and that the relationship between mastery-approach goal and academic flow would be mediated through using motivational strategy of mastery self-talk. The participants were 113 university undergraduate students studying mathematics ($M = 20$ years, 61% females). Self-report questionnaires assessing achievement goals, strategies used for self-regulation of motivation, and study-related flow were applied. Data analysis included regression analyses and mediational analyses. Regression analyses revealed that personal goal achievements explained 43% of variance in mastery self-talk strategy, 32% of variance in performance-approach self-talk strategy, 18% of variance in performance-avoidance self-talk strategy, 11% of variance in environmental control strategy, 7% of variance in self-consequating strategy, and 10% of variance in proximal goal strategy. Personal achievement goals explained 45% of variance in academic flow. Mastery-approach goal was predictive for explaining individual variance in most of positive motivational strategies and academic flow. In line with hypothesis, it was found that mastery self-talk mediated the relationship between mastery-approach goal and flow. The results underscore the importance of adopting mastery-approach goal and using mastery self-talk strategy in order to experience study-related flow.

Keywords: *Achievement goals, motivation, motivational regulation, flow.*

1. Introduction

Flow is an optimal state of experiencing deep concentration and absorption in activity, intrinsic motivation and enjoyment (Csikszentmihalyi, 1975). Flow can be experienced in various activities, including during learning and other study activities, i.e. in academic domain (study-related or academic flow). Experiencing academic flow was found to correlate positively with higher student engagement (Shernoff & Csikszentmihalyi, 2009) and academic achievement (e.g., Ljubin-Golub, Rijavec, & Olčar, 2016), but also with measures of well-being (e.g., Engeser & Rheinberg, 2008; Rijavec, Ljubin Golub, & Olčar, 2016; Steele & Fullagar, 2009), and may even prevent burnout (Ljubin-Golub, Rijavec, & Olčar, 2020; Rijavec & Ljubin Golub, 2019). Therefore, it is of interest to study factors which may increase experiencing academic flow. Based on Csikszentmihalyi theory (1975), and previous research in non-educational domain (Kowal and Fortier, 1999), it may be posited that having mastery orientation will lead to experiencing flow in academic domain more frequently. In educational domain previous studies found that students who perceived their teachers as providing more autonomy support experienced more autonomous learning motivation which, in turn led to more frequent flow in learning (Ljubin-Golub, Rijavec, & Olčar, 2020). However, there is only a limited number of researches investigating the role of achievement goals in academic flow. Study done in high school students in Malaysia found that experiencing flow in learning was correlated both to mastery and performance goals, while regression analyses showed that mastery goals was the only significant factor in explaining variance in flow (Mustafa, Elias, Roslan, & Mohd Noah, 2011). However, there is no study done on university students,

and no study used 2x2 achievement goal theory framework. This framework posits that both mastery and performance goals may be differentiated with regard to approach-avoidance distinction, i.e., whether one is focused on positive possibility to approach and achieve success or is focused on negative possibility to avoid failure (Elliot & McGregor, 2001). Combining the mastery-performance and approach-avoidance categories leads to four types of achievement goals: mastery-approach (attaining task-based or intrapersonal competence), performance-approach (attaining normative competence), mastery-avoidance (avoiding task-based or intrapersonal incompetence) and performance-avoidance (avoiding normative incompetence (Elliot & Muruyama, 2008, p. 614). Thus, it seems worth studying this topic more thoroughly.

Besides mastery-approach, it seems that self-regulation of motivation may also be important factor for experiencing flow. There are several self-regulating motivational strategies that students use to enhance motivation (Walters, 1998; Ljubin-Golub, Petričević, & Rován, 2019). Previous research found that mastery self-talk strategy was the most important predictor of academic flow (Ljubin-Golub, 2019). However, the role of mastery self-talk strategy it is not clear in the broader framework of motivation, e.g. in terms of achievement goal theory. Thus, the second aim of the study was to investigate simultaneously the role of both achievement goals and motivational regulation strategies in academic flow.

2. Objectives and hypotheses

Based on the above, the aims of this study were to explore: a) the role of achievement goals in motivational self-regulation and academic flow; b) the incremental role of mastery self-talk motivational strategy in academic flow over the mastery-approach goal; c) the mediating role of mastery self-talk motivational strategy in the relationship between mastery-approach goal and academic flow.

It was expected that mastery-approach and performance-approach goals would be positively related to mastery self-talk and performance-approach self-talk strategies, respectively, and also to academic flow (Hypothesis 1). It was also expected that both mastery-approach goal and mastery self-talk motivational strategy will have positive and incremental role in academic flow (Hypothesis 2), and that the relationship between mastery-approach goal and academic flow would be mediated through using motivational strategy of mastery self-talk (Hypothesis 3).

3. Methods

3.1. Participants and procedure

The convenience sample comprised 113 university undergraduate students majoring in mathematics education ($M = 20$ years, 61% females), on average 20 years old ($M = 20.29 \pm SD = 1.91$). Questionnaires were applied during regular psychology course. Participation in study was voluntarily and anonymously.

3.2. Instruments

Achievement goals were assessed by the modified 15-items The Achievement Goals Scale (AGS, Rován, 2011). The items in original scale assess achievement goals in relation to specific study course, while the modification for all items of the scale in this study was done in order to assess achievement goals in relation to the study as whole. The scale assesses student's mastery-approach goal, mastery-avoidance goal, performance-approach goal, performance-avoidance goal and work avoidance goal. All items were rated on 7-point scale ranging from 1 (*totally disagree*) to 7 (*totally agree*).

Motivational self-regulation strategies (MRSs) were assessed with the 30-item Motivational Regulation Questionnaire (MRQ, Schwinger et al., 2007), which is an extended version of Wolters's questionnaire (1999). The MRQ assesses eight motivational self-regulation strategies: (1) Enhancement of situational interest, (2) Enhancement of personal significance, (3) Mastery self-talk, (4) Performance-approach self-talk, (5) Performance-avoidance self-talk, (6) Environmental control, (7) Self-consequating, and (8) Proximal goal setting. All items were rated on 5-point scale ranging from 1 (*very rarely/never*) to 5 (*very often/always*).

Academic flow was assessed by the Study-Related Flow Inventory (WOLF-S) which includes items measuring absorption, study enjoyment and intrinsic study motivation (Bakker, Ljubin-Golub, & Rijavec, 2017). All 13 items of the scale are rated on a 7-point scale ranging from 1 (*never*) to 7 (*always*).

Measures used were previously shown to have good psychometric characteristics in Croatian samples (Bakker, Ljubin-Golub, & Rijavec, 2017; Ljubin-Golub, Petričević, & Rován, 2019; Rován,

2011). In this study all instruments also demonstrated adequate reliability of Cronbach alpha type as presented in Table 1.

4. Results

4.1. Descriptive statistics and correlations

Descriptive statistics are presented in Table 1. Mastery-approach mean was above theoretical mean of the scale, while Mastery-avoidance, Performance-approach, Performance-avoidance, and Work avoidance were all slightly below the theoretical mean point of the scale. Use of all motivational strategies except Performance-avoidance self-talk was slightly above the theoretical mean and experiencing academic flow was slightly below the theoretical mean point.

Achievement goals (Mastery-approach, Mastery-avoidance, Performance-approach, Performance-avoidance) were all positively correlated to each other with bivariate correlations ranging from $r = .31$ to $.55$ (all $ps \leq .001$), and were either not correlated or had negative association with Work avoidance goal with r ranging from $-.19$ ($p < .05$, Performance-approach) to $-.65$ ($p < .001$, Mastery-approach). Motivational strategies were mostly low-to moderate intercorrelated. Experiencing academic flow was positively associated with mastery-approach ($r = .57$, $p < .001$), mastery-avoidance ($r = .25$, $p < .01$), and performance-approach ($r = .28$, $p < .01$) goals, having no association with performance-avoidance goal ($r = .11$, $p > .05$), and was negatively associated with work avoidance ($r = -.62$, $p < .001$).

Table 1. Means, standard deviations, range and Cronbach alpha of the measures used.

| | M (SD) | Actual Range | Cronbach α |
|--|-------------|--------------|-------------------|
| AGS Mastery-approach | 5.50 (1.21) | 1.33-7.00 | .87 |
| AGS Mastery-avoidance | 4.58 (1.40) | 1.00-7.00 | .77 |
| AGS Performance-approach | 3.72 (1.39) | 1.00-7.00 | .77 |
| AGS Performance-avoidance | 3.45 (1.76) | 1.00-7.00 | .95 |
| AGS Work avoidance | 3.18 (1.54) | 1.00-7.00 | .86 |
| MRQ Enhancement of situational interest | 2.82 (0.98) | 1.00-5.00 | .89 |
| MRQ Enhancement of personal significance | 3.38 (0.96) | 1.00-5.00 | .81 |
| MRQ Mastery self-talk | 3.27 (0.83) | 1.00-5.00 | .77 |
| MRQ Performance-approach self-talk | 3.49 (0.89) | 1.00-5.00 | .84 |
| MRQ Performance-avoidance self-talk | 2.39 (1.00) | 1.00-5.00 | .78 |
| MRQ Environmental control | 3.52 (0.90) | 1.00-5.00 | .71 |
| MRQ Self-consequating | 3.80 (0.90) | 1.00-5.00 | .86 |
| MRQ Proximal goal setting | 3.52 (0.94) | 1.00-5.00 | .80 |
| WOLF-S Academic flow | 3.49 (1.00) | 1.08-6.15 | .91 |

Note. AGS= Achievement Goal Scale; MRQ=Motivational Regulation Questionnaire, WOLF-S= Study-Related Flow Inventory

Regression analyses (Table 2) revealed that personal achievement goals explained from 7% to 43% of variance in specific motivational self-talk strategy. Their role is especially prominent for explaining variance in mastery self-talk strategy (43%) and performance-approach self-talk strategy (35%). Mastery-approach goal was predictive for explaining individual variance in most of positive motivational strategies and academic flow. Performance-approach goal was predictive for explaining individual variance in mastery self-talk and performance-approach self-talk, but also to negative strategy of performance-avoidance self-talk which strategy was also explained by performance-avoidance goal. Personal achievement goals explained 45% of variance in academic flow, with both mastery-approach and performance approach along were positive predictors and work avoidance negative predictor of academic flow. As predicted, mastery-approach goal was positively related to mastery self-talk strategy ($\beta = .35$) and to academic flow ($\beta = .27$), performance-approach goal was positively related to performance-approach self-talk ($\beta = .40$) and to academic flow ($\beta = .17$), thus supporting Hypothesis 1. It is also worth noting that mastery-avoidance goal was positively related to mastery self-talk strategy ($\beta = .27$), while performance-approach goal was related to both performance-approach and performance-avoidance self-talk strategies, as well as was performance-avoidance goal.

In order to examine the role of mastery-approach goal and mastery self-talk strategy within the context of other achievement goals and other motivational strategies, we performed regression analysis with all four achievement goals (i.e. without work avoidance goal) entered in step 1 and all motivational strategies in step 2. Predictors together explained 50% of variance (adjusted 44%). Achievement goals explained 36% of variance in academic flow ($F(4,108)=15.58$, $p < .001$), and all eight motivational strategies explained additional 14% of flow variance ($F(8,100)=3.44$, $p < .01$). In the final step only

mastery-approach goal and mastery self-talk strategy were significant predictors ($\beta = .35, p < .001$, and $\beta = .43, p < .001$, respectively). Additional regression analyses were done with mastery-approach goal entered in the first step and mastery self-talk strategy entered in the second step, and vice versa, with flow as criteria. Predictors together explained 44% of the variance in academic flow ($F(2,110) = 42.41, p < .001$). The mastery-approach goal entered in step 1 explained 33% of the variance in academic flow ($F\Delta(1,111) = 53.64, p < .001$), and mastery self-talk accounted for additional 11% of unique variance beyond the mastery-approach goal ($F\Delta(1,110) = 21.35, p < .001$). Adding mastery-approach goal after the mastery self-talk strategy, mastery-approach explained additional 7% of the variance in academic flow ($F\Delta(1,110) = 14.110, p < .001$). The results showed that both mastery-approach goal and mastery self-talk motivational strategy had positive and incremental role in academic flow, thus confirming Hypothesis 2.

Table 2. Results of the regression analyses of motivational self-regulation strategies and academic flow.

| Goals | Motivational self-regulation strategies (MRSs) | | | | | | | | Acad. flow |
|-----------------------|--|------|--------|--------|--------|-------|-------|-------|------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | |
| Mastery-approach | .33* | .10 | .35** | .20 | -.01 | .27* | .38** | .38** | .27** |
| Mastery-avoidance | .01 | .09 | .27** | -.11 | -.19 | .02 | -.04 | -.03 | .10 |
| Performance-approach | .00 | .19 | .19* | .40*** | .26** | .07 | .09 | .11 | .17* |
| Performance-avoidance | -.12 | -.15 | -.09 | .23* | .37** | .10 | -.07 | -.04 | -.17 |
| Work avoidance | .02 | .01 | -.18 | .01 | .08 | -.05 | .11 | .04 | -.42*** |
| R ² | .09 | .05 | .46*** | .35*** | .22*** | .15** | .11* | .14** | .47*** |
| Adj R ² | .05 | .01 | .43*** | .32*** | .18*** | .11** | .07* | .10** | .45*** |

Note. Standardized beta coefficients are shown. *p < .05; ** p < .01; ***p < .001. (1) Enhancement of situational interest, (2) Enhancement of personal significance, (3) Mastery self-talk, (4) Performance-approach self-talk, (5) Performance-avoidance self-talk, (6) Environmental control, (7) Self-consequating, and (8) Proximal goal setting.

Mediation analysis was done using PROCESS bootstrapping method with 5000 bootstrapped samples and 95% confidence intervals (Preacher & Hayes, 2004). Direct effect of mastery-approach goal on academic flow was significant ($b = 1.20; SE = 0.319, CI = 0.5659, 1.8299$), as well as indirect effect via mastery self-talk ($b = 0.862; Boot SE = 0.220, BootCI = 0.4830, 1.3518$). Thus, results showed partial mediation and Hypothesis 3 was partially confirmed.

5. Discussion

It was shown that achievement goals together explained 47% of the variance in the academic flow, suggesting that adopting adequate personal achievement goal is one of the most important mechanisms underlying the individual differences in experiencing flow in academic domain. Experiencing academic flow was found to be strongly related to mastery-approach goal, but also has low positive bivariate association with mastery-avoidance and performance-approach achievement goals. However, as suggested by regression analyses, the key role of experiencing academic flow is to adopt the mastery-approach goal. One of the mechanisms through which mastery-approach leads to academic flow is mastery self-talk motivational strategy. However, mediation was partial suggesting that there are also some other factors associated with mastery-approach which are important in facilitating flow, such as deeper processing and deeper concentration. Future research should further study the role of other motivational factors in developing and adopting the mastery-approach, such as interest, usefulness of learning, or student's self-efficacy.

Besides the central role of mastery approach goal, mastery self-talk was itself found to have unique role for academic flow, incrementing the mastery-approach goal in explaining academic flow and explaining additional 11% of unique variance beyond mastery-approach. This finding is in line with previous research (Ljubin-Golub, 2019) and suggests the central role of mastery self-talk motivational strategy as a mechanism leading to academic flow. Therefore, it is of crucial value to foster the use of this motivational self-regulation strategy in order to facilitate academic flow. Since this strategy accents to keep on learning for the sake of learning, personal challenge, or personal value of the learning, teachers should try to point out the personal and practical value of learning and to organize process of learning as a personal challenge.

As per limitations of the study, the sample comprised university students majoring in mathematics education and further research should determine whether the results may be generalized to other student population. Second, the study is of cross-sectional design and therefore no causal effects are implied. Third, the study did not address students' academic achievement, socio-economic status or some other factors such as overall student's wellbeing which may be relevant for student motivation.

6. Conclusion

The study showed the key roles of adopting mastery-approach goal and mastery self-talk motivational strategy in order to experience flow in academic domain.

References

- Bakker, A. B., Ljubin Golub, T., & Rijavec, M. (2017). Validation of the Study-related flow inventory (WOLF-S). *Croatian Journal of Education, 19*(1), 147-173.
- Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety*. San Francisco: Jossey-Bass.
- Elliot, A. J., & McGregor, H. A. (2001). A 2 X 2 achievement goal framework. *Journal of Personality and Social Psychology, 80*, 501–519.
- Elliot, A. J., & Muruyama, K. (2008). On the measurement of achievement goals: Critique, illustration, and application. *Journal of Educational Psychology, 100*(3), 613-628.
- Engeser, S., & Rheinberg, F. (2008). Flow, moderators of challenge-skill-balance and performance. *Motivation and Emotion, 32*, 158–172.
- Kowal, J., & Fortier, M. S. (1999). Motivational determinants of flow: Contributions from self-determination theory. *The Journal of Social Psychology, 139*(3), 355-368.
- Ljubin-Golub, T. (2019). How to motivate oneself for studying in order to experience academic flow? Paper presented at 24. Dani Ramira and Zoran Bujas Days, Zagreb, 11-13 April 2019.
- Ljubin-Golub, T., Petričević E., & Rován, D. (2019). The role of personality in motivational regulation and academic procrastination. *Educational Psychology: International Journal of Experimental Educational Psychology, 39*(4), 550-568.
- Ljubin-Golub, T., Rijavec, M., & Jurčec, L. (2018). Flow in the academic domain: The role of perfectionism and engagement. *The Asia-Pacific Education Researcher, 27*(2), 99-107.
- Ljubin-Golub, T., Rijavec, M., & Olčar, D. (2020). Student flow and burnout: The role of teacher autonomy support and student autonomous motivation. *Psychological Studies, 65*, 145-156.
- Ljubin-Golub, T., Rijavec, M., Olčar, D. (2016). The relationship between executive functions and flow in learning. *Studia Psychologica, 58*(1), 47-58.
- Mustafa, S., M., H. Elias, Roslan, S., & Mohd Noah, S. (2011). Can mastery and performance goals predict learning flow among secondary school students? *International Journal of Humanities and Social Science, 1*(11), 93-98.
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers, 36*(4), 717–731.
- Rijavec, M., & Ljubin-Golub, T. (2019). Academic flow and burnout in college students: An eight-month longitudinal study. *The European Proceedings of Social & Behavioural Sciences EpSBS*, Volume LXXII, 10th International Conference on Education and Educational Psychology, 09-12 October 2019, Barcelona, Spain (pp 16-27).
- Rijavec, M., Ljubin Golub, T., & Olčar, D. (2016). Can learning for exams make students happy? Faculty and non faculty unrelated flow experiences and well-being. *Croatian Journal of Education, 18*(Spec.ed.1), 153-164.
- Rován, D. (2011). *Odrednice odabira ciljeva pri učenju matematike u visokom obrazovanju*. [Achievement goals in learning mathematics in higher education] (Unpublished doctoral dissertation). Zagreb, Croatia: University of Zagreb.
- Schwinger, M., von der Laden, T., & Spinath, B. (2007). Strategien zur Motivationsregulation und ihre Erfassung [Motivational regulation strategies and their measurement]. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie, 39*(2), 57–69.
- Shernoff, D. J., & Csikszentmihalyi, M. (2009). Flow in schools: Cultivating engaged learners and optimal learning environments. In R. Gilman, E. S. Huebner, & M. Furlong (Eds.), *Handbook of positive psychology in schools* (pp. 131–145). New York: Routledge.
- Steele, J. P., & Fullagar, C. J. (2009). Facilitators and outcomes of student engagement in a college setting. *The Journal of Psychology, 143*, 5–27.
- Wolters. C. A. (1998). Self-regulated learning and college student's regulation of motivation. *Journal of Educational Psychology, 90*(2), 224–235.

PRACTICAL AND SCIENTIFIC CHALLENGES IN ADAPTING DIGITAL COGNITIVE TESTS IN PROFESSIONAL ENVIRONMENT

Mélany Payoux^{1,2}, Lara Abdel Halim¹, Alexandra Didry², & Arnaud Trenvouez²

¹Faculty of psychology, LPPL UPRES EA 4638, University of Nantes (France)

²PerformanSe, Nantes (France)

Abstract

Recruiting today is no longer what it used to be. Digital transformation has deeply changed the company, and particularly the recruitment process. The challenges linked to this transformation are two-fold: practical and scientific. Indeed, the world of human resources needs new tools to detect potentials. Research must meet this need by adapting, modernizing and scientifically validating the tools. To predict job performance, cognitive and soft skills, often referred to as "21st century skills", are now central to recruitment, talent development and career management. The objective of our study was to create digital versions of cognitive tests, based on reliable and well-known theoretical foundations. We want to present in detail the conception and construct validity of two of our online tests: the first one inspired by the Stroop effect (Stroop, 1935), the second one based on Corsi blocks (Corsi, 1972). We hypothesise that the tests we created are positively correlated to the original ones. 91 participants were interviewed, aged between 18 and 58 (average = 34.57 years old, SD = 10.91). The proportion of women was 76.6% (n = 69), compared to 24.4% of men (n = 22). They all answered the original tests first, face-to-face, and a few months later, the digital ones we had created. We observed positive correlations between the two series of results. These very encouraging results will be clarified and discussed. These two new versions shed light on the candidates' attention and memory abilities that should be enriched during an interview focused on soft skills. In fact, the highest predictability is guaranteed by a method which necessarily combines cognitive evaluations and with other types of assessments, such as personality tests (Güler, Bayrak & Ocaks, 2019). This is why it is important to continue research efforts on the adaptation of digital cognitive tests in a professional environment.

Keywords: *Cognitive gaming, recruitment, memory, attention.*

1. Introduction

Cognitive and soft skills, often referred to as "21st century skills", are considered predictors of job performance. They are, in fact, central to recruitment, talent development and career management. Cognitive assessment is usually carried out by means of cognitive tests, often described in the literature as standardised tools that allow cognitive abilities to be assessed in a "reliable, standardised and objective" way (Ones, Dilchert, Viswesvaran, & Salgado, 2010). Their use is ideal both for the power of their prediction on certain business outcomes and for their lower cost of application (Schmidt & Hunter, 1998; Sonnentag, Volmer, & Spsychala, 2008; Salgado, 2017; Schmidt, Oh, & Shaffer, 2016). As intelligence models have been developed and tested for more than a century, the theoretical foundations of cognitive tests are stronger than those of other selection methods (Schmidt, Oh & Shaffer, 2016; Salgado, 2017). Nevertheless, the tests recognised in the literature do not have a digital version that is much more adapted to the professional environment and the advances of the 21st century.

Indeed, the digital transformation has profoundly changed the company, and in particular the recruitment process. Thus, the challenges linked to this transformation are twofold: practical and scientific. On the practical side, the human resources world needs digital tools that assess cognitive abilities and meet scientific criteria for detecting potential. On a scientific level, research must respond to this need from the professional world by adapting, modernising and scientifically validating the tools.

The challenge is significant because there is a paradox between the results of research on the validity of these tools and their use by professionals (Terpstra and Rozell, 1997; Chartier, 2009). This low use of powerful tools for recruiting candidates would be due, in addition to the availability of digital versions, to a lack of access by professionals to precise information on validity (Chartier, 2009).

2. Objectives

The aim of our study is to create digital versions of cognitive tests, based on reliable and well-known theoretical foundations. Only two numerical test creations will be presented here, dealing respectively with the cognitive skills of "memory" and "attention".

2.1. Memory test

Working memory abilities are usually assessed by means of span tasks. These span tasks can be verbal (memorising words, numbers) or visuospatial in nature. According to the scientific literature, there is no difference in the results between a verbal and a visuospatial span task (Maquestiaux, 2017).

We chose a visuospatial span test inspired by the Corsi block test (Corsi, 1972). This test is used to assess the immediate non-verbal memory in its visuospatial aspects.

Alloway & Temple (2007) demonstrated, by adapting the Corsi block test on a computer, the measurement of visuospatial short-term memory. Their results show a good test-retest reliability of 0.83, thus justifying the psychometric quality.

2.2. Attention test

As Dégruel, Enlart, Le Boulaire, and Marsaudon (2011) point out, the hyperconnected work environment in which we evolve requires us to process several similar but also different pieces of information at the same time. This simultaneous processing of information is cognitively costly and directly solicits our attentional capacities. Attention therefore allows us to change tasks or mental strategies to switch from one cognitive operation to another. It can require disengagement from one task to re-engage in another. Finally, attention can shed light on an individual's ability to focus on a stimulus that is relevant to a task and to ignore other irrelevant stimuli presented simultaneously. This cognitive skill thus allows adaptation to new situations. The test we have created is inspired by the Stroop test whose effect was discovered in 1935 by John Ridley Stroop. Our creation aims to go beyond Stroop's original paradigm by evaluating attentional capacity with inhibition and flexibility.

We will call our digital creation of the Corsi blocks "New Corsi" and our digital creation of the Stroop task "New Stroop".

3. Methods

3.1. Sample

To maximise the diversity of our sample while remaining close to a working population, various acquisition channels were used. Participants were approached at their place of work or school. The interest and objective of the study conducted was explained so that the person could freely choose to participate.

91 people responded to the original tests (age range 18- 58 years, $M = 34.57$ years, $SD = 10.91$). The proportion of women was 76.6% ($n=69$), compared to 24.4% of men ($n=22$). Unfortunately, we observe an experimental mortality as only 57 people responded to the digital tests. Thus, our final sample on which our statistics are based is 73.7% female ($n=42$), against 26.30% male (age range 19-58 years, $M= 35.7$, $SD = 10.8$).

3.2. Materials

Figures 1 and 2 show the material used for the original Corsi block test and the digital version. Figures 3 and 4 show the material used for the Stroop task test and its digital version.

Figure 1. Original corsi bloc's



Figure 2. new corsi.

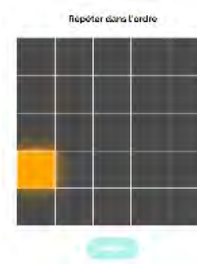
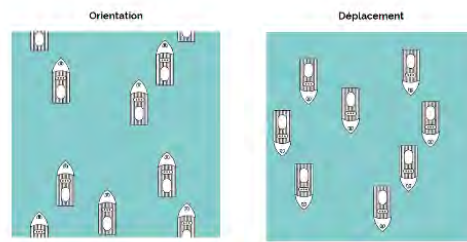


Figure 3. Original Stroop Task.



Figure 4. New Stroop.



3.3. Procedure

All participants took the original tests in person, accompanied by an experimenter. The same participants were alone and at a distance to answer the digital creations of our tests (New Corsi and New Stroop).

Face-to-face process

Each test was conducted individually and lasted approximately 45 minutes. The experimentation was standardised, i.e., it was carried out exactly under the same conditions for each participant and followed the standardised procedures described in the manuals for each original test.

In the Corsi blocks task, the participant and the experimenter were seated opposite each other. The Corsi block board (see Figure 1) was in the middle of the table. The experimenter touched several blocks in succession in a pre-determined order. The participant had to memorise the series and then reproduce it. The test consisted of a first part with a recall of the sequence in order. In the second part, the sequence is recalled in reverse. The procedure and instructions used follow precisely those outlined in the study by Kessels, Van Zandvoort, Postma, Kappelle, and De Haan, (2000).

In the Stroop task, the test was carried out in four stages, with the participant and the experimenter positioned side by side. Three cards (see Figure 3.) were presented to respond to four tasks. A fixed time of 45 seconds was given to read or name the items on each card. The procedure and instructions used follow precisely those outlined in the study by Bayard, Erkes, and Moroni (2011).

Remote process

A link containing the tests to be taken remotely was sent by email to all the participants previously seen in the classroom. Participants were free to respond at their convenience. A welcome page presented the objective of the tests. Then, a training phase for each of the exercises was proposed. This phase allowed us to validate the correct understanding of the instructions.

For "New Corsi", the task was to reproduce from memory the sequences of cubes that lit up (in order and then in reverse order).

In "New Stroop", the boats on the screen moved and/or were oriented in a different direction each time (north, south, west, east). In the congruent situation, the direction of movement and orientation was similar, while in the incongruent situation the direction of movement and orientation was different. For 45 seconds the participant was asked to give the direction of movement (M) or the direction of orientation (O) of the boat in incongruent (i) and congruent (c) situations. In other words, the participant could encounter on the screen four cases of Mi Mc Oi Oc.

4. Results

First and foremost, it is important to consider that "content validation, like other aspects of validity, is an ongoing process to which 'evidence' will be added over time" (Haynes, Richard, & Kubany, 2005; as cited by Laveault, & Grégoire, 2014).

All the cognitive tests constructed in digital version are based on tests and/or paradigms scientifically recognised in the literature.

To be able to compare the results, the raw scores were transformed into average percentages of success in the various tests. There is no gender effect on the percentages of success for any of the tests.

Table 1. Average percentage of test success.

| | Original Corsi | New Corsi | Original Stroop | New Stroop |
|--------------------|----------------|-----------|-----------------|------------|
| N | 57 | 57 | 57 | 56 |
| Mean | 49.2 | 55.6 | 54.5 | 77.4 |
| Standard deviation | 6.59 | 11.1 | 16.6 | 30.4 |
| Minimum | 33.3 | 22.2 | 29 | 15.8 |
| Maximum | 66.7 | 77.8 | 100 | 100 |

4.1. Correlation matrix

Table 2. Correlational matrix.

| | | Original Corsi | New Corsi | Original Stroop | New Stroop |
|-----------------|----------------|----------------|-----------|-----------------|------------|
| Original Corsi | Spearman's rho | - — | | | |
| | p-value | - — | | | |
| New Corsi | Spearman's rho | 0.335 * | - — | | |
| | p-value | 0.011 | - — | | |
| Original Stroop | Spearman's rho | 0.291 * | 0.153 | - — | |
| | p-value | 0.028 | 0.255 | - — | |
| New Stroop | Spearman's rho | 0.292 * | 0.424 ** | 0.272 * | - — |
| | p-value | 0.029 | 0.001 | 0.043 | - — |

Note. $p < .05$, ** $p < .01$, *** $p < .001$

Our results show moderate significant correlations (*see Table 2.*) between the original versions of the tests and our digital creations "New Corsi" and "New Stroop". Links are also found between the original Corsi block test and the original Stroop task as well as between the "New Corsi" and the "New Stroop". These results are consistent with existing links between memory and attentional abilities (cf. Maquestiaux, 2017).

The McDonald's ω (1970) respective coefficients for "New Corsi" and "New Stroop" are also moderate with coefficients of 0.46 and 0.38.

5. Discussion

The results we obtained should encourage us to continue our research efforts. Indeed, the significant links between the original Corsi block test and "New Corsi" as well as between the original Stroop task and "New Stroop" show that the two respective versions follow the same directions in the variation of scores. In other words, when scores increase in the original tests, they also increase in the created tests. Furthermore, the moderate positive correlations between the original Corsi blocks test and the original Stroop task test as well as between the "New Corsi" and the "New Stroop" are interesting since they highlight the very close link between working memory (WM) and attention since it allows to temporary

keep information in mind (Maquestiaux, 2017). These elements are important to take into consideration in the validity of our creations. Finally, we believe that these moderate correlations are due to the relatively small sample of the study. We believe it is necessary to replicate a similar study on a larger scale.

From a practical point of view, a parallel survey was carried out to gather user feedback in the workplace. The aim was to ascertain the interest and attractiveness of our digital versions. The results, based on 3074 people, are very encouraging. Indeed, our creations obtained an average score of 3.6 for the pleasantness of the test and the design. In addition, 14.5% of the 3074 people sent us a comment. These comments were categorised into four categories: positive, negative, neutral, and unclassifiable. The results are also encouraging and encourage us to continue our research and creation efforts, as 36.8% of the opinions were positive (compared to 34.5% for the neutral, 27.8% for the negative and 0.9% for the unclassifiable). In the workplace, these two new versions highlight the attention and memory skills of candidates, which should be enhanced during an interview focused on soft skills. Indeed, the greatest predictability is guaranteed by a method that necessarily combines cognitive assessments with other types of assessments, such as personality tests. Therefore, it is important to continue research efforts on the adaptation of digital cognitive tests in the workplace.

References

- Alloway, T. P., & Temple, K. J. (2007). A comparison of working memory skills and learning in children with developmental coordination disorder and moderate learning difficulties. *Applied Cognitive Psychology, 21*(4), 473-487.
- Bayard, S., Erkes, J., & Moroni, C. (2011). Victoria Stroop Test: normative data in a sample group of older people and the study of their clinical applications in the assessment of inhibition in Alzheimer's disease. *Archives of Clinical Neuropsychology, 26*(7), 653-661.
- Chartier, P. (2009). The contribution of aptitude tests in recruitment: the example of the NV5-R. *Psychologie du travail et des organisations, 15*(2), 137-150.
- Corsi, P. (1972). Memory and the medial temporal region of the brain. *Unpublished doctoral dissertation, McGill University, Montreal, QB.*
- Dégruel, M., Enlart, S., Le Boulaire, M., & Marsaudon, S. (2011). The cognitive dimensions of work. *Entreprise Personnelle, 296*, 1-32.
- Kessels, R. P., Van Zandvoort, M. J., Postma, A., Kappelle, L. J., & De Haan, E. H. (2000). The Corsi block-tapping task: standardization and normative data. *Applied neuropsychology, 7*(4), 252-258.
- Laveault, D., & Grégoire, J. (2014). *Introduction aux théories des tests en psychologie et en sciences de l'éducation*. De Boeck.
- Maquestiaux, F. (2017). *Psychology of attention*. De Boeck Supérieur.
- McDonald, R. P. (1970). The theoretical foundations of principal factor analysis, canonical factor analysis and alpha factor analysis. *British Journal of Mathematical Psychology, 23*, 1-21.
- Ones, D. S., Dilchert, S., Viswesvaran, C., & Salgado, J. F. (2010). *Cognitive abilities*. In J. L. Farr & N. T. Tippins (Eds.), *Handbook of employee selection* (p. 255-275).
- Salgado, J. F. (2017). Using ability tests in selection.
- Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological bulletin, 124*(2), 262.
- Schmidt, F. L., Oh, I. S., & Shaffer, J. A. (2016). The Validity and Utility of Selection Methods in Personnel Psychology: Practical and Theoretical Implications of 100 Years... *Fox School of Business Research Paper*.
- Sonntag, S., Volmer, J., & Spsychala, A. (2008). Job performance. *The Sage handbook of organizational behavior, 1*, 427-447.
- Terpstra, D. E., & Rozell, E. J. (1997). Why some potentially effective staffing practices are seldom used. *Public Personnel Management, 26*(4), 483-495.

ONE MONTH BEFORE THE PANDEMIC: STUDENTS' PREFERENCES FOR FLEXIBLE LEARNING AND WHAT WE CAN LEARN

Martina Feldhammer-Kahr¹, Stefan Dreisiebner², Martin Arendasy¹,
& Manuela Paechter¹

¹*Institute of Psychology, University of Graz (Austria)*

²*Department of Corporate Leadership and Entrepreneurship, University of Graz (Austria)*

Abstract

Flexible learning has been associated with e-learning, even before the COVID-19 pandemic. Flexible learning gives the students large degrees of freedom to learn what, when, how and where they want. The aim of this study was to evaluate students' preferences in e-learning and traditional classroom teaching, and was conducted from October 2019 to January 2020. Students from four courses were assigned randomly to two groups, an online and a classroom group. The study included two phases: three lectures by the lecturer (podcasts vs. classroom) and seven classroom units with student presentations and discussions. Performance and different personal characteristics and attitudes of 93 students were examined. Knowledge on the course topic was measured before the first lecture took place (t1), after the three lectures (t2) and after the following seven units (t3). Statistical analyses found no performance differences between the two groups (online/classroom); this held true for all three points in time. All students appreciated the opportunity of an intermediate exam at t2 (a change in comparison to former courses on the topic). Qualitative data showed that students felt a need for interaction with their colleagues and the lecturer, which they decided could be better fulfilled in the classroom, whereas the flexible learning setting had advantages for the exam preparation (e.g. repeating listening to the podcasts, taking breaks and learning tempo). Students' arguments fit well to previous literature. Altogether, the study gives valuable insights into the didactic design of flexible learning.

Keywords: *Flexible learning, pre-COVID-19, performance, advantages.*

1. Introduction

Flexible learning gives students large degrees of freedom to learn what, when, how and where they want (e.g. van de Brande, 1993; Wanner & Palmer, 2015). Although flexible learning might be also implemented in traditional classroom settings, it is primarily implemented and associated with e-learning (Li & Wong, 2018). Since its implementation is time-consuming, lecturers should wisely implement changes in their didactics and ensure that they meet students' needs (Feldhammer-Kahr et al., 2019) but still foster achievement of learning targets.

Accordingly, the aim of this study was to evaluate students' preferences in e-learning and traditional classroom teaching. This study was conducted from October 2019 to January 2020, which was right before the COVID-19 pandemic disrupted education in spring 2021, when government-imposed lockdowns and campus closures forced teachers and their students to change to online-learning, thus offering new chances for flexible learning. This study gives valuable insights into the didactic design of flexible learning and student perceptions of flexible learning right before their experiences in the COVID-19 pandemic.

2. Method

This study was conducted in four parallel courses on "Psychological Diagnostics" at the University of Graz, Austria. The students were assigned randomly to two groups, an e-learning and a classroom group, to prevent pre-selection due to preferences. Of the 101 students enrolled in the courses, eight students opted not to participate in the present study, hence the sample consists of 93 Bachelor students of Psychology. The e-learning group included 49 students, 14 males (28.6%) and 35 females (71.4%) from 20 to 31 years (M=22.31, SD=1.96). The classroom group consisted of 44 students nine

males (20.5%) and 35 females (79.5%) from 20 to 26 years ($M= 21.93$, $SD=1.47$). Participation was entirely voluntary and in accordance with the ethical standards of the institutional research committee, where the study design was reviewed and approved. Informed consent was obtained from all participants of the study. Students were able to drop out of the study at any point, which allowed students assigned to the e-learning group also to change back to the classroom group. However, none of the students dropped out during the study.

In the first lecture the students received an overview of the course topics, were introduced into the study design, and were finally randomly assigned into the e-learning and classroom group. Over the following three weeks, the classroom group would attend class to the scheduled dates, whereas the e-learning group could make their own time management, and learn when and where they would prefer using visual podcasts and the PowerPoint slides, which were provided by the scheduled course time via Moodle. While the classroom group could ask questions during class, the e-learning group was provided with a forum in Moodle. During these three weeks the lecturer introduced several topics (e.g. quality criteria of psychological tests). After the three weeks were over, all students attended class to the scheduled dates until the end of the semester, which consisted out of seven interactive classes focusing on student presentations and discussions. The students were instructed not to communicate with students from the other group (either e-learning or classroom) about the ongoing course.

As general prerequisite for this course, all students had attended a basic course on “Psychological Testing” in previous semesters, and therefore were expected to have some basic knowledge. Therefore, in the first lecture the students received a first knowledge test (t1). The performance in knowledge was furthermore measured with multiple choice tests after the three weeks in separate e-learning and classroom groups (t2), as well as after the final seven classes (t3). The exams (knowledge tests) were executed in the classrooms in paper and pencil form, with all students attending.

Furthermore, at t1 fluid intelligence was measured with a matrices test from the Intelligence Structure Battery (Arendasy et al., 2004) was applied. A questionnaire for flexible learning (Feldhammer-Kahr et al., 2019) was used at all three measurement points, as well as eight questions to the preferences of learning activities (e.g. rehearse and exercise or elaborate learning information) and three questions on the importance of personal contact to the lecture (communication in the classroom, receiving feedback, asking questions and discussion). At the end the evaluation (t3) the students were also asked if they would prefer to attend such a class with flexible learning in the future and if there should be more seminars like this.

Open questions were asked as well. After the three weeks of separate e-learning and classroom groups (t2) the students were asked, whether they would have preferred being in the other (e-learning or classroom) group or their assigned group and why. At t3, the e-learning group was asked what they, now after having attended class at the scheduled dates for nine weeks, liked and disliked in both scenarios, if they participated in group discussions, and if they liked or disliked the knowledge evaluations during semester, which was a change in comparison to former courses on the topic.

Self-generated identification codes were used to link individual student answers from the three measurement points. The obtained data was digitalized and later analyzed using IBM SPSS Statistics.

3. Results

In the following section we give an overview of selected first results from our study, focusing on course performance, course design and communication preferences.

3.1. Performance in knowledge tests

A mixed between-within subjects’ analysis of variance was conducted to assess the impact of two teaching forms (conventional classroom and e-learning) on participants’ psychological diagnostics knowledge (at the beginning of the semester, after three sessions in different groups, end of semester). Although the assumption of normal distribution was violated, with the sample size larger than 30 per group, the violation should not cause any major problems, since the other assumptions are fulfilled (see Tabachnick & Fidell, 2014 for discussion).

There was no significant interaction between group and time, and no significant main effect of the control variable fluid intelligence. The main effect comparing the two teaching forms (classroom and e-learning) was not significant (see Table 1), suggesting no difference in the effectiveness of the two teaching approaches. However, there was a substantial main effect for time (see Table 1 and Figure 1). As could be expected, the knowledge of the students in psychological diagnostics increased over the semester.

Table 1. Results of variance analysis examining the performance in knowledge tests of the two teaching forms.

| Knowledge | e-learning | | classroom | | ANOVA | | | |
|---------------------------------|------------|------|-----------|------|--------|--------------------|------|------------------|
| | M | SD | M | SD | Effect | F _{ratio} | df | η^2 partial |
| t1 | 11.55 | 2.69 | 11.52 | 2.77 | G | 1.53 | 1 | .02 |
| t2 | 14.67 | 2.53 | 15.34 | 2.81 | T | 38.41** | 1.94 | .30 |
| t3 | 18.02 | 1.92 | 18.18 | 1.92 | GxT | .57 | 1.94 | .01 |
| fluid intelligence ¹ | 6.55 | 2.46 | 5.73 | 2.33 | CxT | 1.96 | 1.94 | .02 |

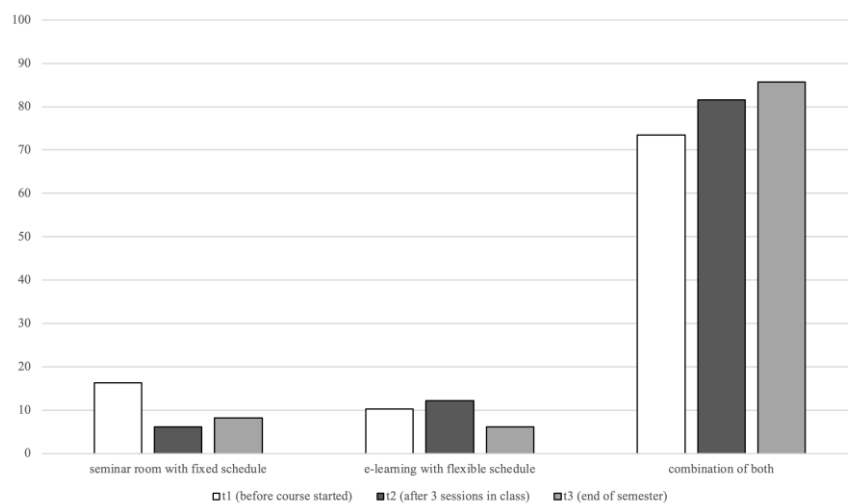
Note. N = 93. t1 = beginning of the semester, t2 = after three sessions, t3 = at the end of the semester; ANOVA = analysis of variance; Knowledge Score Min = 0, Max = 20; ¹Matrices Score Min = 0, Max = 10; G = group; T = time; ¹ C = covariate. * p < .05. ** p < .01, Greenhouse-Geisser adjustment.

3.2. Preferences of course design

We were further interested if the preferences of course design changed in the two groups over time and if differences between the two groups could be found, considering the classroom group never experienced e-learning in the course, whereas the e-learning group had three weeks of flexible online learning. For each measurement time point a Chi-square was conducted. The Chi-Square test showed no significant differences between the group and the preferences at the three measurement points (before the course started: $\chi^2(2, n = 93) = 1.21, p = .55, \phi = .11$; after 3 sessions in class: $\chi^2(2, n = 93) = 4.63, p = .10, \phi = .22$; end of semester: $\chi^2(2, n = 93) = 4.20, p = .12, \phi = .21$).

However, taking a look at the figures we can see a small shift in the preferences. In the e-learning group the number of students preferring a combination of classroom sessions with fixed schedule and e-learning with a flexible schedule increased over time (combination of both t1: 73.5%, t2: 81.6%, t3: 85.7%). The preference for the classroom with fixed schedule however decreased from measurement point 1 (16.3%) to measurement point 2 (6.1%) and increased slightly to measurement point 3 (8.2%). The preference for e-learning with flexible schedule increased slightly from measurement time point 1 (10.2%) to 2 (12.2%) and decreased at the end of the semester (6.1%), when the students had experienced the classroom situation as well (see Figure 2).

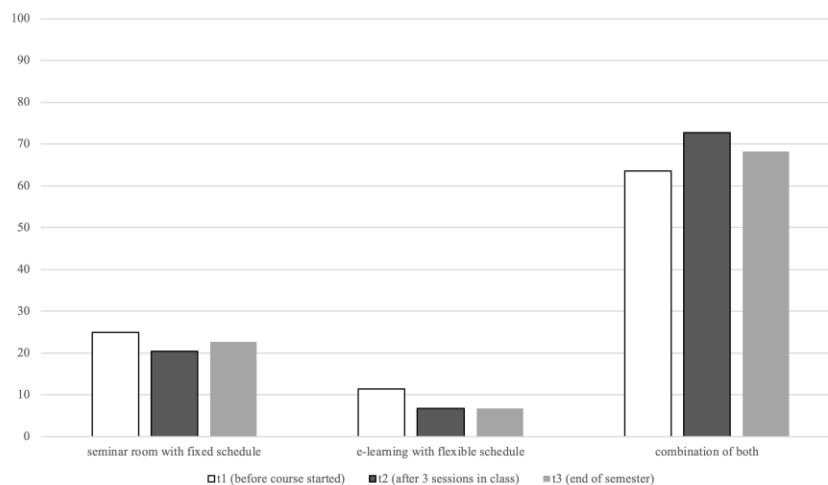
Figure 2. Preferences of the e-learning group (percentage within measurement time points).



Although the classroom group showed shifts in their preferences, they were not standing out as those from the e-learning group (see Figure 3). Interestingly, the preference for e-learning with flexible schedule decreased from the beginning before the seminar started (11.4%) to the measurement time point 2 and 3 (each 6.8%). We can see a decrease in the preference for classroom with fixed schedule from measurement point 1 (25.0%) to measurement point 2 (22.5%) and an increase to measurement point 3 (22.7%).

Similar to the e-learning group the preference for a combination of both increased over the period of time but had a slight drop from the measurement point 2 to 3 (t1: 63.6%, t2: 72.7% and t3: 68.2%).

Figure 3. Preferences of the classroom group (percentage within measurement time points).



3.3. The importance of communication with personal contact

A mixed between-within subjects’ analysis of variance was conducted to assess the impact of two teaching forms (conventional classroom and e-learning) on participants’ perception of the importance of communication with the university lecturer in the classroom (at the beginning of the semester, after three sessions in different groups, end of semester). Although the assumption of normal distribution was violated, the violation should not cause any major problems as the other assumptions are fulfilled.

There was no significant interaction between group and time. The main effect comparing the two types of teaching forms (conventional and e-learning) was not significant, (see Table 2) suggesting no difference in the assessment of the importance of communication with the lecturer in the classroom. However, there was a substantial main effect for time. The students of both groups rated the importance of the communication after the three-week intervention period significantly lower, than at the beginning and the end of the semester.

Table 2. Results of variance analysis of the importance of communication with personal contact in a classroom.

| communication | e-learning | | classroom | | ANOVA | | | |
|---------------|------------|-----|-----------|-----|--------|--------------------|------|--------------------|
| | M | SD | M | SD | Effect | F _{ratio} | df | $\eta^2_{partial}$ |
| t1 | 2.00 | .76 | 1.98 | .76 | G | .04 | 1 | .000 |
| t2 | 1.80 | .82 | 1.84 | .89 | T | 3.17* | 1.95 | .034 |
| t3 | 1.96 | .73 | 2.02 | .76 | GxT | .17 | 1.95 | .002 |

Note. N = 93. t1 = beginning of the semester, t2 = after three sessions, t3 = at the end of the semester; ANOVA = analysis of variance; Communication Min = 0, Max = 3; G = group; T = time; * p < .05. ** p < .01.

4. Discussion

Our results show that there are no differences in the learning outcomes between students attending lectures with the same learning content over three weeks in conventional classroom and e-learning with flexible schedule. This indicates that flexible learning implemented through e-learning can lead to the same learning outcomes as traditional classroom settings, if the learning information itself is provided to both groups in the same way (e.g., concerning the format as text or characteristics such as structure and clarity). However, the results also show that the majority of students preferred a combination of both teaching approaches. For students attending the e-learning group it is remarkable that their preferences for a combination of classroom and e-learning grew steadily, while the percentage of these students preferring only e-learning dropped after they returned back to classroom. These results go along with previous surveys among students, that also found a preference for a combination of classroom and e-learning (McShane et al., 2007; Feldhammer-Kahr et al., 2019). Considering our study design, where the e-learning group attended the input-focused classes online while attending the final discussion-focused classes in person, this also supports positive student perceptions of *flipped classrooms*, where e-learning is used for inputs and classrooms for exercises and discussions (Milman, 2012; Wanner & Palmer, 2015). That the students in the e-learning group also perceived personal communication as similarly important as the classroom group shows that lecturers should also include means of personal communication in their e-learning settings, e.g. through live online sessions to discuss

content or ask questions. Such approaches might also benefit from the investment of institutions in tools for online teaching during the COVID-19 pandemic.

The students' need for interaction with their colleagues and the lecturer was also mentioned in the comments of the qualitative data. Students felt that interaction could be better fulfilled in the classroom. As one student described it: "I can learn more efficient if the lecturer is present. It is possible to ask questions right away if there are difficulties in understanding the lecture". Students in the e-learning group also frequently reported about difficulties with procrastination, an issue that was already described in previous studies on e-learning with flexible schedule (e.g. Barnard et al., 2009; Dreisiebner et al., 2020; Luttenberger et al., 2017). Students found that a combination of e-learning and regular classes could help them to overcome procrastination: "As I am typically procrastinating a combination would be helpful, but more time consuming". But students also found flexible learning as particularly helpful for the exam preparation. As one student described his experience: "I had the possibility to re-watch certain sequences before the exam, had enough information for exam preparation, and could learn at whatever speed and time I wanted".

This research comes with several limitations, which in turn provide avenues for future research: First, the sample consists only out of Bachelor students of Psychology at a single tertiary education institution. Student preferences might also be also influenced by factors like cultural background, experience, and discipline (Denman-Maier, 2004; Dreisiebner et al., 2020). Second, although students were instructed not to exchange their experiences between e-learning and classroom group during the study, it cannot be ruled out that the students communicated, thus also influencing the perception by the groups. Further work is needed to examine which factors influenced the student perceptions. As there was a slight drop in preference for classroom teaching with fixed schedule for the classroom group at t2 this might have been also influenced by the experience of having to attend classes while half of the classroom remained empty due to the missing students of the e-learning group. Third, the e-learning section of this course was relatively short, with only three out of eight classes. The reason for this is due to the institutional regulations at the time of the study not allowing a higher share of e-learning in courses. Further studies might also examine if student perceptions change in case of higher amount of experience with e-learning with flexible schedule, particularly after the students' experiences with e-learning during the COVID-19 pandemic.

References

- Arendasy, M., Hornke, L. F., Sommer, M., Häusler, J., Wagner-Menghin, M. (2004). *Intelligenz-Struktur-Batterie [Intelligence-structure-battery]*. Mödling: Schuhfried GmbH.
- Barnard, L., Lan, W. Y., To, Y. M., Paton, V. O., & Lai, S.-L. (2009). Measuring self-regulation in online and blended learning environments, *The Internet and Higher Education*, 12(1), 1-6. doi:10.1016/j.iheduc.2008.10.005
- Denman-Maier, E. (2004). Intercultural factors in web-based training systems. *Journal of Universal Computer Science*, 10(1), 90-104.
- Dreisiebner, S., Polzer, A. K., Robinson, L., Libbrecht, P., Boté-Vericad, J.-J., Urbano, C., Mandl, T., Vilar, P., Žumer, M., Juric, M., Pehar, F., & Stričević, I. (2020). Facilitation of information literacy through a multilingual MOOC considering cultural aspects, *Journal of Documentation, ahead-of-print*. doi:10.1108/JD-06-2020-0099
- Feldhammer-Kahr, M., Dreisiebner, S., Paechter, M., Sommer, M., & Arendasy, M. (2019). Evaluierung des flexiblen Lernbedarfs bei Studierenden – Implikationen für die Praxis [Evaluation of flexible learning needs among students – Implications for practice]. *Zeitschrift für Hochschulentwicklung*, 14(3), 19–40. doi:10.3217/zfhe-14-03/02
- Li, K. C. & Wong, B. Y. Y. (2018). Revisiting the Definitions and Implementation of Flexible Learning. K. C. Li, K. S. Yuen & B. T. M. Wong (Eds.), *Innovations in Open and Flexible Education* (3-13). Singapore: Springer.
- Luttenberger, S., Macher, D., Maidl, V., Rominger, C., Aydin, N., & Paechter, M. (2017). Different patterns of university students' integration of lecture podcasts, learning materials, and lecture attendance in a psychology course. *Education and Information Technology*, 23, 165-178 (2018). doi:10.1007/s10639-017-9592-3
- McShane, K., Peat, M., & Masters, A. F. (2007). Playing it safe? Students' study preferences in a flexible chemistry module, *Australian Journal of Education in Chemistry*, 67, 24-30.
- Milman, N. (2012). The Flipped Classroom Strategy. What Is it and How Can it Best be Used?, *Distance Learning*, 9(3), 85-87.
- Van den Brande, L. (1993). *Flexible and distance learning*. Chichester: Wiley.
- Wanner, T., & Palmer, E. (2015). Personalising learning: Exploring student and teachers perceptions about flexible learning and assessment in flipped university course. *Computers and Education*, 88, 354-369. doi:10.1016/j.compedu.2015.07.008

PARENTAL EDUCATIONAL STYLES AS PREDICTORS OF PERFECTIONISM AND QUALITY OF SIBLING RELATIONSHIPS AMONG STUDENTS

Danijela Randjelovic, Jelisaveta Todorovic, & Miljana Spasic Snele
Department of Psychology, Faculty of Philosophy University of Nis (Serbia)

Abstract

The main objective of this study was to examine the relationship between parental educational styles, perfectionism in children, and the quality of adult sibling relationships. Additionally, the goal is to determine whether parental educational styles represent a significant predictor of perfectionism and quality of relationship between adults. The research was conducted on a sample of 200 respondents, students of the Faculty of Philosophy, the Faculty of Economics and the Faculty of Sciences and Mathematics in Niš. EMBU questionnaires were used to examine the parental educational styles, the Multidimensional Perfectionism Scale (MPS), and the KOBS Questionnaire on the quality of relationships with siblings in adulthood. The starting hypotheses have been partially confirmed and new questions have been raised about these constructs and their relationship.

Statistically significant predictors of different aspects of perfectionism that were measured were a) significant predictors for the aspect of Parental Expectations were the following parental educational styles *Overprotective mother* ($\beta=0.375$, $p=0.003$) and Father's Favoritism ($\beta=-0.186$, $p=0.035$), b) a significant predictor for the aspect of Organization was the following educational style Mother's Emotional Warmth ($\beta=0.335$, $p=0.031$); c) significant predictors for Parental Criticism were the following educational styles Father's Rejection ($\beta=0.254$, $p=0.009$) and Mother's Emotional Warmth ($\beta=-0.437$, $p=0.000$), d) the significant predictor of Personal Standards was *Overprotective mother* ($\beta=0.307$; $p=0.042$), e) significant predictors for Concern over Mistakes, were the following educational styles Parental Inconsistency ($\beta=0.160$; $p=0.048$) and Mother's Emotional Warmth ($\beta=-0.308$, $p=0.027$), f) significant predictors of Doubts about Actions were the following educational styles, Parental Inconsistency ($\beta=0.235$, $p=0.007$), *Overprotective mother* ($\beta=0.304$, $p=0.035$) and Mother's Favoritism ($\beta=0.222$, $p=0.028$). When it comes to the quality of relationship between brothers and sisters, parental educational styles are also significant predictors of various aspects of those relationships. We are pointing out the most important results. Statistically significant predictors of the subscale Competition between siblings were the educational styles Father's Rejection ($\beta=0.469$, $p=0.000$), Mother's Favoritism ($\beta=0.475$, $p=0.000$), Father's Favoritism ($\beta=-0.196$, $p=0.029$), and Mother's Emotional Warmth ($\beta=-0.313$, $p=0.019$). Statistically significant predictors for the subscale Closeness or Warmth between siblings were the following educational styles Mother's Rejection ($\beta=-0.456$, $p=0.006$) and Father's Emotional Warmth ($\beta=0.391$, $p=0.002$). Statistically significant predictors for subscale the Conflict between siblings were the following educational styles Father's Rejection ($\beta=0.355$, $p=0.003$) and Mother's Favoritism ($\beta=0.337$, $p=0.000$). These results show that both rejection and favoritism by the parents contribute to the development of less desired relationships between siblings. Overprotective parents, inconsistency and favoritism of a child contribute to less desired aspects of perfectionism. Additional analysis of connection between perfectionism and relationship between siblings revealed that the less desired aspects of perfectionism are connected with bad relationships between siblings. The only exception is the aspect of Organization as it is connected with emotional and instrumental support, familiarity, closeness and admiration between siblings.

Keywords: *Educational styles, perfectionism, quality of sibling relationships, family.*

1. Introduction

Hollender (1965; as cited in Cook, 2012) points out that perfectionism involves placing excessive demands on oneself and the feeling that everything but the perfect performance is unacceptable. The desire to improve one's self-image and to be accepted by others is the basic motivation of perfectionism. The main problem with this definition of perfectionism is that it does not distinguish perfectionists from people who are highly competent and successful, given that setting and striving for high standards is not in itself a

pathological phenomenon (Blatt, D’Afflitti, & Quinlan, 1976, as cited in Frost et al., 1990). Let us also mention that Schneider (according to Frost et al., 1990) considered that excessively high standards are the cause of the basic feeling of inadequacy in compulsive people. Among many definitions of perfectionism, we single out the one proposed by Flett and Hewitt (1992), which emphasizes that perfectionism is the pursuit of infallibility, and extreme perfectionists are people who want to be perfect in every aspect of their lives.

Flett et al. (2002) in *Theory, Research, and Treatment* indicate that some children become perfectionists due to their exposure to adverse life events. Children who are physically or mentally abused or who grew up in overly chaotic families realize that their parents are unreliable and, in response to difficult circumstances, these children may develop perfectionism for two reasons. The first one is to avoid future abuse and humiliation, and the second one is to control an otherwise unpredictable environment. By behaving in a perfect way, they protect themselves both by meeting the standards of the most demanding parents, and by reducing the number and severity of conflicts with important people in their lives. Hamachek (1978) also believed that if parents do not set the standards for their children and do not give appropriate feedback on children’s performance, children can set unrealistically high standards for themselves.

Kenney-Benson and Pomerantz (2005, as cited in Cook, 2012) found that children whose mothers show hostility and criticism towards them while performing a demanding task develop socially prescribed perfectionism. Clark and Coker (2009) found a similar association between maternal criticism and dysfunctional child perfectionism. These studies are in line with the idea that perfectionism can be developed as a protective mechanism in cases of parental abuse. Cook and Kearney (2008) suggest that the symptoms of depression, obsessive-compulsive disorder, and anxiety in mothers predict the development of self-centered perfectionism in male children. Children will develop perfectionism if parents behave too protectively, overemphasize the importance of positive impressions in relation to others, often remind them of the danger of wrong decisions, point to a sharp condemnation of mistakes by others (Flett et al, 2002). Symptoms of anxious parents such as an obsession with cleanliness and tidiness, and constant worry are often parental symptoms associated with perfectionism in children.

Ablard and Parker (1997) examined children’s perfectionism and parents’ achievement goals. Parents were divided into those who were guided by learning goals and those who valued the goals of achieving success. In accordance with the model of social expectations, more children whose parents were oriented towards the goals of achieving success were classified in the group of those with high perfectionism.

Educational style has also been shown to be a significant factor associated with the development of perfectionism. In accordance with the *Social Expectation Theory*, it has been shown that parents who demand the best performance and complete obedience tend to have their offspring adopt the characteristics of maladaptive perfectionism (Speirs Neumeister & Finch, 2006, according to Cook, 2012). In order to better understand the contribution of parenting styles to children’s development, it is good to distinguish between parenting styles and parenting practices (Steinberg & Silk, 2002, according to Roboteg-Šarić et al., 2011). Parental educational style refers to the emotional context within which the interaction of the child and parent takes place and is defined by different dimensions, while parenting practices are specific goal-oriented behaviors and activities aimed at socializing the child in a certain way, more or less independent of parenting styles (Roboteg-Šarić et al., 2011). We also emphasize that the educational style of both father and mother has an important role in the development of the child, as indicated by numerous authors (Cox & Harter, 2003, Lamb et al., 2005, according to Roboteg-Šarić et al., 2011). Of course, the parental educational style, although most often constant in different periods of children’s growth, still contributes differently to the formation of personality in childhood, adolescence and early adulthood.

When we talk about the role of parental educational style in encouraging maladaptive and adaptive perfectionism, the question of how perfectionism is related to the relationship with siblings in the family, especially during adolescence, seems justified. Does the pursuit of perfection perhaps lead to rivalry with siblings in an effort to gain recognition and praise from parents and significant others? Perhaps the parental educational style contributes to the competition among siblings and at the same time the insatiable need to be perfect and ahead of everyone? Undoubtedly, in the period of the formation of identity and independence in relation to the parent, the relationship with siblings plays a significant role.

Namely, the relationship with a brother/sister is for most people the longest-lasting interpersonal relationship (Ćubela Adorić and Jurkin, 2006). When talking about the psychological development and life of a child, his/her relationship with the mother is most often commented on, less frequently the relationship with the father is mentioned, and the least, only sometimes, the relationship with siblings. Still, this relationship can be very important for the experience of one’s own continuity and for the subjective well-being during later periods of development (Bedford, 1989, Brody, 1998, Cicirelli, 1991, Connidis, 2001, Norris & Tindale, 1994, according to Ćubela Adorić and Jurkin, 2006). According to Vera Ćubela

Adorić and Marina Jurkin (2006), there are three basic dimensions that assess the quality of relationships with siblings in adulthood: Warmth, Conflict and Rivalry. Their research found a statistically significant negative correlation between Warmth and Conflict, a positive correlation between Rivalry and Conflict, as well as a negative correlation between Rivalry and Warmth (Ćubela Adorić and Jurkin, 2006). In addition, the relationship with a sister is assessed as closer and less competitive than the relationship with a brother. Compared to male respondents, female respondents perceive less competition, and more approval and rivalry in the relationship with their brother or sister. Mother's favoritism was most prevalent in the brother-sister relationship category (Ćubela Adorić and Jurkin 2006).

2. Objectives

The overall objective is to examine whether a certain percentage of the variability of perfectionism and the quality of sibling relationships in late adolescence can be explained based on educational styles. In addition, we set an objective to examine the relationship between perfectionism and sibling relationships in late adolescence.

3. Methods

3.1. Sample

The sample was appropriate and consisted of 200 final-year students of the Faculty of Philosophy, Faculty of Sciences and Mathematics and Faculty of Economics in Niš, equalized by gender. Of the total sample, 85.5% (171) are respondents whose family has two children, then 6% (12) are respondents who come from families with three children, and 8.5% (17) from families with more than three children. A quarter (25% – 50) of the sample consists of the respondents whose sibling is brother-brother, then 21.5% (43) of the respondents with the sibling sister-sister, and 53.5% (107) of the respondents have the sibling brother-sister.

3.2. Instrument

To assess perfectionism, the Multidimensional Perfectionism Scale (MPS; Frost, Marten, Lahart, & Rosenblate, 1990) was used, which contains 35 claims. The scale provides information on the overall score of perfectionism, as well as information on the severity of six aspects of perfectionism: Concern over Mistakes (9 items), Personal Standards (9 items), Parental Expectations (5 items), Parental Criticism (4 items), Doubts about Actions (4 items), Organization (6 items). The MPS scale has good metric characteristics: the reliability coefficient of the total score on the scale as a whole (estimated by the Cronbach's internal consistency coefficient) is $\alpha=0.88$, and the reliability of the subscales ranges from $\alpha=0.73 - 0.89$.

To assess the quality of sibling relationships, the **Questionnaire on the quality of relationships with siblings in adulthood** was used (KOBS; Ćubela Adorić and Jurkin, 2006). The scale consists of 81 items, and the questionnaire is of satisfactory reliability (Ćubela Adorić and Jurkin, 2006). In the student sample, the reliability of the Warmth scale is 0.92, Conflict 0.90 and Rivalry 0.64. The subscales are also of satisfactory reliability: Quarrel ($\alpha = 0.78$); Antagonism ($\alpha = 0.88$); Competition ($\alpha = 0.85$); Dominance ($\alpha = 0.73$); Similarity ($\alpha = 0.87$); Intimacy ($\alpha = 0.90$); Affection ($\alpha = 0.93$); Admiration ($\alpha = 0.82$); Emotional support ($\alpha = 0.88$); Instrumental support ($\alpha = 0.70$); Acceptance ($\alpha = 0.90$); Paternal Favoritism ($\alpha = 0.94$); Maternal Favoritism ($\alpha = 0.92$).

To assess parental educational styles, the EMBU scale was used, which was constructed by the Swedish researcher (Perris et al., 1980). Arrindell and coworkers in the Netherlands (1983) performed the most comprehensive scale check and at a higher level of factorization singled out 4 pure factors: rejection, overprotection, emotional warmth, and favoritism. The EMBU questionnaire was tested on the Serbian adolescent population (third-grade high school students in Belgrade, Šaula, 1989). Regarding the Inconsistency Subscale added by Šaula, that subscale proved to be partially independent of those already existing in the instrument. The research confirmed a high internal consistency and "transculturality" of this test. The reliability of the subscales ranges from $\alpha = 0.72$ to 0.92, while the scales Mother's Favoritism ($\alpha = 0.59$) and Father's Favoritism ($\alpha = 0.69$) are below the reliability limit.

4. Results

Given that a lot of data was obtained in this study, the most important findings will be presented in a table, primarily the correlations between the parental educational styles, perfectionism and the dimensions of the quality of the relationships between siblings. The most significant results of regression analysis are singled out and presented in text.

Table 1. The connection between parenting styles and perfectionism – MPS total, that is, the dimensions of the quality of the relationship between siblings (Pearson’s correlation coefficient).

| | MPS total | Conflict | Rivalry | Warmth |
|---------------------------|------------------|-----------------|----------------|---------------|
| Parental Inconsistency | 0.465** | 0.228** | 0.228** | -0.189** |
| Mother’s Rejection | 0.507** | 0.319** | 0.121 | -0.311** |
| Father’s Rejection | 0.500** | 0.381** | 0.139* | -0.297** |
| Mother’s Overprotection | 0.525** | 0.119 | -0.035 | -0.036 |
| Father’s Overprotection | 0.387** | 0.047 | 0.004 | 0.052 |
| Mother’s Favoritism | 0.125 | 0.357** | -0.118** | -0.100 |
| Father’s Favoritism | 0.077 | 0.302** | -0.239** | -0.098 |
| Mother’s Emotional Warmth | -0.315** | -0.180* | -0.163* | 0.289** |
| Father’s Emotional Warmth | -0.303** | -0.173* | -0.140* | 0.340** |

Table 2. Relationship between the dimensions of perfectionism and the dimensions of the quality of relationships between siblings in adulthood.

| | Concern over Mistakes | Personal Standards | Parental Expectations | Parental Criticism | Doubts about Actions | Organization |
|-----------------|------------------------------|---------------------------|------------------------------|---------------------------|-----------------------------|---------------------|
| Conflict | 0.278** | 0.192** | 0.194** | 0.205** | 0.265** | -0.083 |
| Rivalry | 0.034 | -0.030 | 0.017 | 0.059 | 0.040 | -0.096 |

**Significant at the level of 0.01
 *Significant at the level of 0.05

When it comes to warmth in the relationships between siblings, we obtained a significant correlation with the results of the perfectionism scale as a whole ($r = -0.156^*$, $p > 0.05$).

Table 3. The correlation between the Perfectionism subscale – MSP total and the Warmth dimension (KOBS) (Pearson’s correlation coefficient).

| | MPS total |
|---------------|------------------|
| Warmth | -0.156* |

**Significant at the level of 0.01
 *Significant at the level of 0.05

Statistically significant predictors of different aspects of perfectionism. Significant predictors of the aspect of Parental Expectations were parental educational styles *Overprotective mother* ($\beta=0.375$, $p=0.003$) and Father’s Favoritism ($\beta=-0.186$, $p=0.035$); the significant predictor of *Organization* was the educational style Mother’s Emotional Warmth ($\beta=0.335$, $p=0.031$); significant predictors for Parental Criticism were educational styles Father’s Rejection ($\beta=0.254$, $p=0.009$) and Mother’s Emotional Warmth ($\beta= -0.437$, $p=0.000$); the significant predictor of *Personal Standards* was *Overprotective mother* ($\beta= 0.307$, $p=0.042$); significant predictors for Concern over Mistakes were the educational styles Parental Inconsistency ($p=0.048$, $\beta=0.160$) and Mother’s Emotional Warmth ($\beta= -0.308$, $p=0.027$); significant predictors of Doubts about Actions were the following educational styles, Parental Inconsistency ($\beta=0.235$, $p=0.007$), *Overprotective mother* ($\beta= 0.304$, $p=0.035$) and Favoritism by the Mother ($\beta=0.222$, $p=0.028$). When it comes to the quality of relationship between brothers and sisters, parental educational styles are also significant predictors of various aspects of those relationships. We are pointing out the most important results. Statistically significant predictors of the subscale *Competition between siblings* were the educational styles Father’s Rejection ($\beta=0.469$, $p=0.000$), Mother’s Favoritism ($\beta=0.475$, $p=0.000$), Father’s Favoritism ($\beta=-0.196$, $p=0.029$), and Mother’s Emotional Warmth ($\beta=-0.313$, $p=0.019$). Statistically significant predictors for the subscale *Closeness or Warmth between Siblings* were the following educational styles Mother’s Rejection ($\beta=-0.456$, $p=0.006$), and Father’s Emotional Warmth ($\beta=0.391$, $p=0.002$). Statistically significant predictors for the subscale *Conflict between siblings* were the following educational styles Father’s Rejection ($\beta=0.355$, $p=0.003$) and Mother’s Favoritism ($\beta=0.337$, $p=0.000$).

5. Discussion

The main goal of this study was to examine whether perfectionism and the quality of sibling relationships in late adolescence can be explained based on parenting styles of both mother and father.

According to the results, we can notice that Overprotective Mother has a negative role in the development of some aspects of perfectionism, such as Parental Expectations and Personal Standards, but also Doubts about Actions. Nevertheless, Parental Inconsistency contributes to Concern over Mistakes and Doubts about Actions, in which Mother's Favoritism also has an important role. We would like to stress that Father's Favoritism decreases Parental Expectations, whereas Father's Rejection is correlated with the perception of higher Parental Criticism. On the other hand, Mother's Emotional Warmth represents an adequate context of the development of Organization, whereas growing up of adolescents in such emotional atmosphere will be less burdened with Concern over Mistakes, and Parental Criticism.

Obtained results are in accordance with some previous findings. Namely, Flett et al. (2002) point out that children will develop perfectionism if parents are overprotective, overemphasize the importance of positive impressions in relation to others, often remind children of the dangers of wrong decisions, as well as point out the sharp condemnation of mistakes by others. Hamachek (1978) also believed that if parents do not set standards for their children and do not give appropriate feedback on children's performance, children can set unrealistically high standards for themselves. Based on that, as well as on our results, it could be said that positive experiences in relation with parents followed by parental emotional warmth represent an adequate background for the development of adolescents who will not be burdened with achieving unrealistic goals.

When it comes to sibling relations, it was shown that rejection from both mother and father, but also Mother's Favoritism, are significant factors in the perception of sibling relations, disrupting them by encouraging competition and conflicts between siblings. A particularly interesting result is that Father's Favoritism is negatively correlated with competition in the sibling relationship. Father's Emotional Warmth is a significant factor of the experience of warmth between siblings, whereas Mother's Rejection decreases emotional warmth between siblings. In line with that, it could be said that qualitative relationship and experience of acceptance from both father and mother represent significant predictors of good relations between siblings, thus confirming numerous previous findings (Cox & Harter, 2003; Lamb et al., 2005; as cited in Roboteg-Šarić et al., 2011).

6. Conclusion

Summarizing the obtained results, first we would like to point out that both the father and the mother and their parental educational styles have an important role when it comes to adolescent development. Parental emotional warmth and acceptance are predispositions for developing adequate perfectionism and good relations with siblings. On the other hand, overprotective mother and parental inconsistency contribute to destructive perfectionism in adolescents, whereas rejection from both the mother and the father, and mother's favoritism (but not the father's) encourage competition and conflicts between siblings.

References

- Clark, S., & Coker, S. (2009). Perfectionism, self-criticism and maternal criticism: A study of mothers and their children. *Personality and Individual Differences*, 47(4), 321-325.
- Cook, L.C. (2012). The influence of Parent Factors on Child Perfectionism: A Cross- Sectional Study.
- Ćubela Adorić, V. I Jurkin, A. (2006). Upitnik kvaliteta odnosa sa braćom i sestrama u odraslom dobu (KOBS). U: Ćubela Adorić, V., Penezić, Z., Proroković, A. I Tucak, I. (Ur.), *Zbirka psihologijskih skala i upitnika*. Svezak 3, Zadar: Filozofski fakultet. 75-86
- Ćubela Adorić, V., Jurkin, M. (2006). Qualities of sibling relationships from adolescence to late adulthood.
- Enns, M. W., Cox, B.J., Sareen, J., & Freeman, P. (2001). Adaptive and maladaptive perfectionism in medical students: a longitudinal investigation. *Medical education*, 35 (11), 1034-1042.
- Flett, G. L., Hewitt, P. L. (2002). *Theory, Research, and Treatment*, Washington, DC, American Psychological Association,
- Frost, R.O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive therapy and research* 14 (5), 449-468.
- Hamachek, D. E. (1978) Psychodynamics of Normal and Neurotic Perfectionism. *Psychology*, 15, 27-33.
- Roboteg Šarić, Z., Merkaš, M. i Majić, M. (2011). Nada i optimizam adolescenata u odnosu na roditeljski odgojni stil. *Napredak*, 152 (3-4), 373-388

ACADEMIC LEARNING PROCESS BETWEEN FACE-TO-FACE AND ONLINE CLASS OF MEDICAL TECHNOLOGY STUDENTS DURING PANDEMIC

**Eloisa Sandra B. Gerio¹, Christopher Angel Gonzales¹, Lyka Marie Nagum¹,
Althea Bridget Rufino¹, Nicole Marnel Tadeo-Awingan¹, Emmanuel Saludes¹,
Ellen Tiamzon², & Eugene Dayag¹**

¹*College of Medical Technology World Citi Colleges Q.C. (Philippines)*

²*Research and Publication Office, World Citi Colleges Q.C. (Philippines)*

Abstract

The Philippine's Commission on Higher Education (CHED) is mandated to take appropriate steps to ensure that education shall be accessible to all. In times where classes were disrupted due to health emergency and community lockdown imposed, the commission handed down Memorandum Order No. 4. Series of 2020, which directed Higher Education Institutions (HEI) to use flexible platform for academic track to better facilitate learning scheme. The sudden paradigm shift lends students to grapple in the new way of teaching and learning process. The underlying circumstance leads to determining the Academic Learning Process between face-to-face and online class of Medical Technology students during the time of contagion. This descriptive-comparative study verified the learning process between online class and face-to-face strategic learning. There were forty six (46) 3rd Year and 4th Year Medical Technology students of World Citi Colleges who assessed the two learning processes based on class preparation, absorbing and capturing new information, and reviewing of course materials. Results revealed that majority of the respondents are in the age bracket of 22-25 and mostly female students. In terms of year level, there is an equal distribution of 3rd year and 4th year Medical Technology students. It is also observed that majority of the respondents experienced a half semester of online class and are highly prepared for face-to-face class but are moderately prepared for online class. The level of preparedness for face-to-face class is greater than the level of preparedness for online class. In terms of academic learning process, the respondents have high ability to absorb new information in face-to-face class but with moderate ability compared to online class. The mean score of the level of capturing new information in face-to-face class is greater than the mean score in online class. However, the respondents have high ability to capture new information in both modes of learning. Relatively, scores on capturing new information in online class are more dispersed than scores for face-to-face class. Additionally, as to reviewing course materials, respondents have moderate ability in reviewing course materials in online class. The mean score for the level of reviewing in face-to-face class is greater than the mean score in online class. Based on the results of independent samples t-test, the researchers concluded that there is no significant difference in the academic learning process between the face-to-face and online class of 3rd and 4th-year Medical Technology students during pandemic.

Keywords: *Academic learning process, descriptive-comparative, face-to-face, medical technology, online class.*

1. Introduction

Throughout the time of pandemic that started this year 2020, several universities and colleges have no choice but to change the education system from face-to-face learning to online learning. This is according to the CHED Memorandum Order No. 4, Series of 2020 – Guidelines on the Implementation of Flexible Learning. Along with these sudden changes, it forces educators to change their nature of teaching like creating modules, setting up work areas at their homes, using laptops or smartphones instead of whiteboard and marker.

The educators also took seminars and trainings for online classes that include how to use virtual learning applications such as Google Meet, Zoom, and Google Classroom, and, how to create modules online. While the educators are learning and adapting to the “new normal” of teaching, the students are

also adjusting to how they will learn in online classes. There are advantages and disadvantages of online learning to students.

The students, educators, and parents have different opinions on what system they prefer in the future of education. Some believe that online education can further the productivity and experience of both students and educators. Since they are familiar with new learning styles and techniques, they can now be able to apply them to their learning process and future generations. Although, others believe that the government should prioritize face-to-face class learning in the country rather than online learning considering there are several underprivileged families who cannot afford the requirements for an online class, and parents who cannot teach or guide their children in online activities because of the limitation in their educational attainment.

The conceptual difference between face-to-face and online classes is that face-to-face involves students and educators communicating in the present time, according to the Focus EduVation article in 2018. On the contrary, online students work through talks and other educational material at their own time. They pose inquiries on online conversation mediums and must sit tight for an educator or another student to react. Some may notice the setback in communication as delaying the learning, however in practicality educators can utilize it for their potential benefit. At the point when they present complex thoughts in lectures, educators can ask students to stop the video and consider the data showed for sometime before continuing. This permits students to learn at their own time, assuring nobody is deserted.

2. Methodology

The study aimed at exploring the student's Academic Learning Process between face-to-face and online class during the pandemic. The study examined if there was a difference between the academic learning processes of students in quality online courses from their experience with face-to-face learning during a pandemic. This study utilized the descriptive method in which reveals the profile of the sample population. We used the correlational method in which we determined the two variables. The study focused on determining the academic learning process of the students between face-to-face and online learning.

The study utilized a questionnaire developed by the researchers with 30 Likert questions and 5 demographic questions. The researchers used 3 forms to obtain the appropriate and useful information needed for the study.

First, the demographic form, this instrument was used to particularly identify their name, age, gender, year level, and the duration of the online class experience.

Second, the Academic learning process of 3rd and 4th-year Medical Technology students in World Citi-Colleges-Quezon City face-to-face during a pandemic based on five categories such as the demographic profile, preparation for the class, absorbing of new information, capturing of new information, and reviewing of course materials. This instrument was used to particularly become aware of the student's academic learning process in a face-to-face class.

Lastly, the Academic learning process of 3rd and 4th-year Medical Technology students in World Citi-Colleges-Quezon City online class during a pandemic based on five categories such as the demographic profile, preparation for the class, absorbing of new information, capturing of new information, and reviewing of course materials. This instrument was used to particularly become aware of the student's Academic learning process in online class.

The population of the study is the Medical Technology students of the World Citi Colleges in Quezon City. The study made use of all the students who are taking an online academic learning of the said year level. The target sample is 46 students out of 92, half of whom are 3rd year medical technology students while the other half being the 4th year medical technology students.

3. Results and discussion

It is shown that most of the respondents are 22-25 years old who are currently in their 3rd year or 4th year in the Medical Technology course. This group of respondents are those students who were affected by the Pandemic due to the Corona Virus outbreak, and majority of the respondents were female. The researchers chose to have an equal number of respondents per year level since it is part of the research design to have an equal number of respondents per year level.

Table 1. Descriptive statistics of the score of the Medical Technology students in terms of level of preparedness for the class.

| Mode of Learning | Obs | Mean | Std. Dev. | Min | Max | Interpretation |
|------------------|-----|---------|-----------|-----|-----|------------------------|
| Face-to-Face | 46 | 10.6739 | 2.2116 | 5 | 14 | Prepared for the class |
| Online | 46 | 10.0652 | 2.8783 | 2 | 15 | Prepared for the class |

Table 2 shows the descriptive statistics of the score of the 3rd year and 4th year Medical Technology students in terms of the level of preparedness for the class. The mean score of the level of preparedness for face-to-face class is greater than the mean score on preparedness for online class. Scores on preparedness for online class are more dispersed than scores on preparedness for face-to-face class.

Table 2. Descriptive statistics of the score of the Medical Technology students in terms of level of absorbing new information.

| Mode of Learning | Obs | Mean | Std. Dev. | Min | Max | Interpretation |
|------------------|-----|---------|-----------|-----|-----|--|
| Face-to-Face | 46 | 11.3696 | 2.2446 | 5 | 15 | High ability to absorb new information |
| Online | 46 | 10.9130 | 2.6818 | 5 | 15 | High ability to absorb new information |

Table 3 shows the descriptive statistics of the score of the 3rd year and 4th year Medical Technology students in terms of the level of absorbing new information. The mean score of the level of absorbing new information in a face-to-face class is greater than the mean score on absorbing new information in an online class. However, the respondents have a high ability to absorb new information in both modes of learning, on average. Relatively, scores on absorbing new information in an online class are more dispersed than scores on absorbing new information in a face-to-face class.

Table 3. Distribution of Medical Technology student-respondents in terms of level of absorbing of information.

| Absorbing of New Information | Face-to-Face Class | | Online Class | |
|--|--------------------|------------|--------------|------------|
| | Frequency | Percentage | Frequency | Percentage |
| Low ability to absorb new information | 1 | 2.17% | 2 | 4.35% |
| Moderate ability to absorb new information | 17 | 36.96% | 24 | 52.17% |
| High ability to absorb new information | 28 | 60.87% | 20 | 43.48% |
| TOTAL | 46 | 100.00% | 46 | 100.00% |

The above tabulation shows that more respondents have high ability to absorb new information in face-to-face class than in online class. The majority (60.87%) of the respondents have a high ability to absorb new information in a face-to-face class. In comparison, most respondents have only a moderate ability to absorb new information in an online class.

Table 4. Descriptive statistics of the score of the Medical Technology students in terms of level of capturing new information.

| Mode of Learning | Obs | Mean | Std. Dev. | Min | Max | Interpretation |
|------------------|-----|---------|-----------|-----|-----|---|
| Face-to-Face | 46 | 11.2174 | 2.7642 | 3 | 15 | High ability to capture new information |
| Online | 46 | 11.1957 | 3.1666 | 1 | 15 | High ability to capture new information |

The above table presents the descriptive statistics of the score of the 3rd year and 4th year Medical Technology students in terms of the level of capturing new information. The mean score of the level of capturing new information in a face-to-face class is greater than the mean score on capturing new information in an online class. However, the respondents have a high ability to capture new information in both modes of learning, on average. Relatively, scores on capturing new information in an online class are more dispersed than scores on capturing new information for a face-to-face class.

Table 5. Distribution of Medical Technology student-respondents in terms of level of capturing new information.

| Capturing New Information | Face-to-Face Class | | Online Class | |
|---|--------------------|------------|--------------|------------|
| | Frequency | Percentage | Frequency | Percentage |
| Low ability to capture new information | 1 | 2.17% | 2 | 4.35% |
| Moderate ability to capture new information | 23 | 50.00% | 23 | 50.00% |
| High ability to capture new information | 22 | 47.83% | 21 | 45.65% |
| TOTAL | 46 | 100.00% | 46 | 100.00% |

In the above tabulation it exhibits that more respondents have high ability to capture new information in face-to-face class than in online class. Half of the respondents have a moderate ability to capture new information in a face-to-face class. In comparison, also half of the respondents have also moderate ability to capture new information in an online class.

Table 6. Descriptive statistics of the score of the Medical Technology students in terms of level of reviewing course materials.

| Mode of Learning | Obs | Mean | Std. Dev. | Min | Max | Interpretation |
|------------------|-----|---------|-----------|-----|-----|---|
| Face-to-Face | 46 | 10.1957 | 2.6551 | 2 | 15 | High ability in reviewing of course materials |
| Online | 46 | 9.6304 | 2.9542 | 2 | 15 | Moderate ability in reviewing of course materials |

Table 7 shows the descriptive statistics of the score of the 3rd year and 4th year Medical Technology students in terms of the level of reviewing course materials. The mean score of the level of reviewing in a face-to-face class is greater than the mean score on reviewing course materials in an online class. On average, the respondents have a high ability in reviewing course materials in face-to-face class while having a moderate ability in reviewing course materials in an online class. Relatively, scores on reviewing course materials in an online class are more dispersed than scores on reviewing course materials for a face-to-face class.

Table 7. Distribution of Medical Technology student-respondents in terms of level of reviewing course materials.

| Reviewing of Course Materials | Face-to-Face Class | | Online Class | |
|---|--------------------|------------|--------------|------------|
| | Frequency | Percentage | Frequency | Percentage |
| Low ability in reviewing of course materials | 2 | 4.35% | 3 | 6.52% |
| Moderate ability in reviewing of course materials | 23 | 50.00% | 28 | 60.87% |
| High ability in reviewing of course materials | 21 | 45.65% | 15 | 32.61% |
| TOTAL | 46 | 100.00% | 46 | 100.00% |

Table 7 shows that more respondents have high ability in reviewing course materials in face-to-face class than in online class. Half of the respondents have moderate ability in reviewing course materials in face-to-face class. In comparison, majority (60.87%) of the respondents have also moderate ability in reviewing course materials in online class.

Table 8. Student's t-test for detecting significant difference in learning process of students between face-to-face and online classes during the pandemic.

| Mode of Learning | n | Mean | Mean Difference | t | df | p-value (2-tailed) | Decision |
|------------------|----|---------|-----------------|--------|----|--------------------|-------------------|
| Face-to-Face | 46 | 10.8641 | 0.4130 | 1.7657 | 45 | 0.0842 | Fail to Reject Ho |
| Online Class | 46 | 10.4511 | | | | | |

It is shown in table above that the p-value in two-tailed t-test is 0.0842. The null hypothesis set by the researcher is that there is no significant difference in the academic learning process of 3rd and 4th Year Medical Technology students in World Citi-Colleges-Quezon City between face-to-face and online class during the pandemic. With a p-value greater than 0.05, it can be concluded that at 5% level of significance, there is enough evidence to say that there is no significant difference in the academic learning process of 3rd and 4th Year Medical Technology students in World Citi-Colleges-Quezon City between face-to-face and online class during the pandemic.

4. Conclusion

Since the mode of education shifted from face-to-face class to online class, the Commission on Higher Education, institutions, and educators must be aware of the effect of an online class on the academic learning process of students. Based on the result of the survey questionnaire that was answered by the 3rd and 4th-year Medical Technology students, the researchers conclude that there is no significant difference in the academic learning process of 3rd and 4th-year Medical Technology students of World Citi Colleges-Quezon City between face-to-face and online class during the pandemic. Because in the result, the p-value in the two-tailed t-test is 0.0842 which is greater than 0.05 at a 5% level of significance.

References

- Cherish Kay L. Pastor (2020), "Sentiment Analysis on Synchronous Online Delivery of Instruction due to Extreme Community Quarantine in the Philippines caused by COVID-19 Pandemic" *Asian Journal of Multidisciplinary Studies*, Vol. 3, No. 1.
- Dr. Lokanath Mishra, Dr. Tushan Gupta, and Dr. Abha Shree (2020), "Online Teaching-Learning in Higher Education during Lockdown Period of COVID-19 Pandemic" *Elsevier Journals*,
- Jenny Liles, Jasna Vuk, and Sara Tariq (2018), "Study Habits of Medical Students: An Analysis of which Study Habits Most Contribute to Success in the Preclinical Years" *The Association for Medical Education in Europe (AMEE) Journal*. Website: <https://www.mededpublish.org/manuscripts/1506>.
- Jose Tria (2020), "The COVID-19 Pandemic through the Lens of Education in the Philippines: The New Normal" *International Journal of Pedagogical Development and Lifelong Learning*, Volume 1, Issue 1, Article number: ep2001.
- Monsour A. Pelmin (2020), "Readings on Coronavirus disease (COVID-19) and the Higher Education Institution (HEIs) Emergency Preparedness in the Philippines"
- Najmul Hasan and Yukun Bao (2020), "Impact of "e-Learning crack-up" perception on psychological distress among college students during COVID-19 pandemic: A mediating role of "fear of academic year loss" *Elsevier Journals*, Volume 118.
- Rome Moralista and Ryan Michael Oducado (2020), "Faculty Perception toward Online Education in a State College in the Philippines during the Coronavirus Disease 19 (COVID-19) Pandemic"
- Sheetal Ramakant Salvi and Neelambala Prasad (2018), "Learning strategies in medical school: A holistic approach to physiology" *National Journal of Physiology, Pharmacy and Pharmacology*, Volume 8, Issue 7.
- Shivangi Dhawan (2020), "Online Learning: A Panacea in the Time of COVID-19 Crisis" *SAGE Journals*, Volume 49, Issue 1.

FOSTERING POSITIVE ATTITUDES TOWARDS SELF-CARE AMONG THE YOUTH IN BONGOL VILLAGE DURING THE RECOVERY MOVEMENT CONTROL ORDER

Getrude C. Ah Gang¹, & Jaimond Lambun²

¹*Faculty of Psychology and Education, University Malaysia Sabah (Malaysia)*

²*Bongol Village Community Council (Malaysia)*

Abstract

One of the major concerns among the relevant public authorities during the 2019 coronavirus disease (Covid-19) pandemic is the attitude and behavior of the Malaysian society regarding compliance with self-care Covid-19. Although the number of Covid-19 cases is decreasing, public authorities, such as the Malaysian Ministry of Health continually remind people to adhere to the Standard Operating Procedure (SOP) for Covid-19 to reduce the number of cases. To support the authorities' efforts, a one-day self-care Covid-19 programme involving 10 youths (3 males & 7 females) with a mean age of 17.35 (SD=3.36) was implemented in Bongol village, Tamparuli. To adhere the Covid-19 SOP regulation which prohibits a large number of people from gathering in a confined, crowded and closed spaces, only a few participants were involved. The programme, which was conducted at the Bongol village community hall, involved various organized activities emphasising the three elements of attitude: cognitive, affective, and psychomotor. Before the programme began, all the participants were registered, and their body temperatures scanned to ensure that they were free from any Covid-19 symptoms. Each participant was given a mask and a small bottle of hand sanitiser that could be used throughout the programme. The activities comprised an ice-breaker, a talk on personal self-hygiene, a 20.02-minute self-care video produced by 28 psychology students, personal self-reflections by the participants, a group exercise, a community song, and a two-way discussion on self-care. The Covid-19 self-care programme, implemented with guidance from the Yale Attitude Change Model, emphasizes the practical issue of 'who says what to whom and with what effects. The participants' attitude was measured before and after they completed the one-day programme. The results of a Wilcoxon signed-ranked test study showed that there is a significant difference between the participants' pre- and post-study attitudes towards self-care. The study results showed that the Covid-19 self-care programme, which is based on the social psychology approach, can help foster positive youth attitudes towards self-care. In regard to the authorities' efforts to lower the number of Covid-19 cases to zero, it is suggested that each party needs (either governmental and non-governmental agencies) to support the Covid-19 campaign and programme by sharing and delivering self-care messages in creative ways to Malaysian communities, especially those in rural areas.

Keywords: *Attitude, cognitive, affective, and psychomotor, self-care program.*

1. Introduction

In January 2020, the World Health Organization (WHO) declared that the Covid-19 outbreak was a public health emergency of international concern and that there was a high risk of it spreading to countries around the world. The spread of the virus caused great concern for the Malaysian public and government. In mid-March, Malaysia had the highest number of Covid-19 cases in Southeast Asia (Asnarulkhadi, Mahazan, Abdul Hadi, & Siti Rahah, 2020). This forced the Malaysian government to impose the 2020 Movement Control Order (MCO), which began on 18 March 2020 and ended on 28 April 2020. The increase in Covid-19 cases caused the MCO to be upgraded to an Enhancement Control Order, which was in effect from 29 April until 12 May 2020. To ensure that the situation was under control, the government then upgraded it to a Recovery Movement Control Order (RMCO) (Yusof, 2020). Within each phase of the MCO, the government and the Malaysian Ministry of Health continuously reminded people to adhere to the Covid-19 standard operating procedures (SOPs), such as washing hands regularly; wearing masks; maintaining a distance of at least one meter from other people; avoiding confined, crowded, and closed spaces; and maintaining a healthy lifestyle. In their efforts to raise public health awareness regarding Covid-19, the authorities should focus on eradicating media manipulation, myths, and information that is not based on scientific facts (Asnarulkhadi et al., 2020). Accurate information and active action by the relevant

authorities to combat the spread of Covid-19 can help create awareness and cultivate positive attitudes towards self-care among members of society.

People have been practising self-care for thousands of years, and it has been applied mindfully by global societies to deal with the Covid-19 pandemic. The Canadian Mental Health Association recommends self-care as a coping strategy in dealing with the pandemic (Wise, 2020). Physical distancing, good respiratory hygiene, and hand washing are important examples of self-care actions that everyone can take every day to protect against Covid-19. Many other aspects of self-care can make a difference to human health and well-being during the Covid-19 pandemic (Wise, 2020). The ability to care for ourselves can make us feel stronger, more resilient, and better able to care for others, which is what is needed as the world faces the Covid-19 pandemic (Wise, 2020). Maintaining a positive attitude to self-care might be challenging for some people. Some might be hesitant to follow the MCO regulations or may forget to follow the general SOPs because they do not align with their cultural norms and because of psychological reactance. Psychological reactance is a psychological response that occurs when one perceives one's freedom as being threatened, and it often leads to behaviour that is the exact opposite of that which was sought by those who issued the instructions (Steindl, Jonas, Sittenthaler, Traut-Mattausch & Greenberg, 2015). For instance, some Malaysians ignored the MCO might be because lack awareness regarding the seriousness of the Covid-19 pandemic. This was revealed in Asnarulkhadi et al's study (2020) that 3,211 Malaysians from various backgrounds are unaware of the severity of Covid-19 and its impact on human health. The results revealed that 37% of the respondents were unaware that Covid-19 can cause serious infections, such as pneumonia, and 24% of the respondents did not realise that washing one's hands with soap for 20 seconds can help prevent the spread of the virus. In addition, most Malaysians possess an average level of knowledge and a neutral attitude towards social-distancing practices. Malaysians' lack of awareness about the seriousness of the Covid-19 pandemic might be because they need time to adopt new attitudes, behaviours, and norms.

For many people, self-care does not come naturally nor easily, and it is influenced by numerous factors, such as attitude, knowledge, and awareness (Di Iorio, 2020). Past studies (e.g., Arina et al., 2020; Zhong et al., 2020) revealed that people's attitudes towards self-care have improved significantly due to the Covid-19 pandemic. A study conducted by Zhong et al. (2020) indicated that there is a significant correlation between a higher level of Covid-19 knowledge; more positive attitudes; and, most importantly, the improved adoption and implementation of safety practices during the rapid rise of the outbreak. In regard to rural communities, some might face difficulties in accessing Covid-19 necessities, such as face masks, hand sanitisers, and information about the virus. People in rural areas face different health challenges depending on where they are located (Centre for Disease Control and Prevention, 2020). Throughout the MCO, the Malaysian government took extra effort to provide food supplies and other necessities to the rural areas of Sabah and Sarawak with the assistance of the Malaysian Armed Forces (Daim, 2020). Support in the form of food supplies and necessities from the authorities should be accompanied by the implementation of awareness and attitude programmes and interventions to create more positive attitudes towards self-care among rural people. Past studies (e.g., Nyakarahuka, 2017, Roy et al., 2020) have shown that knowledge and attitude towards self-care are important elements in dealing with pandemic. Individuals' attitudes, knowledge, and awareness play a significant role in the development of habits and self-care. The public health sector could enhance community members' knowledge and attitudes by supplying more educational materials; providing health education on epidemic preparedness; and using appropriate communication channels, as proposed by the community members themselves (Nyakarahuka, 2017), such as the self-care programme that was conducted in Bongol village in collaboration with university students.

2. Design

The quasi-experimental study design with a pre- and post-study design which involved 10 participants was used in this study. This method was used because it can examine the effectiveness of the self-care programme. The quasi-experimental study most likely to be conducted in field settings in which random assignment is difficult or impossible. (Price, 2013). This method resembles experimental research, but it is not true experimental research.

3. Objectives

To support and deliver positive messages to the rural community, the self-care programme was implemented in collaboration with the Bongol Village Community Management Council during the RMCO. The aim of the programme is to cultivate a positive attitude towards self-care among the youth in the village, particularly during the COVID-19 pandemic. The self-care programme was implemented on 26 June 2020 and adheres strictly to the COVID-19 SOP regulations. The RMCO was announced by the Malaysian prime minister on 7 June 2020 and was in effect from 10 June 2020 until 31 August 2020, with more lenient restrictions compared to the MCO (Flanders Trade, 2020).

4. Methodology

Ten participants took part in the one-day programme and the pre- and post-studies. They originated from the Bongol village, and their ethnicity was Kadazandusun. There were seven females and three males with a mean age of 17.80 (SD = 3.36). Letters of permission were granted by the head of the village and the head of the village community management council before we requested permission from the faculty and university. The self-care programme was conducted once the approval letter from the university was released. The program adhered to the Covid-19 SOP regulations, which stipulated that there could be only a small number of participants in the programme. The Covid-19 SOPs also stipulated that private gatherings should be limited to no more than 20 people at any one time during the MCO, and this remained valid during the RMCO (Thomas, 2020).

4.1. Research instrument

A set of questionnaires consisting of two parts; demographic profile and attitude towards self-care (i.e., physical and psychological) was distributed. The part A measured participants' demographic information such as ethnicities, ages, education levels, parents' occupations and family health). While for Part B measure Attitude towards self-care (physical and psychological). Attitudes towards self-care comprised caring about physical and psychological aspects, such as having adequate sleep, exercising consistently, understanding mood changes, spending time on self-reflection, showing interest in learning strategies to overcome stress, and seeking to understand the meaning of life in the midst of difficulties. Eight items measured attitudes towards self-care and focused on the three elements of attitude (i.e., emotion, beliefs, & psychomotor). The scale response was based on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). These items were created by referring to the definition of self-care, self-care scale (e.g., Gonzalez, 2019; Headington Institute, n.d.). The reliability values of the complete set of questionnaires were tested in the pilot study with 32 participants comprising university students, and the reliability values were acceptable (0.72).

4.2. Results

Ten participants completed the self-care programme and the pre- and post-study questionnaires. Based on the demographic profile of participants, they came from various academic background. Seven of them are still studying in secondary school and the other three are college and university. Most of the fathers working as farmers and their mothers are housewife. The mean age of the participants in this study was 17.80 years (SD = 3.36). The reliability values for attitudes towards self-care was 0.75 for the pre-study and 0.76 for the post-study, and both values were acceptable (see Table 1). The study showed that there is a significant difference between the pre- and post-studies regarding youth's attitudes towards self-care. The Wilcoxon signed-rank test showed the mean scores for attitudes towards self-care in the pre-study (M = 31.40, SD = 4.53) and post-study (M = 33.60, SD = 3.72, $z = -2.08$, $p = .037$).

5. Discussions

The self-care programme in the Bongol village was implemented during the RMCO. Although the number of Covid-19 cases has decreased, it is important to keep sharing and creating awareness of the importance of physical and psychological self-care, particularly in this rural community, during the pandemic. The study showed that between the pre- and post-study periods, there was a significant difference in participants' attitudes towards self-care: Attitudes were more positive after the participants completed the one-day self-care programme. Various factors might contribute to these positive and significant results, such as the activities that were organised by the 28 students who took the attitude-change course during semester two. The organised activities entailed a brief talk by the organiser on self-care during the Covid-19 pandemic, and this was followed by the delivery of COVID-19 information, self-care talks, and a video presentation by the psychology students. Positive talks and self-care information delivered to participants might influence the cognitive, emotional, and psychomotor elements of attitude. These three elements were thoroughly discussed in the video presentation, which lasted 20.02 minutes. The programme instructor also provided self-reflection question-and-answer sessions, during which participants could thoroughly discuss the content of the video and self-care related to the Covid-19 pandemic. Each activity that was arranged in this programme contributed to the participants' positive thoughts or beliefs about self-care, particularly during the RMCO. This possibly triggered more positive emotions regarding engagement with self-care behaviour and showed greater intentions to perform self-care behaviour, such as exercising consistently every day, getting adequate sleep, spending more time on self-reflection, and learning ways to overcome stress. In regard to changing people's attitudes, all three elements of attitude need to be given attention because they are interrelated. For instance, if participants merely had positive thoughts or beliefs about self-care but showed a lack of intention to perform self-care behaviours, this might

have affected their overall attitudes towards self-care. To ensure that the attitude-change programme runs well, it is important to refer to the Yale Attitude Change Model (Hovland, Janis & Kelly, 1953), which places emphasis on the practical question “Who says what to whom and with what effect?” In the Bongol village self-care programme, “who” represents university students and lecturers; “says” refers to the self-care messages and activities; “whom” refers to the programme’s recipients (i.e., 10 youths in Bongol village); and “what effect” refers to the participants’ attention, comprehension, and acceptance, which may yield attitude changes among the participants. During the programme, each participant was provided with a mask and a small bottle of hand sanitiser. The participants were also reminded to wash their hands regularly with the hand-sanitiser gel that was provided in the community hall. In addition, Covid-19 infographics were placed in strategic locations in the community hall. These activities may improve participants’ attitudes, awareness, and interest in caring for themselves, and it is hoped that the positive attitudes gained from the programme will remain after the pandemic.

6. Conclusions

The active efforts made, and initiative shown by the Malaysian government, combined with the support of the relevant authorities and community, can lead to success if all parties work together to reduce the number of Covid-19 cases to zero and to effectively manage the Covid-19 pandemic. Each party should support the other and continue persuading people to follow the SOPs, such as practising personal self-care and looking out for the people around them. This is because self-care is not only a tool for coping with the pandemic but also about honouring ourselves; in doing so, we say to ourselves and to everyone else, “I matter” (Di Iorio, 2020). Based on Di Iorio’s statement, we conclude that the self-care messages are not only shared with the people who are close to us but also with the members of underprivileged communities, who may lack accessibility to Covid-19 information and necessities. During this time, it is important to run self-care and any other programmes related to Covid-19 awareness that may inculcate positive attitudes and behaviours among the members of rural communities. Doing this may help protect Malaysia from Covid-19, which has affected so many people around the globe. These programmes may create more positive attitudes towards self-care, and it is hoped that in the long term, these positive attitudes will remain and will become part of the participants’ daily self-care routines after the pandemic.

Acknowledgements

Our heartfelt appreciation goes to the 10 youth who completed the one-day self-care programme and participated in the study. We also thank the head and committee members of the Bongol Village Community Management Council and the head of Bongol village for supporting the programme and allowing it to be implemented in the village. Our gratitude also goes to the 28 psychology students led by Fariha Gaspar who created the self-care COVID-19 videos. We also thank University Malaysia Sabah for giving us permission to implement the programme during the RMCO, as well as the four volunteers—Musa, Siti Hafizah, Kathijah, and Ruvina—who assisted us during the programme. The generous support and assistance that we received symbolise the community solidarity that is needed to combat the spread of Covid-19.

References

- Arina, A.A., Mohammad Rezal, H., Tham, J.S., Suffian, H.A., & Emma, M. (2020). Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia, <https://doi.org/10.1371/journal.pone.0233668>, Retrieved from <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0233668>
- Asnarulkhadi, A.S., Mahazan, M., Abdul Hadi, S., & Siti Rahah, H. (2020). *Knowledge, attitudes and practice among Malaysians in facing COVID-19 during the implementation of Movement Control Order*. Research Square, 1-17, Doi.10.21203/rs.3.rs-35626/v1
- Centre for Disease Control and Prevention. (August 3, 2020). Rural community, Retrieved from <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/other-at-risk-populations/rural-communities.html>
- Daim, N. (31 March, 2020). Armed forces assess to deliver food, necessities in rural Sabah, Sarawak, Retrieved from <https://www.nst.com.my/news/nation/2020/03/579903/armed-forces-assets-deliver-food-necessities-rural-sabah-sarawak>
- Di Iorio, M.S. (2020). The Importance of Self Care During the Pandemic, <https://www.tapinto.net/towns/scotch-plains-slash-fanwood/articles/the-importance-of-self-care-during-the-pandemic>

- Flanders Trade. (15 July, 2020). *Coronavirus-the situation in Malaysia*, Retrieved from <https://www.flandersinvestmentandtrade.com/export/nieuws/corona-virus-%E2%80%93-situation-malaysia>
- Gonzalez, M.J. (2019). An Exploration of Self-Care in Relation to Burnout and Compassion Fatigue Among Social Workers, Retrieved from <https://digitalcommons.acu.edu/cgi/viewcontent.cgi?article=1149&context=etd>
- Headington Institute. (n.d). Self-care and lifestyle balance inventory, Retrieved from https://headington-institute.org/files/test_self-care-and-lifestyle-inventory_best_76305.pdf
- Hovland, C.I., Janis, I.L., & Kelley, H.H. (1953). *Communication and persuasion: Psychological studies of opinion change*, New Haven: Yale University Press
- Ilesanmi, O., & Alele, F.O. (2014). Knowledge, attitude and perception of Ebola virus disease among secondary school students in Ondo State, Nigeria. *currents. outbreaks.* 4, 8, doi: 10.1371/currents.outbreaks.c04b88cd5cd03cccb99e125657eecd76
- Nyakarahuka, L. (2017). Knowledge and attitude towards Ebola and Marburg virus diseases in Uganda using quantitative and participatory epidemiology techniques, *PLoS Negl Trop* (2017). doi: 10.1371/journal.pntd.0005907
- Price, C.P. (2013). *Research methods of psychology*, California State University
- Steindl, C., Jonas, E., Sittenthaler, S., Traut-Mattausch, E., & Greenberg, J. (2015). Understanding psychological reactance: New developments and findings, *Zeitschrift Fur Psychologie*, 223(4): 205–214. doi: 10.1027/2151-2604/a000222
- Thomas, J. (2020). *Restriction on number of visitors to 29 still applies, says Ismail Sabri*, Free Malaysia News (FMT), Retrieved from <https://www.freemalaysiatoday.com/category/nation/2020/06/13/restriction-on-number-of-visitors-to-20-still-apply-says-ismail-sabri/>
- Wikipedia (2020). *Malaysia movement control order*, https://en.wikipedia.org/wiki/2020_Malaysia_movement_control_order
- Wise, A. (April 22, 2020). Why self-care is important during COVID-19 especially for health care workers. <https://healthydebate.ca/2020/04/topic/pandemic-self-care>
- World Health Organisation (2020). Mental health and psychosocial considerations during the COVID-19 outbreak, https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.pdf?sfvrsn=6d3578af_2
- World Health Organization (WHO). (12 June, 2020). Self-care during covid-19 <https://www.who.int/news-room/photo-story/photo-story-detail/self-care-during-covid-19>
- Yusof, A. (28 August, 2020). *Malaysia's recovery movement control order extended to Dec 31, tourists still not allowed in: PM Muhyiddin*. Retrieved from <https://www.channelnewsasia.com/news/asia/malaysia-recovery-movement-control-order-extended-dec-31-mco-13047724>
- Zhong, B., Luo, W., Li, H., Zhang, Q., Liu X., Li, W., Li, Y. (2020). Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey, *International Journal of Biological Sciences*, 16(10), 1745-1752. Retrieved from https://www.researchgate.net/publication/340087133_Knowledge_attitudes_and_practices_towards_COVID-19_among_Chinese_residents_during_the_rapid_rise_period_of_the_COVID-19_outbreak_a_quick_online_cross-sectional_survey [accessed Jan 16 2021].

PERCEPTIONS OF THE LOCKDOWN: CURRENT AND RETROSPECTIVE ASSESSMENTS

Marina Egorova¹, Oxana Parshikova¹, Daria Tkachenko², & Yulia Chertkova¹

¹Lomonosov Moscow State University, Moscow (Russia)

²Russian State University for the Humanities, Moscow (Russia)

Abstract

This article presents data from a study conducted over the course of two weeks: the last week of the lockdown and the first week after the lockdown was lifted. The study participants (undergraduate and graduate students, $n=227$, mean age of 21.8, 71.7% females) rated their perceptions of various aspects of the pandemic (online COVID-19 Questionnaire), as well as the problems that they experienced in the beginning and middle of the lockdown (retrospective assessments) and at the end of the lockdown (current assessments). A brief HEXACO inventory was used to measure personality traits. The results were compared with data obtained in the study conducted during the first three weeks of the lockdown. Its participants (undergraduate and graduate students, $n=617$, mean age of 20.4, 74.2% females) had filled out an online COVID-19 Questionnaire and a brief HEXACO inventory. The objective of the study was to identify changes in the respondents' well-being and behavior during the lockdown, and the role of personality traits in this process.

The main results of the study were as follows: Retrospective assessments of the Danger of COVID-19 and the Fear of Getting Sick relating to the beginning of the lockdown did not contradict the current assessments from that period. The perception that the lockdown brought not only restrictions but also new opportunities dropped sharply between the beginning and the middle of the lockdown and continued decreasing; concurrently, the significance of negative factors increased. Various aspects of disorganization in life were most evident around the middle of the lockdown; disorganization at the end of the lockdown declined, but remained higher than at the start of the lockdown. Perceptions of the Negative Aspects of the Lockdown, Fear of Getting Sick, and Disorganization had a positive correlation with Emotionality and a negative correlation with Conscientiousness at all stages of the lockdown.

Keywords: Perception of COVID-19, lockdown, personality traits, HEXACO.

1. Introduction

Studies conducted during the COVID-19 epidemic and other less large-scale epidemics of the past two decades show that at least half of respondents experience serious psychological problems: symptoms of depression, heightened anxiety and stress (e.g., Altieri, Santangelo, 2021; Brooks et al., 2020; Casagrande et al., 2020; Gao et al., 2020; Somma et al., 2020; Tung et al., 2020; Qiu et al., 2020). The studies report changes in the relationship between social and biological rhythms (Blume et al., 2020), heightened sensitivity to social risk (Ding et al., 2020), and reduced satisfaction with life (e.g., Brooks et al., 2020; López-Núñez et al., 2021). The results demonstrate an increase on average in psychological problems in the population and are supported by longitudinal studies comparing changes in the psychological status of respondents who were evaluated first before the COVID-19 outbreak and later during the pandemic (e.g., Li S. et al., 2020; Ruggieri et al., 2020; Sønderskov et al., 2020).

Forced isolation, which restricts contacts with the outside world and requires the implementation of new and not always effective distance learning and remote work formats, not only amplifies the psychological stress that sets in as a response to danger and unpredictability, but also exacerbates previously latent problems. This is evidenced, for example, by complications in family relationships and surges in domestic violence observed in different countries (for example, Gelder et al., 2020).

2. Objectives

Perceptions of the lockdown and its underlying causes were changing even during the two-week period of isolation. The official lockdown in Russia lasted 67 days, but some restrictions were introduced

two weeks earlier for students and certain categories of workers when a switch was made to distance learning.

Lengthy isolation is inevitably accompanied by changing attitudes toward the underlying cause of the isolation and toward complying with restrictions, as well as fluctuations in mood and in perception of the self and the surrounding world. The objective of our study was to assess changes in the behavior and well-being of students over the course of the lockdown and to determine the extent to which the reaction to the pandemic and isolation is associated with factor-level traits.

3. Participants

Two studies were carried out during the official lockdown in Russia. Study 1 was conducted over the first three weeks of the lockdown. Study 2 was conducted during the last week of the lockdown and the first week after it was lifted. The respondents in both studies were undergraduate and graduate students. The first study had 617 participants with a mean age of 20.4, $SD=2.4$, 74.2% females. The second study had 227 participants with a mean age of 21.8, $SD=5.0$, 71.7% females.

4. Measures

1. The respondents' perceptions of the dangers of COVID-19 and the social situation resulting from the spread of the coronavirus were assessed using a 22-item questionnaire developed by the authors (Egorova et al., 2020). The COVID-19 Questionnaire measures 4 scales: Danger of COVID-19, Conspiracy Beliefs, Recognition of the Need for Quarantine, and Hopelessness.

2. Perceptions of and emotional experiences during the lockdown were diagnosed using a 23-item questionnaire developed by the authors. The respondents were asked to assess the degree to which they experienced particular problems at the beginning, middle, and end of the lockdown. The Problems and Emotional Experiences During the Lockdown Questionnaire measured four scales: Positive Aspects of the Lockdown, Negative Aspects of the Lockdown, Fear of Getting Sick, and Disorganization.

3. A short version of the Russian adaptation of the HEXACO-PI-R inventory (Egorova et al., 2019) was used to assess personality traits: Honesty/Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience.

All of the questionnaires were submitted online. Respondents rated their agreement-disagreement with the statements of three inventories on a 5-point Likert scale.

Study 1 (first three weeks of the lockdown) used the first and third inventory. Study 2 (end of the lockdown) used all three inventories.

5. Results

This article presents a brief overview of data obtained in Study 2, which was conducted at the end of the lockdown, and compares some of the results of Study 1 and Study 2.

5.1. Descriptive statistics

Mean values from the four scales of the questionnaire obtained in Study 2 (end of the lockdown) are presented in Table 1. Over the course of the lockdown, its positive aspects (such as getting additional free time) became less pronounced, the Fear of Getting Sick decreased, and Disorganization (such as sleep disturbances and increased irritability) escalated, particularly in the middle of the lockdown. Differences between females and males were identified for only one scale: males provided lower assessments of the Negative Aspects of the Lockdown (such as disruption of plans).

Table 1. Mean Values and Standard Deviations of the Problems and Emotional Experiences During the Lockdown Questionnaire Scales.

| Study 2 (end of the lockdown) | Lockdown | | | | | |
|----------------------------------|-----------------|------------------|-----------|-----------|------------------|-----------------|
| | Beginning | | Middle | | End | |
| | Females | Males | | | | |
| Lockdown as New Opportunities | 3.5(1.01) | 3.3(1.09) | 2.7(1.0) | 2.7(1.06) | 2.6(1.08) | 2.5(0.92) |
| Negative Aspects of the Lockdown | 3.1(1.0) | 2.5(0.95) | 3.2(1.01) | 2.7(1.04) | 3.2(0.98) | 2.7(1.0) |
| Fear of Getting Sick | 3.4(1.07) | 3.3(1.34) | 3.1(0.99) | 3.1(1.15) | 2.6(0.96) | 2.8(1.16) |
| Disorganization | 2.2(0.90) | 2.3(0.81) | 2.8(1.03) | 2.6(0.98) | 2.5(0.98) | 2.4(0.88) |

Note: Mean values with significant differences between females and males are marked in bold.

5.2. Positive and negative aspects of the lockdown

When the lockdown was announced, it prompted contradictory emotions. On the one hand, no one was happy about the danger of the coronavirus, the disruption of plans, and the prospects of constantly being in a confined space. On the other hand, the lockdown was associated with a reduced likelihood of infection and the hope that the spread of the epidemic in Russia could be quickly stopped. Against this complex emotional background, the sudden and extreme nature of the developments was perceived by some respondents as a series of exciting events. It is no coincidence that at the start of the lockdown, the tendency to see its positive aspects exhibited a positive correlation with Emotionality ($r = 0.19, p < 0.01$). Fifty-nine percent of respondents recalled that when the lockdown was announced, they were almost exhilarated by the extraordinariness of the situation. By the middle of the lockdown, the share of such respondents fell considerably to 20%, and by the end of the lockdown it was down to 16%. At the same time, even at the end of the lockdown, the Lockdown as New Opportunities scale showed a negative correlation with the questionnaire item “Forced isolation was harder for me than I thought it would be” ($r = -.24, p < .01$).

By the end of the lockdown, only 16% of respondents felt that the lockdown gave them an opportunity to relax or to live a less stressful life. Retrospective assessments indicate that about two-thirds (67%) of respondents had this expectation at the beginning of the lockdown and less than a third (32%) did by its middle.

Almost half of respondents believed that they were able to achieve things during the lockdown that they didn’t have enough time for previously (47%); however, 76% had hoped for this at the beginning of the lockdown.

Approximately a third of respondents thought at the beginning, middle, and end of the lockdown (34%, 37%, and 37%, respectively) that the lockdown and the disruption of normal life was useful for them and helped them understand themselves.

Negative Aspects of the Lockdown became more pronounced as it went on. Respondents found it particularly traumatic that they couldn’t interact with friends the way they did before. The percentage of respondents who reported this rose from 30% at the beginning of the lockdown to 48% at its end.

At all stages of the lockdown, the tendency to suffer from restrictions resulting from the isolation had a positive correlation with Emotionality ($r_s = 0.25, 0.34, \text{ and } 0.37, p < 0.001$) and a negative correlation with Conscientiousness ($r_s = -0.23, -0.18, \text{ and } -0.22, 0.01 < p < 0.001$).

5.3. Perception of the danger of COVID-19

The perception of the Danger of COVID-19 was relatively stable (Table 2): indicators from the Danger of COVID-19 scale obtained in the first 3 weeks of the lockdown had a significant correlation with Fear of Getting Sick at the end of the lockdown ($r = .50, p < .000$) and with retrospective assessments of the perception of the danger at the beginning ($r = .50, p < .000$) and middle ($r = .52, p < .000$) of the lockdown. Fear of getting sick and Recognition of the Need for Quarantine remained at approximately the same level.

Belief in Conspiracy Theories and Hopelessness had a negative correlation with the Fear of Getting Sick, i.e., the correlations were analogous to those between these scales and the perception of the Danger of COVID-19 in Study 1 (beginning of the lockdown).

Table 2. Correlations Between Questionnaire Scales Diagnosed During the First Three Weeks of the Lockdown and Fear of Getting Sick Diagnosed at the End of the Lockdown.

| Study 2 (end of the lockdown) | | Study 1 (first three weeks of the lockdown) | | | |
|----------------------------------|-----------|---|-------------------------------|--|--------------|
| | | Danger of COVID-19 | Belief in Conspiracy Theories | Recognition of the Need for Quarantine | Hopelessness |
| Fear of Getting Sick | Beginning | .50** | -.28* | .46** | -.26* |
| | Middle | .52** | -.37** | .49** | -.27* |
| | End | .50** | -.26* | .54** | -.24* |

Note: * $p < 0.01$, ** $p < 0.001$

The stability of the correlations of the Fear of Getting Sick does not testify to the stability of its absolute values. Over the course of the lockdown, the mean values of the Fear of Getting Sick were declining, as was the share of respondents who perceived the coronavirus as a serious danger. Thus, for example, at the beginning, middle, and end of the lockdown, the share of respondents who were afraid of getting sick amounted to 49%, 46%, and 38%, while the share of those who were constantly following the

dynamics of the pandemic was 54%, 33%, and 13%. Concurrently, the proportion of those who violated lockdown restrictions increased from 28% to 34% and then 43%.

It should be noted that the decrease in the subjective assessment of the Danger of COVID-19 by the end of the lockdown did not reflect the actual situation with the pandemic, because the number of new infections in Russia on the day when the lockdown was lifted was much higher than on the day when the lockdown was announced (8,985 on July 8 compared to 771 on April 2). Reasons for the more optimistic view of the pandemic included not only adapting to life with the coronavirus but also quarantine fatigue (“it’s better to get the virus than to live like this”) and various versions of the devaluation of its dangers, among them unwillingness to hear anything about the coronavirus. Thus, the share of respondents who were paying attention to the dynamics of the pandemic decreased from 54% at the beginning of the lockdown to 33% in the middle and 13% at the end.

Fear of Getting Sick also exhibited a low correlation with Emotionality ($r_s = .24, .21, .15, .05 < p < .001$) and at the beginning of the lockdown with Extraversion ($r = -.16, p < .02$), while unwillingness to hear anything about the coronavirus had a negative correlation with Conscientiousness at the end of the lockdown ($r = -.23, p < .002$).

5.4. Disorganization

The frequency of positive responses to items related to the Disorganization factor (i.e., statements of ill-being) makes it possible to determine the share of respondents who experienced various problems during the lockdown. The greatest share of positive responses was observed at the middle of the lockdown (up to 53.8%), when all of the problems of life in a confined space had already become clear, the number of infections continued to rise, and, one after another, forecasts for the lifting of the lockdown were failing to materialize. Between the middle and the end of the lockdown, the percentage of respondents who reported ill-being decreased, but it still remained much higher (by 25–90%) for all items than it was at the beginning of the lockdown. At the end of the lockdown, respondents most frequently reported that they experienced disruptions in sleep and daily routines, apathy (not wanting to do anything), and a constant sense of tiredness and fatigue, depressed mood, and the feeling that they couldn’t think as well (34–51%).

The Disorganization scale exhibited a correlation with Emotionality at the middle and end of the lockdown ($r_s = .25, .29, p < .001$), a negative correlation with Agreeableness at the beginning of the lockdown ($r = -.16, p < .02$), and a negative correlation with Conscientiousness at all stages of the lockdown ($r = -.39, -.28, -.30, p < .000$).

5.5. Correlations between factor-level personality traits and attitudes toward the COVID-19 pandemic

The HEXACO personality traits diagnosed in Study 1 (at the beginning of the lockdown) exhibited less close but more varied correlations with various items of perceptions of the pandemic than personality traits diagnosed at the end of the lockdown.

Study 1 showed that the lockdown turned out to be least traumatic for those with high levels of Honesty/Humility, Conscientiousness, and Agreeableness. Extraversion, Feeling of Hopelessness, and Belief in Conspiracy Theories contributed to the violation of lockdown measures. Study 2 found significant correlations with various aspects of experiencing the lockdown for only two personality traits: Emotionality and Conscientiousness.

6. Conclusions

The perception that the lockdown generated not only limitations but also new opportunities plummeted between the beginning and the middle of the lockdown, and then continued declining. Concurrently, the significance of negative aspects increased.

The official end of the lockdown did not mean that the problems that had emerged during the period of isolation were resolved. Various aspects of disorganization in life showed through the most at the middle of the lockdown. By the end of the lockdown, Disorganization was declining, although it remained higher than it was at the beginning. At the end of the lockdown, respondents most frequently reported disruptions in sleep and daily routines, apathy (not wanting to do anything), a constant feeling of tiredness and fatigue, depressed mood, and the sense that they could not think as well. The disruptions arising from isolation had the lowest effect on interpersonal relations.

All scales diagnosed during the first three weeks of the lockdown (Danger of COVID-19, Conspiracy Beliefs, Recognition of the Need for Quarantine, and Hopelessness) only exhibited correlation with Fear of Getting Sick at the end of the lockdown.

The assessment of Negative Aspects of the Lockdown, Fear of Getting Sick, and Disorganization had a positive correlation with Emotionality and a negative correlation with Conscientiousness at all stages of the lockdown.

Retrospective assessments of the Danger of COVID-19 and Fear of Getting Sick did not contradict the current assessments of that period.

References

- Altieri, M., & Santangelo, G. (2021). The psychological impact of COVID-19 pandemic and lockdown on caregivers of people with dementia. *The American Journal of Geriatric Psychiatry*, 29 (1), 27-34.
- Blume, C., Schmidt, M. H., & Cajochen, C. (2020). Effects of the COVID-19 lockdown on human sleep and rest-activity rhythms. *Current Biology*, 30 (14), R795-R797.
- Brooks, S.K., Webster, R.K., Smith, L.E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G.J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet*, 395, 912–920.
- Casagrande, M., Favieri, F., Tambelli, R., & Forte, G. (2020). The enemy who sealed the world: effects quarantine due to the COVID-19 on sleep quality, anxiety, and psychological distress in the Italian population. *Sleep Medicine*, 75.
- Ding, Y, Xu, J, Huang, S, Li, P, Lu, C, & Xie, S.(2020) Risk perception and depression in public health crises: Evidence from the COVID-19 Crisis in China *International Journal of Environmental Research and Public Health*, 17(16), 5728.
- Egorova, M.S., Parshikova, O.V., & Mitina, O.V. (2019). Struktura rossiiskogo varianta shestifaktornogo lichnostnogo oprosnika HEXACO-PI-R. [Structure of the Russian variant of the six-factor HEXACO personality inventory]. *Voprosy Psikhologii*, 5, 33–49.
- Egorova, M.S., Parshikova, O.V., Zyryanova, N.M., & Staroverov, V.M. (2020). Cherti lichnosti i vospriyatie pandemii COVID-19 [Personality traits and the perception of the COVID-19 pandemic]. *Voprosy Psikhologii*, 4, 81-103.
- Gao, W., Ping, S., & Liu, X. (2020). Gender differences in depression, anxiety, and stress among college students: a longitudinal study from China. *Journal of Affective Disorders*, 263, 292–300.
- Li, S., Wang, Y., Xue, J., Zhao, N., & Zhu, T. (2020) The Impact of COVID-19 Epidemic Declaration on Psychological Consequences: A Study on Active Weibo Users. *International Journal of Environmental Research and Public Health*, 17(6), 2032.
- López-Núñez, I., Díaz-Morales, J.F., Aparicio-García, M.E. (2021) Individual differences, personality, social, family and work variables on mental health during COVID-19 outbreak in Spain. *Personality and Individual Differences*, 110562.
- Qium J., Shenm B., Zhaom M., Wangm Z., Xiem B., Xum Y. (2020) A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: Implications and policy recommendations. *General Psychiatry*, 33 (2), 100213.
- Ruggieri, S., Ingoglia, S., Bonfanti, R.C., & Lo Coco, G (2020). The role of online social comparison as a protective factor for psychological wellbeing: A longitudinal study during the COVID-19 quarantine. *Personality and Individual Differences*, 110486.
- Somma, A., Gialdi, G., Krueger, R.F., Markon, R.E., Frau, C., Lovallo, S., & Fossati, A. (2020) Dysfunctional personality features, non-scientificallly supported causal beliefs, and emotional problems during the first month of the COVID-19 pandemic in Italy. *Personality and Individual Differences*, 165, 110139.
- Sønderskov, K.M., Dinesen, P.T., Santini, Z.I., & Østergaard, S.D. (2020) The depressive state of Denmark during the COVID-19 pandemic. *Acta Neuropsychiatrica*, 1–3.
- Tang W., Hum T., Hum B, Jinn C., Wangm G., Xiem C., Chenm S., & Xum J. (2020). Prevalence and correlates of PTSD and depressive symptoms one month after the outbreak of the COVID-19 epidemic in a sample of homequarantined Chinese university students. *Journal of Affective Disorders*, 274, 1–7.
- Van Gelder, N., Peterman, A., Potts, A., O'Donnell, M., Thompson, K., Shah, N., & Oertelt-Prigione, S. (2020). COVID-19: Reducing the risk of infection might increase the risk of intimate partner violence. *EClinicalMedicine*, 21.

THE EFFECTS OF PREVIOUS ADVERSITY, HAPPINESS AND RELIGIOUS FAITH IN ENHANCING UNIVERSITY STUDENTS' RESILIENCE TO THE COVID-19 PANDEMIC

Getrude C. Ah Gang, Chua Bee Seok, & Carmella E. Ading
Faculty of Psychology and Education, University Malaysia Sabah (Malaysia)

Abstract

The start of 2020 marked a fresh beginning when people moved forward with new resolutions, all hoping for the best in their career, family, relationships, and academic pursuits. All those wishes were disrupted, however, by the Covid-19 pandemic, which has especially affected university students regarding their academic goals. The new learning norms that were adopted in universities to contain the spread of the pandemic have caused worry, anxiety, and stress in many students. To deal with these unexpected circumstances, university students must augment their inner strengths to enhance their resiliency during the Covid-19 pandemic. To better understand the situation, this study examined previous adversity, happiness and religious faith that were predicted to enhance students' resiliency. There were 415 university students in Sabah, Malaysia participated in the study. The mean age was 21.96 years (SD=4.08). Among the participants, there were 330 females (79.50%), 84 males (20.20%) and one person (0.2%) who did not disclose a gender. The study found that students who were happier and stronger in religious faith tended to be more resilient while the experience of many previous adversities had a significant negative effect on students' resiliency. Based on these findings, we hope that more university programs will be devised to elevate students' happiness, build stronger faith and offering psychological programs for students who have experienced many previous difficulties.

Keywords: *Resiliency, religious faith, happiness, past-life adversity.*

1. Introduction

The spread of the coronavirus which was marked in Wuhan, China was not only caused a great worry and panic to the Wuhan community but people around the globe. This when coronavirus cases were first reported by the World Health Organisation (WHO) that occurred in Japan, South Korea, and Thailand (Taylor, 2020). To prevent the cases from getting increased, many governments of the affected country have implemented the lockdown as to control and to flatten the coronavirus cases, including in Sabah, Malaysia. Many schools and universities were temporarily closed and replaced with the fully online and distance learning. In Malaysia, the first phase of lockdown was marked on the 18 March until 01 April 2020 and extended to other phases because of the increasing coronavirus cases. This has caused concern among the governments and society of the economic, social, and health downturn. Many well-planned activities were disrupted and need to be adjusted and this also affected local and private university students who were amid their study.

During the pandemic, many students struggle in adjusting their new studying norms from face-to-face learning to fully online and distance learning. Some students might face difficulty in joining the online teaching due to the poor internet connection or lack of infrastructure such as electricity particularly students in the interior place. This may cause worry, anxiety, and stress because they might miss their subject learning and the online exam. In the flip side, they have more time for reading, completing their academic tasks and involving in personal in-door activities and these may help to uplift their positive feelings such as happiness. According to Tyagi, Gaur & Sharma (2020), most students are happy while staying at home because they have adequate time for themselves and these can help them to keep their emotions in control. For students who were stayed on-campus, they have more time to focus on their study and able to follow the online teaching because of good internet connection provided by the university.

Continuous intangible and tangible support from the university and government may also help to regain students' happiness during the lockdown. For instance, the Sabah government provide tangible assistance to 40 public and private higher learning institutions in Sabah (Borneo Post, April 16, 2020). Hence, happiness that reflected on students' may help to lift their resiliency in facing with coronavirus challenges. Past studies (e.g., Aboalshamat et al., 2018; Kirmani, Sharma, Anas & Shanam, 2015; Tyagi et al., 2020) revealed that there is an effect of resiliency on happiness. Positive emotions are essential not only for producing durable happiness, but also for bolstering coping and resilience in the face of adversity (Lyubomirskt & Della Porta, 2008).

In terms of religious beliefs, people who are devoted to their religious faith are happier, healthier, and have more coping resources than those for whom religion and spirituality are less important (Patrick & Kinney, 2003). In addition, the strong spiritual beliefs may lead to higher levels of psychological well-being (Kumar & Singh, 2014). Besides happiness and religious faith, past-life adversity is also one of the factors which can elevate students' resiliency. Previous studies (e.g., Brett & McKay, 2020; Gartland et al., 2019) revealed that students' who experiences of previous difficulties such as during childhood and teenagers may allow them to be more resilient by developing independence and determination. This showed that past-life difficulties can help the person to regain and move forward for a better way.

1.1. Literature review

Some people believe that they cannot choose to be happy and they cannot influence their own emotion. This belief however can become a self-fulfilling prophesy, helping doom them to unhappiness (Stevens, 2010). However, when we think positively, we tend to perceive things in colours and may spark happiness in our life. This happy moment may help people to be in control and be more mindfulness which lead to strong resiliency in facing life difficulties. When we feel happy, we tend to think positively and approaching life's challenges with a positive outlook as stated in past studies (e.g., Cosmas, 2020; Lower, 2014). Besides happiness, religion is also used as a tool to overcome any life difficulties. People who held a religion regardless any faith backgrounds tend to rely on their spirituality beliefs when facing any kind of circumstances. This may help them to search the meaning and understanding of things that happen surround them such as the coronavirus pandemic. Pirustinsky, Cherniak and Rosmarin (2020) stated that religion can stands as a coping mechanism in dealing with life stress. By engaging in religious activities such as praying daily, perceiving religion as an important source of happiness, comfort, meaning, and life purpose may strengthen students' faith and resiliency. The past-life adversity also contributes to strong resiliency resilient participants with more experiences of adversity and stress showed higher well-being than those with fewer stressful experiences. Resilient people are those who learn to move past obstacles and challenges in healthy way (Cheetham-Blake et al., 2019; Hildon et al., 2008). They also learn how to set themselves back on even ground after a stressful event (Riopel, 2020). A study by Newcomb et al. (2019) focused on 265 undergraduate students in Queensland, Australia and reported that students who experience childhood adversity tend to develop independence and determination, which in turn led to the development of resilience, giving them greater ability to cope with the stresses of university courses. The preceding argument of past-life adversity shows that students who experienced life difficulties in the past tend to have strong resiliency when dealing with any difficult circumstances.

2. Design

In this study, participants were recruited based on purposive sampling and snowball sampling which focuses on university students both local and university students in Sabah, Malaysia. The purposive sample is a non-probability sample that is selected based on characteristics of a population and the objective of the study (Crossman, 2020).

3. Objectives

Based on the three preceding factors (i.e., happiness, religious faith & past-life adversity), we predicted that students who scored higher level of happiness, strong religious faith, and experienced past life difficulties (e.g., academic, financial, and family problems) might be less vulnerable when facing difficulties during the coronavirus lockdown and pandemic. This is because each of this factor contributed to students' resiliency. These three factors were thoroughly examined and discussed in this paper.

4. Methodology

Amid the coronavirus, the most convenient and safety strategy in conducting data collection is by using a Google form survey. Participants were invited to join in this study by sending them the Google form survey link through various social media platforms. In addition, we also use snow-ball strategy by requesting students who were already participated in this study to share the survey link to their friends. This may help to involve more local and private students to participate in this study. A set of questionnaires consisting of demographic profile and four scales (i.e., resiliency, religious faith, happiness, & past-life adversity) were used to gather data. **Demographic Profiles to gather data on** participants' demographic information. **Brief Resilient Coping Scale** (Sinclair & Wallston, 2004); to measure students' resiliency coping skills and the response rate from 1- 'does not describe me at all' to 5- 'does describe me very well.' The sample items for this scale were 'I look for creative ways to alter difficult situations,' and 'I actively look for ways to replace the losses I encounter in life'. **Subjective Happiness Scale** (Lyubomirsky & Lepper, 1999); to measure students' happiness during the three phases of the coronavirus lockdown. The sample items were 'In general I consider myself as...' and 'Compared to most of my peers, I consider myself as...'. The scale response ranged from 1- 'not a very happy person' to 7- 'a very happy person'. **Religious Faith Scale** (Plante & Boccaccini, 2007); to measure participants' religious faith by asking participants to rate the level of agreement for each item based on the 5-point Likert-type scale, ranging from 1- 'strongly disagree' to 5- 'strongly agree.' The sample items were 'I look to my faith as the source of inspiration,' and 'I look to my faith as a source of comfort.'

Past-life Adversities Scale (adapted from Boparai et al.'s 2017 & Felitti et al.'s 1998), This scale that examined the challenges participants' face in daily life such as financial, familial, relationship, and academic challenges. The response scale is binary, with 1- 'yes' and 2- 'no.' The internal consistency for each scale in this study ranged from .60-.95.

4.1. Results

A total of 415 public and private university students participated in this study. The mean age was 21.96 (SD =4.08). There were 330 females (79.50%), 84 males (20.20%), and 1 (0.3%) who did not disclose a gender. The study found that students who were happier and stronger in religious faith tended to be more resilient while the experience of many previous adversities had a significant negative effect on students' resiliency. The simple regression test for the alternate hypothesis showed that there are positive, significant effects of happiness on students' resiliency ($\beta = .24$, $t_{1,414} = 4.96$, $p = .00$). The happier the students, the higher their resilience. Happiness contributed 5.6% to the variance of resiliency. Religious faith contributed 6.4% to the variance of resiliency ($\beta = .26$, $t_{1,414} = 5.43$, $p = .00$). These two findings demonstrate that students who reported being happier and having stronger religious faith tended to show high resilience. In contrast, students who experienced more past-life adversity (e.g., felt unsupported or unloved, lived with divorced parents or dealt with family members with social problems) tended to have lower resiliency. The study showed that past-life adversity showed significant effect on resiliency ($\beta = -.11$, $t_{1,141}, t = -2.31$, $p = .02$) which contributed 1.3% on the variance resiliency.

5. Discussion

The study revealed that participants who were happier showed higher in resiliency. This happy feeling could be retrieved from various sources during the pandemic such as gain more time to complete their academic tasks and other personal activities. This revealed in Tyagi et al.'s (2020) study that most students actually happy while staying at home. This is because they have more time to read and completed their academic tasks. All these can help them to keep their emotions in control and be more focused on their academic. In addition, by staying at home, they will be less worry of being infected. This in turn can help to strengthen students' resiliency when dealing with huge changes like those they experienced during the pandemic. Being happy is not only feels good, but it is also associated with successful outcomes in life. However, we cannot deny, some students might find it difficult to feel happy, especially during the pandemic. In times of stress and uncertainty, people easy to get panic and become irrational. However, in order to defeat Covid-19, it is essential to remain positive, optimistic and collaborative; choosing to be happy will support all of that (Al Atabi, 2020). In this study, stronger religious faith may elevate students' resiliency during the three phases of the coronavirus lockdown. This is in line with past studies (Agaibi, 2018; Rahmati et al., 2017) that resiliency can be strengthened by religious faith. Religious faith is a powerful source of hope, meaning, peace, comfort, and forgiveness for oneself (Brewer-Smyth & Koenig, 2014). Resilience appears to be an important concept in religion, and religion appears to correlate with an individual's resilience (Lower, 2014). This might be one of the reasons that contributed to resiliency. Most participants in this study recognized religion and spirituality to be an important part of life. Strong religious

faith and spirituality are associated with increased coping mechanisms, greater resilience to stress, optimistic life orientations, greater perceived social support, and lower levels of anxiety (Pardini et al., 2001). In this study, students' past life adversity showed significant and negative effect on students' resiliency. This in line with previous studies (e.g., Newcomb et al. (2019) that past life difficulties contribute to students' resiliency. A study by Newcomb et al. (2019) reported that students' experiences of childhood adversity allowed them to develop independence and determination. This will bring to the development of resilience and have greater ability to cope with any unexpected events among university students.

6. Conclusions

The study's findings showed that each of the three factors can help students regain their resiliency in dealing with unforeseen challenges during the coronavirus pandemic. This study gives us a glimpse of hope helps us reflect on how students' inner peace and strength (i.e., happiness and religious faith) need to be understood as resources to deliver psychological assistance during the pandemic apart from external supports. This may help them be more resilient when facing any difficulties related to the pandemic and any unexpected events in the future. Resilience is a set of skills that can be taught and learned, it is not based on genetic. It is the ability to withstand, bounce back and grow in the face of stressors and changing demands (Precker,2020). The coronavirus pandemic that caused uncertainty and mental breakdown for university students around the globe may offer students the chance to reflect on the importance of happiness and religious faith while coping with coronavirus hardships. All these factors may help them to cope with life challenges and grow in faith effectively.

Acknowledgements

We convey our gratitude to the Centre of Research and Innovation, UMS for the COVID-19 Research Grant 2020 (SDK0228-2020) and to all the participants who were involved in this study during the coronavirus pandemic.

References

- Aboalshamat, K.T., Alsiyud, A.O., Al-Sayed, R.A., Alreddadi, R.S., Faqiehi, S.S., & Almeahmadi, S.A. (2018). The Relationship between Resilience, Happiness, and Life Satisfaction in Dental and Medical Students in Jeddah, Saudi Arabia, *Nigerian Journal of Clinical Practice*, 21, 8, 1-7
- Agaibi, C.E. (2018). Resilience: A versatile concept from Biblical to modern times, *The Journal of Happiness & Well-Being*, 6(1), 33-48 33
- Al Atabi, M. (March 19, 2020). *Choosing to be happy can help during Covid-19 outbreak*, <https://www.nst.commy/opinion/columnists/2020/03/576141/choosing-be-happy-can-help-during-covid-19-outbreak>
- Anastasova, R. (2014). *Understanding the Role of Religion in Coping after Trauma: Resilience, Post-traumatic Growth and Difference in Coping Mechanisms*, Master Thesis, Tilburg University
- Boparai, S.P., Marie, T., Aguayo, E., Brooks, J., & Juarez, E. (2017). Adversity and academic performance among adolescent youth: A community-based participatory research study, *Journal of Adolescent and Family Health*, 8, 1, 1-33
- Borneo Post online. (April 16, 2020). RM930,680 aid for 23,267 students, <https://www.theborneopost.com/2020/04/16/rm930680-aid-for-23267-students/>
- Brewer-Smyth, K., & Koenig, H.G. (2014) Could Spirituality and Religion Promote Stress Resilience in Survivors of Childhood Trauma?, *Issues in Mental Health Nursing*, 35, 4, 251-256., DOI: 10.3109/01612840.2013.873101
- Cheetham-Blake, T.J., Turner-Cobb J.M., Family, H.E., & Turner, J. E. (2019). Resilience characteristics and prior life stress determine anticipatory response to acute social stress in children aged 7-11 years, *Br, J. Health Psychology*, 24, 2, 282-297, doi: 10.1111/bjhp.12353. Epub 2019 Jan 13.
- Cosmas, G. (2020). Psychological Support in Uplifting University Students' Happiness in Fighting the Coronavirus Lockdown. *Postmodern Openings*, 11(2), 31-42. <https://doi.org/10.18662/po/11.2/155>
- Crossman, A. (2020). *Understanding purposive sampling: An overview of the method and its applications*, thoughtco.com/purposive-sampling-3026727

- Felitti, V. J., Anda, R.F., Nordenberg, D., Williamson, D.F., Spitz, A. M., Edwards, V., Koss, M.P., Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse Childhood Experiences (ACE) study, *American Journal of Preventive Medicine*, 14,4,245-258
- Gartland D., Riggs E., Muyeen S., Giallo, R., Afifi, T. O., MacMillan, H., Herrman, H., Bulford, E., & Brown, S. J. (2019). What factors are associated with resilient outcomes in children exposed to social adversity? *A systematic review. BMJ Open*, 9,1-14. doi:10.1136/ bmjopen-2018-024870
- Hildon, Z., Smith, G., Netuveli, G., & Blane, D. (2008). *Sociology of Health & Illness*, 30,5,726-740, doi: 10.1111/j.1467-9566.2008.01087.x
- Kirmani, M. N., Sharma, P., Anas, M., & Sanam, R. (2015). Hope, Resilience and Subjective Well-being among college going Adolescent Girls, *International Journal of Humanities & Social Science Studies*, II, I, 262-270
- Koenig, H. G. (2007). Spirituality and depression: A look at the evidence. *Southern Medical Journal*, 100, 737-739.
- Kumar, A. U. & Singh, R. (2014). Resilience and Spirituality as Predictors of Psychological Well-Being among University Students. *Journal of Psychosocial Research*, 9(2), 227-235.
- Lower, K. (2014). *Understanding resilience and happiness among college students*, thesis, Middle Tennessee State University https://jewlscholar.mtsu.edu/bitstream/handle/mtsu/3633/Lower_mtsu_0170N_10227.pdf?sequence=1
- Lyubomirsky, S., & Della Porta, M. (2008). Boosting happiness, buttressing resilience: Results from cognitive and behavioral interventions. In J. W. Reich, A. J. Zautra, & J. Hall (Eds.) (pp.450-464), *Handbook of adult resilience: Concepts, methods, and applications*. Guilford Press.
- Lyubomirsky, S., & Lepper, H. S. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research*, 46(2), 137-155
- Newcomb, M, Judith Burtonb, J., & Edwards, N. (2019). Student Constructions of Resilience: Understanding the Role of Childhood Adversity Michelle. *Australian Social Work*, 72(2), 166-178. <https://doi.org/10.1080/0312407X.2018.1550521>
- Patrick J. H. & Kinney J M. Why believe? The effects of religious beliefs on emotional well being. In: McFadden SH, Brennan M, Patrick JH, editors. *New directions in the study of late life religiousness and spirituality*. Haworth Press; Binghamton, NY: 2003. pp. 153-170.
- Pirutinsky, S., Cherniak, A. D., & Rosmarin, D. H. (2020). COVID-19, Mental Health, and Religious Coping Among American Orthodox Jews. *Journal of religion and health*, 59(5), 2288-2301.
- Plante, T.G., & Boccaccini, M. T. (2007). The Santa Clara Strength of Religious Faith Questionnaire, *Pastoral Psychology*, 4, 5,375-387 DOI: 10.1007/BF02230993
- Precker, M. (September 9, 2020). *In these tough times, focus on resilience*, <https://www.heart.org/en/news/2020/09/09/in-these-tough-times-focus-on-resilience>
- Rahmati M, Khaledi B, Salari N, Bazrafshan M, Haydarian A. (2017). The Effects of Religious and Spiritual Interventions on the Resilience of Family Members of Patients in the ICU, *Shiraz E-Med Journal*, 18(11):e13007. doi: 10.5812/semj.13007
- Sinclair, V. G., & Wallston, K.A. (2004). The development and psychometric evaluation of the Brief Resilient Coping Scale. *Assessment*, 11 (1), 94-101. <https://www.ncbi.nlm.nih.gov/pubmed/14994958>
- Stevens, T. G. (2010). *You can chose to be happy: Rise above anxiety, anger and depression* (2nd Ed.). Wheeler-Sutton Publishing co.
- Taylor, D. B. (August, 2016). *A timeline for the coronavirus pandemic*. The New York Times, [nytimes.com/article/coronavirus-timeline.html](https://www.nytimes.com/article/coronavirus-timeline.html)
- Tyagi, K., Gaur, G., & Sharma, M. (2020). Readership among college students during COVID19 lockdown: A Cross-Sectional Survey in a Northern City of India. *Indian Journal of Preventive & Social Medicine*, 51(2), 72-76.

PERSON-ENVIRONMENT MISFIT AND MENTAL DISORDER AMONG PHD STUDENTS: THE MEDIATING ROLE OF MEANINGFUL WORK

Francesco Tommasi, Andrea Ceschi, & Riccardo Sartori

Department Human Sciences, University of Verona (Italy)

Abstract

In organizational psychology, the authors' awareness of the concerns about the current academic working conditions and their potential impacts on PhD students' mental health is increasing. Accordingly, authors have witnessed increased the attention to PhD students' perception of their fit with the environmental conditions, i.e., organizational policies, co-workers' and supervisors' relations and supports, as an antecedent of their PhD experience. In particular, such environmental conditions seem to be related to the high diffusion of state anxiety and depression among PhD students that perceive a certain level of misfit between them and the environment. However, studies suggested that, despite the working conditions, in the presence of positive experience at work, such as meaningful work, individuals are less at risk of developing mental disorders as well as of quitting their job. Indeed, meaningful work construct regards a positive individual phenomenon of experience and perception of meaningfulness at work. Then, it might be a potential experience that might mitigate the experience of negative states at work. The present paper aims to address the current need for knowledge by involving a literature review of the role played by meaningful work in the PhD experience. Then, the paper explores the potential mediational role of meaningful work between the path from P-E misfit and mental disorders' symptoms and students' intention to quit. A cross-sectional study has been devised via the use of an online questionnaire with self-report measures on P-E misfit, meaningful work, mental health disorders symptoms, and intention to quit. In a sample of $N = 251$ Italian PhD students, the results showed a prevalence of three mental health disorders symptoms, i.e., depression, anxiety and hostility, among doctorate students, which resulted to be positively related to the levels of P-E misfit. Then, the results showed a negative mediating role of meaningful work on the paths from P-E misfit to (a) mental disorders and (b) intention to quit. Finally, the paper advances further steps for research as well as for practical implications for supporting PhD students.

Keywords: *PhD students, mental health, intention to quit, meaningful work, doctoral experience.*

1. Introduction

In organizational psychology, the authors' awareness of the concerns about the current academic working conditions and their potential impacts on PhD students' mental health is increasing. That seems to be extensively related to the individual perception of fit with the environmental characteristics, such as organizational policies, co-workers' and supervisors' relations, and perception of career progression. Accordingly, studies have disclosed the widespread diffusion of state anxiety and depression among those PhD students that perceive a certain level of misfit between them and the environment. A low level of perception of person-environment (P-E) fit, namely, P-E misfit, is linked to the risk of having or developing a psychiatric disorder as well as to lead students to quit the doctoral program. However, studies suggested that, despite the working conditions, in the presence of positive experience at work, such as meaningful work, individuals are less at risk of developing mental disorders as well as of quitting their job. Meaningful work regards the individual's own experience of value and significance of one's work. This phenomenon supports the presence of motivation, positive affects at work, and individuals' well-being. However, the knowledge of how and whether the experience of work as meaningful can affect researchers' mental health is limited. This is particularly evident in the literature on the doctoral experiences which have widely overlook the role played by doctoral students' psychological and motivational aspects.

The present paper intends to propose a comprehension of the role of meaningful work construct in early-career workers in the academic sector, i.e., PhD students. Given the large concern of mental health among PhD students, meaningful work construct is considered to understand potential factors that might mitigate such relation between the person-environment misfit and negative experience at work. This knowledge results to be relevant both to raise the understanding of PhD experience and factors as well as to advance further implications for research and applied interventions for students.

To pursue such aim, the contribution comprehends two main sections, in the first of which a literature review on PhD academic experience and meaningful work is conducted. Secondly, the literature review supported the hypotheses of the role of meaningful work as mediator between (a) mental health and (b) intention to quit. Such hypotheses have been verified by the involving a cross-sectional study in a sample of $N = 251$ Italian PhD students. By discussing the results, further implications for research and practice are presented.

2. Literature review

Coupling the existing literature on PhD experience with the evidence in organizational psychology domain, the risk of having or developing a psychiatric disorder as well as to lead students to quit the doctoral program seems to be related to the perception of individual misfit (Ward & Brennan 2020). The misfit notion belongs to the so-called person-environment fit theoretical approach which conceptualizes the extent to which individuals experience a certain level of fit their job, organization, co-workers (and/or supervisor) as well as their goals and vocation/calling (Su et al., 2015). Therefore, misfit sits at nexus between theories on the working environment conditions for the individual to manifest their traits and studies on the fit between individuals and their environment that leads to negative outcomes, e.g., stress and turnover intention. Although no consensus over what P-E fit means, authors agree on the relevance of comprehending and solving career-related issues, organizational conditions that might affect employees' well-being and productivity. That is particularly evident in the case of academics and PhD students.

Several scientific contributions have recently been published with particular reference to the doctoral experience. In an editorial of Nature Career Blog, the results obtained from various international surveys on the doctoral experience are reported. Among the various dimensions analyzed regarding the contents and training courses, some contextual and psychological aspects were taken into consideration. In the case of the doctoral course, the authors disclose the issue regarding the widespread diffusion of permanent anxiety and depression among students (about 36% of the population involved) which are found to be aggravated in 45% of cases by a strong loss of motivation and the intention to leave the workplace. The reasons are manifold but attributable to the mark-factors described above. On the one hand, in 20% of cases, these states are caused by a competitive and stressful relational climate in which the deterioration of psycho-physical health would be caused by the PhD students experience of fit with the organization, the job itself and the supervisor relation (Nature Career Blog, 2019; Euroscientist, 2018; Sverdlik et al. 2018).

Therefore, questions arise regarding the possible paths to follow for attempts to resolve the phenomenon. A wide range of proposals is offered in the literature. With an explicit focus on the individual aspect, meaningful work experience, i.e., the positive experience and perception of meaningfulness at work (Rosso et al., 2010), represents a motivational factor that might refer to both the individual daily experience as well as its steady mindset which is predictive of positive outcomes at work (Tommasi et al., 2020). The recent metanalysis proposed by Allan and colleagues (2010) showed the potential mediator role of meaningful work. In this context, meaningful work mitigates the occurrences of negative affect at work such as anxiety, depression and hostility (Steger et al., 2012) as well as turnover intention (Allan et al., 2019).

3. The present study

The present study aimed to explore the role of meaningful work experience as a mediator between the relation of Person-Environment misfit and mental health, and turnover intention. A cross-sectional study with self-report measure has been designed to assess the presence of the psychological dimensions considered, i.e., P-E misfit, meaningful work, turnover intention and students mental health. After presenting the study procedure and the hypotheses of the study, the present section reports the participants' description and the instruments used. Then, the results of the study are presented.

In respect of the procedure, the questionnaire was submitted via email and participants were asked to voluntarily fill in the questionnaire which was proposed online through LimeSurvey. For the process of the submission, the authors collaborated with the Italian Doctoral Committee Association

which supported the project. A total of 553 emails were sent by the researchers to PhD students of 45 Italian universities. Only 303 PhD students participated in the study (response rate, 54.79%) within whom 251 completed all the questionnaire. After presenting the aim of the study, participants were asked to sign the informed consent to complete the survey. The compilation of the questionnaire required a total of 7-10 minutes.

Then, in respect of the data analysis, the incidence of mental disorder among participants and their intention to quit their job was evaluated by the use of descriptive statistics. Then, data were analyzed with structural equation modelling (SEM) to verify the hypothesized models. To pursue such aim, two separate models have been tested to verify the hypotheses that P-E misfit positively predicts mental disorder and turnover intention (H1). In particular, P-E misfit positively predicts the level of mental disorders (H1a), and P-E misfit positively predicts turnover intention (H1b). The mediation models have been tested with meaningful work as a mediator (H2). That is, meaningful work fully mediates the association between P-E misfit and mental disorders (H2a) as well as the association between P-E misfit and turnover intention (H2b). Such analysis was conducted by the use of SPSS and AMOS. Firstly, demographic statistics as well as reliability were conducted via the use of SPSS version 22. Secondly, concerning the model testing, the additional software program used to fit SEM, namely, AMOS.

3.1. Participants

251 PhD students participated in the study (average age, 29.5 years old, $SD = 3.91$, 63.35%, $N = 159$ females). Moreover, for the demographic data we also asked participants to report information in regard of (a) their personal characteristics such as their level of education and perceived health (based on 5 points-Likert scales, 1 = I have very bad health to 5 = I have very good health) and (b) their working characteristics such as their university/institutions, type of research sector and type of doctoral program (i.e., with/without scholarship, joint PhD program between Universities and/or private companies). Within the participants, the 66.93% had a master's degree ($N = 168$), the 27.49% ($N = 69$) had attained a professionalizing master while the 4.78% ($N = 12$) reported to already have a PhD. Most of the participants reported to feel that their health was sufficiently well, 36.26 ($N = 91$), while the 36.1% ($N = 90$) reported having a medium to high health while the rest 27.64% ($N = 68$) a bad to a very bad perceived level of health. Participants were from 49 different Italian Universities and the 70.52 % had a three-years scholarship while the 24.3% ($N = 61$) without a scholarship and the rest 5.2% ($N = 13$) had a specific scholarship founded by a collaboration between separate universities, international projects or private companies. Within this last group, only four participants (1%) had a four-years scholarship. Moreover, the study participated in students from the first year in the PhD program. Finally, participants reported being from $N = 27$ various and separate macro disciplines, e.g., engineer, medicine, arts and humanities.

3.1.1. Instruments. By the aim of the study measures of P-E misfit, turnover intention and meaningful work were used. Firstly, basing on the literature, P-E misfit were measured by the combination of three its dimensions, namely, P-Job (P-J) misfit (Lauver & Kristof-Brown 2001), P-Organization (P-O) misfit (Lauver & Kristof-Brown 2001), and P-Supervisor (P-S) misfit (Chuang et al., 2016). Each measure of fit comprised different items per dimension (i.e., 5 items for P-J misfit, 3 items for P-O misfit and 3 items for P-S misfit) and participants had to report their level of agreement on a 7-point-Likert scale (1 = Not at all, 7 = Totally agree). P-J misfit indicates the extent to which an individual perceives and experiences that their goals doesn't with those of the job based on the contextual conditions. Likewise, P-O misfit involves items which refer to the level to which the individual doesn't recognize themselves in the organizational culture and policies. Finally, P-S misfit assesses the level to which a PhD student doesn't feel to be coherent with the orientation and behaviour of their supervisor. All the P-E misfit resulted to have acceptable reliability indices, i.e., P-J misfit $Cronbach' \alpha = .82$, P-O misfit $Cronbach' \alpha = .763$, P-S misfit $Cronbach' \alpha = .925$.

Secondly, for the outcome variables, the Brief Symptom Inventory was used to assess the presence of anxiety, depression and hostility sense among the PhD students. Such measures comprised a total of six items per dimension reporting specific feelings. Participants had to report the level of the frequencies at which they are used to have such feelings on a scale from 1 = never to 5 = very often. Each dimension resulted to have acceptable reliability indexes, i.e., anxiety, $Cronbach' \alpha = .876$, depression, $Cronbach' \alpha = .819$, hostility, $Cronbach' \alpha = .883$. Regarding turnover intention, it was measured with the Bluedorn (1982) intention to quit measure. A self-report measure that assesses the level to which individuals wants to leave their job in the following years basing on a 5-point Likert scale of agreement (1 = not at all to 5 = Totally agree, $Cronbach' \alpha = .831$).

Finally, meaningful work was measured by the use of the modular questionnaire developed by Schnell & Hoffmann (2020). Such questionnaire comprises three modules, i.e., module 1-sources of meaningful work, module 2-meaningful and meaningless work, and module 3-work as a source of meaning. Notwithstanding the validity of the overall questionnaire, we only used the dimension of meaningful work comprised in module 2. This dimension assesses if individuals perceive that their work is meaningful for them by involving three items. We used the Italian version proposed by Tommasi et al. (under review) and participants had to report their level of agreement on a 7-point Likert scale (1 = not at all, 7 = agree, *Cronbach' α* = .942).

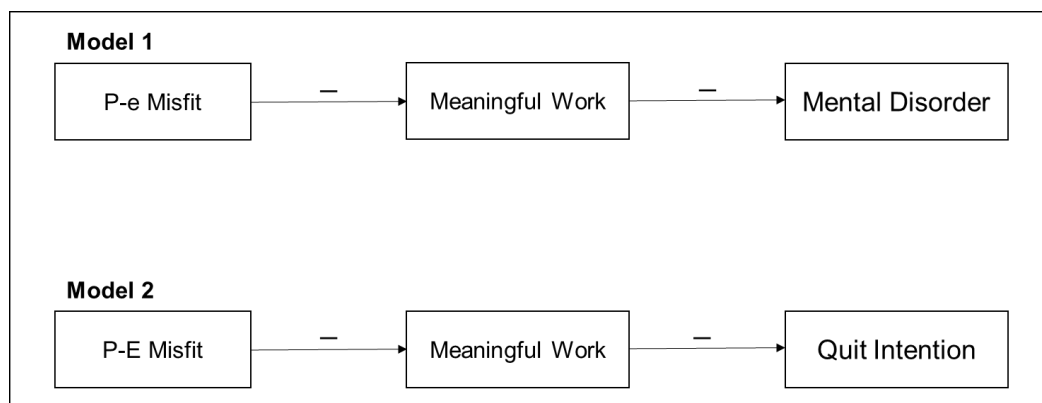
3.2. Results

Before testing our hypotheses, we run descriptive statistics to understand the level of mental disorder and turnover intention among PhD students. Firstly, for a mental disorder, anxiety symptoms were presents in the 39% ($N = 93$) of the PhD students, and similarly, depression symptoms were presents in the 31.47% of the participants ($N = 79$). Hostility symptoms resulted to be fewer presents among the students with the 9.56% of participants who reported to have moderate to a higher level of their frequencies. By contrast, the level of intention to quit reported to be present in the 54.58% of the cases ($N = 137$) showing that more than half the participants were thinking about leaving the PhD program.

3.2.1. Model testing. Given these results, we verified the two mediation models reported in figure 1 by the use of SEM. Therefore, the observed variables comprised four latent variables, namely, P-E misfit, mental disorder symptoms, intention to quit and meaningful work. Before verifying the hypotheses of the mediation role of meaningful work, hypotheses of the association between P-E misfit and mental disorder symptoms (H1a) and intention to quit (H1b) were tested.

P-E misfit positively predicted the level of mental disorder ($X^2(8) = 28.061, p < .001$) with a standardized coefficient effect equal to $\beta = .50$ and an explanation of the total variance equal to $R^2 = .24\%$. Likewise, P-E misfit positively predicted the level of intention to quit ($X^2(2) = 9.104, p < .011$) with a standardized coefficient effect equal to $\beta = .45$ and an explanation of the total variance equal to $R^2 = .45\%$. Given the verification of H1a-b, we verified the hypotheses H2a-b. In the first case, we analyzed the mediation role of meaningful work within the association between P-E misfit and mental disorder. Given the path between P-E misfit equal to zero in a partial mediation ($X^2(12) = 46.82, p < .000$), we tested a full mediation where meaningful work that resulted, $X^2(13) = 69.421, p < .000$. Here, meaningful work negatively mediated the relation by decreasing the overall level of mental disorder with a standardized coefficient equal to $\beta = -.28$ and total variance of $\Delta R^2 = .05$. Likewise, hypothesis H2b was tested by firstly analyzing a partial mediation where the path between P-E misfit and intention to quit resulted to be null, $X^2(4) = 24.380, p < .000$. Then, meaningful work negatively mediated the relation between the association by decreasing the overall level of intention to quit with a standardized coefficient equal to $\beta = -.33$ and a total variance of $\Delta R^2 = .03, X^2(5) = 37.746, p < .000$.

Figure 1. Graphical depiction of the hypothesized two mediation models with meaningful work as mediator.



4. Discussion

The turbulent time for work and employability of the first decade of the third millennium has witnessed heightened the attention of researchers and policymakers to address the higher training programs for higher qualified workers and researchers as it is the case of PhD programs. Such concern is still urgent in the view of the current amount of mental problems in work and organizational settings and

the academic sector. According to the evidence present in the literature, in the present study PhD students revelled to have a higher presence of mental symptoms suggesting the need for addressing their mental and physical health under the framework of well-being promotion at work (Bakker & Oerlemans 2011). Moreover, the level of quit intention suggests a further need of research in the comprehension on how to keep students both in their current career development and for the future of research (Levecque et al. 2017). Our study suggests that mental issues and quit intention are mainly related to the level of the person-environment misfit. For instance, that is the case of a student who perceives a lack (a) of coherence between their goals and the goals of the job itself, where the job is intended in reference of the contextual organization of tasks and their direction. Additionally, students can experience a lack of sense of belonging to their organization as well as a lack of coherence between their goals and those of the university/institutions where they work. Still, given the evidence of the supervisors in shaping the emotional experiences at work (Sverdlik et al. 2018), a perception of misfit between students and their supervisor can conduct to the rise of mental disorder symptoms as well as to the loss of motivation and intention to quit.

Based on the data collected and the analysis, the preliminary findings of the study reveals promising opportunities for PhD programs and PhD students' mental health, given the role of meaningful work in significantly reducing the level of mental disorders symptoms and intention to quit. Indeed, meaningful work indicates the extent to which individuals perceive and experience that their work is meaningful. Such results indicate that the level of meaningfulness in work among students is widely present, suggesting that possible training intervention might be focused on the individual experience as well as policy makers might address contextual conditions that compromise the PhD students experience.

References

- Allan, B. A., Batz-Barbarich, C., Sterling, H. M., & Tay, L. (2019). Outcomes of meaningful work: A meta-analysis. *Journal of Management Studies*, 56(3), 500-528.
- Bakker, A. B., & Oerlemans, W. (2011). Subjective well-being in organizations. *The Oxford handbook of positive organizational scholarship*, 49, 178-189.
- Bluedorn, A. C. (1982). A unified model of turnover from organizations. *Human relations*, 35(2), 135-153.
- Chuang, A., Shen, C. T., & Judge, T. A. (2016). Development of a Multidimensional Instrument of Person-Environment Fit: The Perceived Person-Environment Fit Scale (PPEFS). *Applied psychology*, 65(1), 66-98.
- Euroscinetis (2018). Increasing awareness of researcher mental health. Euroscientist. Retrived on December 7th, 2020, from: <https://www.euroscientist.com/increasing-awareness-of-researcher-mental-health/>
- Lauver, K. J., & Kristof-Brown, A. (2001). Distinguishing between employees' perceptions of person-job and person-organization fit. *Journal of vocational behavior*, 59(3), 454-470.
- Levecque, K., Anseel, F., De Beuckelaer, A., Van der Heyden, J., & Gisle, L. (2017). Work organization and mental health problems in PhD students. *Research Policy*, 46(4), 868-879.
- Nature Editorial (2018). Feeling overwhelmed by academia? You are not alone. Nature Careers Blog. Retrived on December 7th, 2020, from: <https://www.nature.com/articles/d41586-018-04998-1>
- Rosso, B. D., Dekas, K. H., & Wrzesniewski, A. (2010). On the meaning of work: A theoretical integration and review. *Research in organizational behavior*, 30, 91-127.
- Schnell, T., & Hoffmann, C. (2020). ME-Work: Development and Validation of a Modular Meaning in Work Inventory. *Frontiers in Psychology*, 11, 3405.
- Steger, M. F., Dik, B. J., & Duffy, R. D. (2012). Measuring meaningful work: The work and meaning inventory (WAMI). *Journal of career Assessment*, 20(3), 322-337.
- Su, R., Murdock, C. D., & Rounds, J. (2015). Person-Environment fit. In P. J. Hartung, M. L. Savickas, & W. B. Walsh (Eds.), *APA Handbook of Career Interventions* (pp. 81-98). Washington, DC: American Psychological Association.
- Sverdlik, A., Hall, N. C., McAlpine, L., & Hubbard, K. (2018). The PhD experience: A review of the factors influencing doctoral students' completion, achievement, and well-being. *International Journal of Doctoral Studies*, 13, 361-388.
- Tommasi, F., Ceschi, A., & Sartori, R. (2020). Viewing Meaningful Work Through the Lens of Time. *Frontiers in Psychology*, 11.
- Tommasi, F., Sartori, R., Ceschi, A., & Schnell, T. (under review). The Meaning in Work Inventory: 875 Validation of the Italian Version and its Association with Sociodemographic Variables.
- Ward, A. M., & Brennan, N. M. (2020). Developing a student-doctoral education fit analytical model to assess performance. *Studies in Higher Education*, 45(7), 1448-1460.

PSYCHOLOGICAL DISTRESS, RELATIONSHIP QUALITY AND WELL-BEING IN TIME OF COVID-19 PANDEMIC MOVEMENT CONTROL ORDER ENACTMENT AMONG COUPLES IN MALAYSIA

Chua Bee Seok¹, Ching Sin Siau², Low Wah Yun³, Mimi Fitriana⁴, & Rahmattullah Khan⁵

¹*Faculty of Psychology and Education, University Malaysia Sabah (Malaysia)*

²*Faculty of Health Sciences, Center for Community Health Studies,
University Kebangsaan Malaysia (Malaysia)*

³*Asia Europe Institute, Universiti Malaya (Malaysia)*

⁴*Faculty of Arts and Science, School of Science and Psychology,
International University of Malaya-Wales Kuala Lumpur (Malaysia)*

⁵*University Pendidikan Sultan Idris (Malaysia)*

Abstract

With the imposition of the Movement Control Order (MCO) or lockdown due to the COVID-19 pandemic, there are drastic changes in the movement and activity among Malaysians: increased psychological distress due to perception of the COVID-19 as a health threat, increased time spent with families, and decreased time away from home could either intensify relationship problems or draw families closer to each other. This study aimed to examine the perceived psychological distress and relationship quality among couples before and during MCO in Malaysia and factors predictive of participants' well-being. The Depression Anxiety Stress Scale-21, Perceived Relationship Quality Component Inventory, and the Warwick–Edinburgh Mental Well-being Scale were disseminated through the snowball sampling technique. The study found that the participants (N=124) perceived significantly higher levels of depression, anxiety, and stress during MCO compared to before MCO. However, no significant differences between the couples were found before and during MCO in relationship quality, except in the trust sub-scale. Trust in the couple was higher during MCO. Multiple regression results showed that depression and stress predicted participants' well-being negatively during MCO. In contrast, total relationship quality, sexual relationship quality, satisfaction and couple's trust predicted participants' well-being positively.

Keywords: *Psychological distress, relationship quality, well-being, COVID-19 pandemic, movement control order.*

1. Introduction

On 31 December 2019, the World Health Organisation (WHO) China Country Office was informed of cases of pneumonia unknown aetiology (unknown cause) detected in Wuhan City, Hubei Province of China, now known as Coronavirus disease (COVID-19). From 31st December 2019 through 3rd January 2020, a total of 44 case-patients with pneumonia of unknown aetiology were reported to WHO by the national authorities in China. As of 20 January 2020, 282 confirmed cases of 2019-nCoV have been reported from four countries including China (278 cases), Thailand (2 cases), Japan (1 case) and the Republic of Korea (1 case). As of 27 March 2020, the total global number of COVID-19 cases has surpassed 500,000 (WHO, 2020). As reported on 15 April 2020, there are 210 Countries and Territories around the world that have a total of 2,015,569 confirmed cases of the coronavirus COVID-19 and a death toll of 127,635 deaths (Worldometer, 15 April 2020).

On 16 March 2020, the Prime Minister of Malaysia announced the Movement Control Order (MCO) in Malaysia due to the COVID-19 pandemic, necessitating the closure of places of worship, work, and education. Families are encouraged to self-isolate and to “stay at home” to curb the spread of the virus (Jabatan Perdana Menteri, 2020). The COVID-19 pandemic MCO has been drastic changes at the individual and family level in the lives of families. Families are forced to adapt to various “new norms”, such as working from home for working adults, and a transition to learning online for those who are going to school and university. Apart from that, parents experience the difficulty of having to work and take

care of children at the same time from the same sphere of their homes (Spinelli et al., 2020). As the sequelae of the stress experienced in the family and spousal unit, studies have also indicated increased family conflicts and lower levels of quality in the relationship between spouses and family members (Luetke et al., 2020, Pieh et al., 2020). This is a serious issue as the couple or spousal unit of the family constitutes the core of the family's well-being and the children's physical and psychosocial development (Härkönen et al., 2017).

Pieh, O' Rourke, Budimir, and Probst (2020) reported that higher relationship quality contributed positively to mental well-being, and vice versa among the couple. The relationship aspects included satisfaction, trust, intimacy, commitment, and others. Low et al., (2020), found increased anxiety and depression and lower well-being among the general population during the COVID-19 pandemic. However, it is still unclear which aspects of relationship quality have been affected by this pandemic and whether the relationship quality affects the well-being of the couple.

2. Objectives

This study aimed to examine the perceived psychological distress and relationship quality among couples before and during MCO in Malaysia and factors that affect participants' well-being.

3. Methods

3.1. Participants

A total of 560 participants who were 18 years old and above, had married or cohabiting couples and citizens of Malaysia were involved in the current study. The sample was selected randomly using a convenience sampling method. A self-administered online survey questionnaire was distributed on WhatsApp, Telegram, Facebook, Email, etc. to the targeted couples. There were 246 (or 43.9%) males and 314 females who participated. Their age ranged from 21 to 67 years old (mean = 40.38, s.d = 11.43). In term of current relationship status, most of the respondents were marriage (92%), there were 32 (5.7%) adults in a committed relationship and living together, 12 (2.1%) of them had engaged and living together with a partner. The average year of married of participants was 14.8 years (s.d = 10.71).

3.2. Instruments

The instrument used contained four parts: the demographic data consisted of age, gender, current relationship status, and duration of a relationship. Part 2, The Depression Anxiety Stress Scales (DASS-21) designed by Lovibond and Lovibond (1995). DASS consisted of 21 items, seven items for each subscale. The item response format was on a 4-point scale (0 = did not apply to me at all to 3 = applied to me very much or most of the time). The reliability for DASS-21 showed very good reliability in the current study. The Alpha Cronbach = .94 (data during MCO) and .92 (data before MCO) for depression scale, the Alpha Cronbach = .93 and .89 during and before MCO for anxiety scale and Alpha Cronbach = .93 (during MCO) and .89 (before MCO) for stress scale.

The Perceived Relationship Quality Component (PRQC) Inventory designed by Fletcher et al. (2000) was used to assess relationship quality. PRQC contained 18 items that measured six components—relationship satisfaction, commitment, intimacy, trust, passion, and love. Each component consisted of three items and rated on a 7-point scale (where 1 = not at all to 7 = extremely). PRQC also consisted of one additional component – sex relationship quality measured by six items. The internal consistency of the total PRQC in the current study was Alpha Cronbach = .97 (data during MCO) and Alpha Cronbach = .93 (data before MCO).

Warwick–Edinburgh Mental Well-being Scale (WEMWBS), contained 14 items that measured positive aspects of mental health within two weeks. It covered both hedonic and eudaimonic aspects. The items were rated on a 5-point Likert scale ranging from 1 = None of the time to 5 = All of the time, and a global score is obtained adding all the items. Higher scores indicating higher levels of mental well-being. WEMWBS showed very good reliability for the current study with a Cronbach's Alpha = .96.

3.3. Data analysis

Statistical analysis was performed using Program IBM SPSS Statistic version 25.0. Descriptive statistics such as frequency and percentage were used to report demographic information of participants, Pair Samples t-test was used to analyse the difference in perceiving psychological distress and relationship quality during and before COVID-19 pandemic MCO among couples in Malaysia. The multiple regression analysis was conducted to determine the effect of relationship quality on participants' well-being during the COVID-19 pandemic.

4. Results

4.1. Psychological distress level before and during COVID-19 pandemic movement control order (MCO)

Paired samples t-test was used to analyse perceive psychological distress and relationship quality among couples before and during MCO in Malaysia. The result revealed that the depression ($t = 6.20$, $p < .05$), anxiety ($t = 5.58$, $p < .05$), and stress ($t = 5.16$, $p < .05$) perceived by respondents different significantly before and during MCO in Malaysia due to the COVID-19 pandemic. We found that the couples perceived a significantly higher level of depression, anxiety, and stress during COVID-19 pandemic MCO as compared to before MCO (refer to Table 1).

Table 1. The Pair Samples t-test for the Psychological Distress among Couples Before and During COVID-19 Pandemic MCO In Malaysia.

| Variables | N | Mean | Std. Deviation | t | Sig. |
|-----------------------|-----|------|----------------|-------|------|
| Depression During MCO | 557 | 2.96 | 3.79 | 11.33 | .000 |
| Depression Before MCO | 557 | 1.73 | 2.93 | | |
| Anxiety During MCO | 557 | 3.34 | 3.75 | 11.50 | .000 |
| Anxiety Before MCO | 557 | 2.11 | 3.05 | | |
| Stress During MCO | 555 | 4.37 | 4.22 | 11.89 | .000 |
| Stress Before MCO | 555 | 2.95 | 3.44 | | |

4.2. Relationship quality before and during COVID-19 pandemic movement control order (MCO)

We found that the couples reported significantly lower satisfaction with partner ($t = -3.40$, $p < .05$), but more committed in relationship ($t = 3.23$, $p < .05$), passion ($t = 2.97$, $p < .05$) and love ($t = 3.01$, $p < .05$) in relationship during COVID-19 pandemic MCO as compared to before MCO (refer to Table 2).

Table 2. The Pair Samples t-test for the Relationship Quality among Couples Before and During MCO in Malaysia.

| Variables | N | Mean | Std. Deviation | t | Sig. |
|---------------------------------|------------|--------------|----------------|--------------|-------------|
| Relationship Quality During MCO | 558 | 110.50 | 15.97 | 1.44 | .150 |
| Relationship Quality Before MCO | 558 | 110.05 | 15.74 | | |
| Satisfaction During MCO | 560 | 18.11 | 3.38 | -3.40 | .001 |
| Satisfaction Before MCO | 560 | 18.42 | 3.09 | | |
| Commitment During MCO | 560 | 18.89 | 2.89 | 3.23 | .001 |
| Commitment Before MCO | 560 | 18.69 | 2.89 | | |
| Intimacy During MCO | 559 | 18.73 | 3.06 | 1.73 | .084 |
| Intimacy Before MCO | 559 | 18.61 | 2.99 | | |
| Passion During MCO | 559 | 18.69 | 2.89 | 2.97 | .003 |
| Passion Before MCO | 559 | 18.52 | 2.90 | | |
| Trust During MCO | 560 | 17.03 | 3.68 | 1.37 | .171 |
| Trust Before MCO | 560 | 16.91 | 3.53 | | |
| Love During MCO | 559 | 19.09 | 2.73 | 3.01 | .003 |
| Love Before MCO | 559 | 18.94 | 2.79 | | |
| Sex Quality During MCO | 559 | 37.01 | 5.49 | 1.15 | .253 |
| Sex Quality Before MCO | 559 | 36.87 | 5.42 | | |

4.3. The effect of relationship quality on well-being among couples during COVID-19 pandemic MCO

The Multiple Regression analysis with the model 'Enter' was used to analyse the effect of relationship quality on well-being among the couples during MCO. The model that consisted of the six subscales of relationship quality significantly explained a total of 12.3% variance in well-being among the couples ($F_{(6, 553)} = 11.44$, $p < .05$). The result further reported that the subscale of satisfaction with the relationship ($\beta = .21$), intimacy ($\beta = .20$) and passion in a relationship ($\beta = .11$) predicted couples' well-being significantly and positively during COVID-19 pandemic MCO, which explained that the couples who satisfy with the relationship, intimacy and passion in a relationship with their partner tended to have better well-being during MCO, or in reverse. Besides, the model that consists only sex relationship quality, explained a total of 7.23% variance in well-being ($F_{(1, 554)} = 42.64$, $p < .05$) and this subscale also predicted the respondents' well-being positively ($\beta = .27$) which explained that the respondents who have a quality sex relationship reported higher well-being, or in reverse (refer to Table 4).

Table 4. Multiple Regression Analysis on The Effect of Relationship Quality on Well-Being among Couples During MCO In Malaysia.

| Predictor | Beta | t | Sig. t |
|----------------|-------|-------|--------|
| Satisfaction | .21 | 3.02 | .003 |
| Commitment | -.15 | -1.76 | .080 |
| Intimacy | .20 | 2.14 | .033 |
| Trust | .06 | 0.83 | .405 |
| Passion | .11 | 2.05 | .040 |
| Love | -.09 | -1.29 | .199 |
| R ² | .111 | | |
| F | 11.44 | | |
| Sig. F | .000 | | |

5. Discussion and conclusions

In this study, we found that the couples who reported a higher level of depression, anxiety, and stress during COVID-19 Pandemic MCO in Malaysia as compared to before MCO, and this contributed to decreasing their well-being. This finding was consistent with Xiong et al. (2020) findings that indicated a high level of depression, anxiety and stress in the general population in China, Spain, Italy, Iran, the US, Turkey, Nepal, and Denmark during the COVID-19 pandemic. A systematic review by Krishnamoorthy and colleagues (2020) revealed that more than half of the general population were adversely affected psychologically during the COVID-19 pandemic (Krishnamoorthy, Nagarajan, Saya, & Menon, 2020). Günther-Bel and colleagues (2020) found that couples suffered from higher levels of psychological distress during the COVID-19 pandemic. They found that couples especially those with children reported higher levels of psychological distress during the lockdown in Spain, thus contributing to lower levels of well-being.

We also found sexual relationship quality, satisfaction, intimacy, and passion in relationship predicted participants' well-being positively during MCO. In terms of marital satisfaction, it is not surprising that these variables predict well-being positively during times of crisis, as has been found by many studies (e.g., Kayser et al., 2018). In terms of sexuality, it is interesting that couples in South-east Asian countries reported a significant increase in the frequency of sex compared to before lockdown (Arafat et al., 2020). However, the quality of sexuality may decrease due to the lack of privacy and stress experienced during lockdown (Panzeri, Ferrucci, Cozza, & Fontanesi, 2020). Therefore, this aspect of the relationship needs to be safeguarded as the potential effects of guilt and stress from impaired sexuality could increase psychological distress during the pandemic (Banerjee & Rao, 2020). The finding also revealed that the participant reported lower satisfaction with a partner, but higher commitment in relationship, passion and love in a relationship during MCO than before MCO.

In conclusion, Malaysian couples are facing increased psychological distress during the COVID-19 pandemic MCO. In terms of relationship quality, couples demonstrated lower satisfaction toward their spouses however, they showed higher commitment, passion and love in their relationship with their partner and these variables were significant predictors of their well-being. This study provides information and references to the healthcare professionals in developing COVID-19 psychological interventions which may help to cope with possible mental health problems. This study also increases couple awareness in a quality relationship and how it may influence their well-being. One of the limitations of this study was we employed an online survey, in which we were only able to reach the population segment that has access to the internet. For future studies, we suggested a longitudinal study design to track the changes in the participants' psychological distress, relationship quality and well-being concerning the development of the COVID-19 pandemic.

References

- Arafat, S. Y., Mohamed, A. A., Kar, S. K., Sharma, P., & Kabir, R. (2020). Does COVID-19 pandemic affect sexual behaviour? A cross-sectional, cross-national online survey. *Psychiatry Research*.
- Banerjee, D., & Rao, T. S. (2020). Sexuality, sexual wellbeing, and intimacy during COVID-19 pandemic: An advocacy perspective. *Indian Journal of Psychiatry*, 62(4), 418.
- Fletcher, G. J., Simpson, J. A., & Thomas, G. (2000). The measurement of perceived relationship quality components: A confirmatory factor analytic approach. *Personality and Social Psychology Bulletin*, 26(3), 340-354.

- Günther-Bel, C., Vilaregut, A., Carratala, E., Torras-Garat, S., & Pérez-Testor, C. (2020). A Mixed-method Study of Individual, Couple, and Parental Functioning During the State-regulated COVID-19 Lockdown in Spain. *Family Process*, 59(3), 1060-1079.
- Jabatan Perdana Menteri. (17 March 2020). Soalan Lazim (FAQ's) Mengenai Perintah Kawalan Pergerakan (Movement Control Order) – Dikemaskini. Retrieved April 9, 2020 from <https://www.pmo.gov.my/2020/03/soalan-lazim-faqs-mengenai-perintah-kawalan-pergerakan-movement-control-order/>
- Kayser, K., Acquati, C., Reese, J. B., Mark, K., Wittmann, D., & Karam, E. (2018). A systematic review of dyadic studies examining relationship quality in couples facing colorectal cancer together. *Psycho-oncology*, 27(1), 13-21.
- Krishnamoorthy, Y., Nagarajan, R., Saya, G. K., & Menon, V. (2020). Prevalence of psychological morbidities among general population, healthcare workers and COVID-19 patients amidst the COVID-19 pandemic: A systematic review and meta-analysis. *Psychiatry Research*, 293, 113382.
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, 33(3), 335-343.
- Panzeri, M., Ferrucci, R., Cozza, A., & Fontanesi, L. (2020). Changes in sexuality and quality of couple relationship during the Covid-19 lockdown. *Frontiers in Psychology*, 11, 565823.
- Pieh, C., O' Rourke, T., Budimir, S., & Probst, T. (2020). Relationship quality and mental health during COVID-19 lockdown. *Plos One*, 15(9), e0238906.
- Sohrabi, C., Alsafi, Z., O'Neill, N., Khan, M., Kerwan, A., Al-Jabir, A., ... & Agha, R. (2020). World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19). *International Journal of Surgery*, 76, 71-76.
- Stanley, S. M., & Markman, H. J. (2020). Helping couples in the shadow of COVID-19. *Family Process*, 59(3), 937-955.
- Tennant, R., Fishwick, R., Platt, S., Joseph, S., & Stewart-Brown, S. (2006). Monitoring positive mental health in Scotland: Validating the Affectometer 2 scale and developing the Warwick-Edinburg Mental Well-being Scale for the UK. Glasgow: NHS Health Scotland.
- Wu, Z., & McGoogan, J. M. (2020). Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: Summary of a report of 72 314 cases from the Chinese Center for Disease Control and Prevention. *JAMA*, 323(13), 1239-1242.
- Xiong, J., Lipsitz, O., Nasri, F., Lui, L. M., Gill, H., Phan, L., ... & McIntyre, R. S. (2020). Impact of COVID-19 pandemic on mental health in the general population: A systematic review. *Journal of Affective Disorders*, 277, 55-64.

SELF-EFFICACY AND THE PROCESS OF GAY SEXUAL IDENTITY DEVELOPMENT AMONG GAY MEN IN MALAYSIA

**Carmella E. Ading¹, Aminuddin Ibrahim Laster¹, Getrude Cosmas Ahgang¹,
& Mohammad Hashim Othman²**

¹*Faculty of Psychology and Education, Universiti Malaysia Sabah (Malaysia)*

²*School of Educational Studies, Universiti Sains Malaysia (Malaysia)*

Abstract

The development of gay identity sexual among Malaysian gay men were not discussed openly in this country. This is because the government do not approve same sex orientation lifestyle. However, gay men exist in many communities in this country and they are living freely as a citizen and work in the country like others. Malaysia is one of the countries that openly against the Lesbian, Gay, Bisexual, Transsexual and Queer (LGBTQ). Nevertheless, they continue to develop their sexual identity as a part of their lives which at the same time causes a great distress in them. Thus, their decision to identify themselves as gays takes huge courage and effort. These courage and effort were found not only just intricately, since it involves emotional and social support from their family, friends and communities. It is also believed that this social support might help gay men to develop their self-efficacy as well. Therefore, it is in the interest of the researchers to explore about self-efficacy by looking at emotional and social support they received and its relation to the development of sexual identity among the gay men who lives in Malaysia. In this qualitative research, semi structured questions were developed to explore sexual identity development among the gay men. Six (6) respondents who have identified themselves as gay, aged between 21- 44 years old, from different walk of life were interviewed. Data were analysed using thematic analysis. Our study has found that emotional and social support, are the important factors that contribute to their self-efficacy and help them in developing their sexual identity.

Keywords: *Sexual identity, gay, self-efficacy, Malaysia.*

1. Introduction

Malaysia is one of the countries that consider homosexuality is a criminal offense. Individuals who are committed to homosexual practices will be penalized under the Malaysian Civil law or the Shariah law. See (2019) stated that Malaysia's understanding of sexuality and gender fails her international standards and best practices. Survey conducted by PEW research centre in 2013 has also shown that 86% of Malaysian believe homosexuality should not be accepted by the society. Due to these facts, individuals who realised that they have same sex attraction may find themselves experiencing cognitive dissonance. This is because they are living in the society that openly against homosexual practice. In addition, Kuga Thas (2013) states that adult homosexuals and adolescent homosexuals in Malaysia have a tendency to experience depression and suicide as a result of social pressures. Dworkin & Yi (2003) stressed that gay men were more likely experiencing discrimination and assault by the homophobic individuals. This gives the impression that negative experiences, oppression and pressure from a society that rejects homosexuals contribute to extreme stress and suicidal tendencies among homosexuals.

It is important that public should understand them and to understand them it is crucial for everybody to know the process of gay sexual orientation and identity development (Bailey, et al., 2016). The development of gay sexual identity among LGBTQ has consumed not just their emotions as it is an unprepared process but also found as unsupported, inconsistency, incongruence and stigmatised (Rosario, et al., 2006) in the society which do not except or understand LGBTQ. This may hinder the discomfort feelings by having friends or not wanting to have friends among the LGBTQ as reported in Mohr & Sedlacek (2010) due to the barrier of lack of commonalities.

1.1. Gay sexual identity and social support

Sexual identity refers to how individuals conceptualize their romantic or sexual attractions to other persons (Tatum, 2018). It was largely found that some LGBTQ individuals choose not to disclose their sexual orientation identity, a concept known as "passing" (Hoffshire, 2017). The concept of passing

represents the notion that homosexuality is an invisible identity which often can be hidden from others. Berger (1992) also commented that passing leads to poor self-concept and potential emotional distress. Since gay men were more satisfied with social support available from those who knew their sexual orientation, Berger (1992), has also stated that most gay men were known as gay only to most members of their networks. Besides that, close friends, siblings and persons who are close to them were also more likely to be aware of their homosexuality than co-workers, parents, and more distant relatives. Therefore, in most matters regarding personal issues these individuals choose to seek help or discuss their problems with their closed ones who are in return will not weaken them as LGBTQ but who could understand them better. These close friends are usually from the opposite gender as Gillespie et al. (2015) found that LGBTQ individuals have fewer same-gender friends in comparison to heterosexual individuals.

The development of gay sexual identity is also believed to be well supported by close friends who understand and accept LGBTQ. Another encouraging finding by Mohr and Sedlacek (2010) that involved 2,925 college freshmen at a State University revealed that 42% of the students reported having or wanting to have LGBTQ friends is an indication of support these individuals have. In a study conducted by Gillespie et al. (2015) found that, expressive, instrumental and companionate types of friendships are important and strongly associated with LGBTQ overall life satisfaction which derived from the process of adopting the identity consistently (Rosario, et al., 2006) and eliminating the undesirable dissonance between their demeanours and distinctiveness as LGBTQ.

1.2. Self-efficacy and reassurance

As it is well defined by Bandura (1994, 2006a, 2006b) and Gecas (1989) self-efficacy is individual's sense of self-agency, borne out in a belief that they can accomplish a given task and, more broadly, cope with life's challenges. Besides, Bandura (1986, 1997) has also stated that the possible consequences of behaviour which being predicted are intensely affected by self-efficacy as well.

In order to understand gay sexual identity development, it is important as well to understand the concept of high self-efficacy and low self-efficacy. As suggested by Karbasi & Samani (2016) individuals with high self-efficacy tend to engage in it all together or just by let it be as it is. In conjunction with developing gay sexual identity, higher self-efficacy leads individuals to enthrall themselves in the process of integration, incorporation and consolidation of LGBTQ self (Rosario, et al., 2006). These processes which involve milestones and courage are necessary in high self-efficacy otherwise the reassurance elements desired will be neglected hence leaving these individuals struggling in finding their true sexual identity.

Though, in other study findings gay and lesbian students' level of self-esteem and self-efficacy were high (Jurial, Otig, and Gallinero (2015) which suggest that they have a positive attitude about themselves, and they believe they can surpass almost all the challenges that come in their way. The study also revealed that students' level of self-efficacy showed a strong positive relationship with affective and cognitive engagement. It can be assumed that their positive beliefs that they can surpass their problems can be strongly associated with how much they engage affectively and cognitively. As suggested in the earlier study of Rosario, et al. (2006), youth gays and lesbians may have gone through the whole process of LGBTQ milestones, before they could reliably accommodate themselves as one.

2. Objective

The objective outline of this research was to explore how emotional and social support from friends and family could contribute to gay men's self-efficacy in developing their gay sexual identity. This is based on the notion that, gays who are living in a country which is not supporting LGBTQ are facing with great distress in identifying themselves openly. They may be seen as different from the majority and it takes such a huge courage and effort resulted from their high level of self-efficacy to be able to stand up as gay. These internalised strong will of emotions coupled with social supports from close friends and family have probably helped them in the development of their self-efficacy that needed to be explored in order to understand them better.

3. Methodology

A Grounded theory approach were used in this research. The Grounded theoretical approach helps researchers to explore and understand the process of gay sexual identity development and its relation to self-efficacy. Participants in this study were recruited via snow balling technique as the research target group were gay men. Six respondents were interviewed in this study. The sample size of the study was sufficient enough for the saturation condition because after interviewing all the six respondents, there were no new data found or relevant to the study. This is in line with the statements of Strauss and Corbin (1998)

stated that when saturation can be achieved while no new or relevant data appears. Therefore, categories are constructed according to the characteristics and dimensions that indicate variation, and the relationship between themes in the data is robust and valid (Strauss & Corbin, 1998). In supporting the stand, Romney, Batchelder and Weller (1986) have also stated that a sample as small as four individuals can provide perfectly accurate information with a high level of confidence (.999) if they have a high level of competence in the field studied.

In this study, the researchers used a semi-structured interview. There were 2 sections in the interview session, namely Part A and Part B. Part A involves demographic data such as age, level of education, occupation, race, place of residence, country of origin and if the respondent is in intimate relationship with a spouse. While in section B, the questions are focusing on the exploring of the emotional and social support they received and how it contributes to their self-efficacy and process of gay identity sexual development. In light of constructing semi-structured interview protocol items that meet the purpose of the study, researchers used questions constructed by Degges-White and Myer (2005) based on Cass (1979) model as the guideline. A pilot study to formulate the questions constructed for the purpose of data collection that answered the research questions was then administered.

As for the validation process, the interview questions were reviewed by two experts in the field of counselling and psychology. These two experts were selected based on their experiences in the study of homosexuality. It is important to highlight that the items formulated in this semi-structured interview are serve as guideline which the researcher may expand further exploration in necessity in order to obtain the information needed as outlined in the study objectives. All interviews conducted were recorded with the consent from all respondents and it was used for the purpose of data transcript. The duration of the interview was about two hours.

4. Analysis

Sexual identity is a process. It involves different types of attractions to others, as in this case on the same-sex persons. These attractions can be divided into two types of urges that is sexual intimacy or the urge to develop intimate relationship with another male. In this study, it was found that four of the participants were aware of their initial aspiration to same sex attraction when they were in early teenager and one of the participants was aware that his same sex attraction started to emerge while he was 7 year old.

The analysis from the interview revealed that three participants were found to accommodating their same sex attraction from the beginning and started to develop their gay identity secretly while the other three participants did not accept their same sex attraction in them and denied the desirability towards same sex at the early stage because they wanted to be accepted by the society and do not want to bring shame to their family. However, those three began to accept their same sex attraction desire after experiencing a turning point in their lives that made them started to think about their true sexual orientation.

4.1. Self-denial through suppressing and rejecting same sex attraction feeling

Three participants underwent a denial process in which they did not accept same-sex attraction because they knew same-sex relationships were prohibited and will somehow affected their families in many ways. As the result, they chose to suppress their feeling towards same-sex aspirations that they had.

Participant 1 suppressed his feelings after his father asked him off his same sex attraction inclination and warned him not to hold on to that idea by any change. That incident has made participant 1 to suppress his feeling and did not want to think about it. This took place as at the time of happening he wished to comply with the society's rules and his family's expectation. While the findings in Participant 2 who had also underwent same-sex attraction suppressed revealed that he never talked about same-sex attractions or anything in line with the matter to other individuals because as a young adolescent he wanted to be accepted by the majority group as one of their male members.

It was found clearly that both participants had experience suppressed emotion and did not think about their same sex attraction because they knew that same sex attraction is not acceptable in the society and could affect them and their family in return as in shown in their verbatim excerpts below.

Participant 1: *“when I, was approached by my dad. He asked me if I am, and me trying to conform with society and even their expectation as parents, I must suppress and I don't want to think about it, and I start dating...” (B49)*

Participant 2: *“I suppressed. You don't talk about it, you don't discuss about it, you don't mention to people. And then you, when you were young, you're want of fit in, when you're young you just want to be like everyone else” (B74)*

Besides self-denial by suppressing emotions towards same-sex attraction and fantasy, this study has also able to disclose the act of emotional rejection towards same-sex feelings predisposition among the

participants. It was found that one of the participants resorted to reject his feelings of same-sex attraction. This is because according to him, he knew it was wrong to have same sex fascination and therefore has tried to get a girlfriend in order to prove to him and society that he is a heterosexual. The verbatim excerpts below shows his intention and example of his self-rejection act towards same-sex feelings.

Participant 3: *“So in between that 12 years old until 14 years old I tried to find girlfriend, because to help me not to become gay. I want to have a girlfriend so that I can have feeling towards girls like that. It’s my own way lah, I have to find girlfriend..., if not I become gay” (B43)*

The above verbatim excerpts from the interviews showed that society rules, friends and family were the pushing factors that lead to decision making in self-denying and self-rejecting on same sex attraction.

4.2. Emotional and social support

Having accepted their own sexual identity, it was found that participants started to look for emotional and social support. They will turn to their good friends or individuals that can accept their sexual identity. However, at their earlier stage of self-acceptance, they were only feeling comfortable and willing to disclose their same-sex attraction feelings to certain individuals because they were still unsure and fear of rejection from the society. The verbatim excerpts below describe how important emotional and social support are to them in their lives.

Participant 1: *“I do, I do. But normally we mixed with my only group. That’s why, that’s why once you out ah, you got to have a support group”. (B924)*

Participant 2: *“I grew and then I got involved with my first boyfriend. We were very happy. I was happy, so happy. I was so happy because I could be myself. But, because there was so new, so fresh, I was closeted.” (B218)*

Participant 3: *“I more prone to hang out with the people that accepted me”. (B503)*

Participant 4: *“I never thought this community (gay) existed. Though I do not know anyone in the club, but I feel I can share anything with them because they are gay like me” (B302)*

It is shown that through this process, social support has a positive impact on each participant and this gives them the motivation to remain positive in continuing life as gay. Participants also prefer to associate with individuals who can accept their sexual identity. This is because they do not want to feel marginalized by the society. The majority of the participants prefer to associate with gays because they feel there is unconditional acceptance. This is also having proven that emotional and social support were playing important role in the contribution of self-efficacy among gays.

5. Discussion and conclusion

In this study, it was found that emotional and social support from friends or individuals that accepting participants’ same-sex attractions contribute to their development of self-efficacy. As most of the participants for this study indicated that without social supports from those who are close to them it is very difficult for them to accept themselves as gay. Their self-acceptance as gay man definitely did not come that easy for them. They were struggling with their emotions and in battle between trying to understand who they are and social acceptance.

Half of the participants admitted that they were once in self-denial and self-rejection due to pressure that they received from family and society in a way or another. From this study, it is also made known that stigmatization and complying with society norms are the two most important elements which have pushed same-sex attraction men to suppress their true inner feelings towards their sexual disposition. The elements of denial and rejection are so huge which disable them to be truthful to themselves. It was clearly stated by one of the participants who was trying at his best to get a girlfriend just to prove to himself and society that he is not interested in same-sex.

In the process of understanding one’s self, same-sex attraction men need high self-efficacy for them to be able to feel comfortable and to trust others as stated by one of the participants who has said that he can talk about anything with other same-sex attraction men because they are just like him who are sharing the same attraction towards same-sex. While another participant mentioned that he is comfortable to socialise with his group members because he knows there is where he could get all the emotional and social supports from. As confirmed by another participant in this study that being with the same-sex attraction men would make him happy because he can be in his true self. In supporting this, previous research done by Jang, Smith and Duys’ (2019) revealed that LGB who obtain positive social support may experience understanding towards oneself, especially when perceiving painful experiences as a common part of the human experience.

References

- Bailey, J. M., Vasey, P. L., Diamond, L. M., Breedlove, S. M., Vilain, E., & Epprecht, M. (2016). Sexual orientation, controversy, and science. *Psychological Science in the Public Interest*, 17(2), 45-101.
- Bandura A. (1986). *Social foundations of thought and action: a social cognitive theory*. Englewood cliffs, NJ: Prentice Hall
- Bandura, A. (1994). Self-efficacy. In V.S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (vol. 4, pp. 71–81). New York, NY: Academic Press
- Bandura, A. (1997). Self-efficacy: the exercise of control. New York, NY: Freeman.
- Bandura, A. (2006a). Guide for constructing self-efficacy scales. In F. Pajares & T. C. Urdan (Eds.), *Self-efficacy beliefs of adolescents* (pp. 307–337). Greenwich, CT: Information Age Publishing.
- Bandura, A. (2006b). Toward a psychology of human agency. *Perspectives on Psychological Science*, 1(2), 164–180.
- Berger, R. M. (1992) Passing and Social Support Among Gay Men, *Journal of Homosexuality*, 23(3), 85-98, doi:10.1300/J082v23n03_06
- Cass, V. C. (1979). Homosexual identity formation: A theoretical model. *Journal of Homosexuality*, 4(3), 219-235. doi: 10.1300/J082v04n03_01.
- Degges-White, S. E., & Myers, J. E. (2005). The adolescent lesbian identity formation model: Implications for counseling. *The Journal of Humanistic Counseling, Education and Development*, 44(2), 185-197.
- Dworkin, S. H & Yi, H. (2003). Lgbt identity, violence, and social justice: The psychological is political. *International Journal for the Advancement of Counseling*, 25(4), 269-279.
- Gecas, V. (1989). The social psychology of self-efficacy. *Annual Review of Sociology*, 15, 291–316.
- Gillespie, B.J., Frederick, D., Harari, L., & Grov, C. (2015). Homophily, close friendship, and life satisfaction among gay, lesbian, heterosexual, and bisexual men and women, *PLoS One*. doi: 10.1371/journal.pone.0128900
- Hoffshire, Michael D., "Examining the Impact of Sexual Orientation on the Career Development of LGBTQ+ Students" (2017). University of New Orleans Theses and Dissertations. 2328. <https://scholarworks.uno.edu/td/2328>
- Jang, H., Smith, C.K., & Duys, D. K. (2019). LGB identity and career decision-making self-efficacy among sexual minority college students, *International Journal for Educational and Vocational Guidance* <https://doi.org/10.1007/s10775-020-09428-1> 1 3
- Jurial, M.G., Otig, V. & Gallinero, W. (2015). The Relationship of Self-Esteem and Self-Efficacy to Student Engagement among Gay and Lesbian Students: A Case Study, *Journal of Higher Education Research*, 11(1)
- Karbasi, S. & Samani, S. (2016). Psychometric properties of teacher self-efficacy scale. *Procedia - Social and Behavioral Sciences*, 217, 618–621.
- Kuga Thas, A. M. (2013). No right to live? Malaysia's Islam and implications for its sexual minority storytellers. In G.J. Fairbairn, & R. Fisher, (Eds.). *Proceedings of the 4th Global Conference: Storytelling*, (ms. 1-21). Diperoleh daripada <http://eprints.qut.edu.au/64539/>
- Mohr, J.J., & Sedlacek, W. E. (2010). Perceived Barriers to Friendship with Lesbians and Gay Men Among University Students, *Journal of College Student Development*, 41(1), 70-80
- Pew Research Center. (2013). *The Global Divide on Homosexuality: Greater Acceptance in More Secular and Affluent Countries*. Retrieved from <http://www.pewresearch.org/wpcontent/uploads/sites/2/2014/05/Pew-GlobalAttitudes-Homosexuality-Report-REVISED-MAY-27-2014.pdf>
- Romney, A., Batchelder, W., & Weller, S. (1986). Culture as consensus: A theory of Culture and informant accuracy. *American Anthropologist*, 88, 313-338.
- Rosario, M., Schrimshaw, E. W., Hunter, J., & Braun, L. (2006). Sexual identity development among gay, lesbian, and bisexual youths: consistency and change over time. *Journal of sex research*, 43(1), 46–58. <https://doi.org/10.1080/00224490609552298>
- Strauss, A., & Corbin, J. (1998). Grounded theory methodology. *Handbook of qualitative research*. 273-285.
- See, J. (2019). Challenges to Mental Health Access among LGBT People. *Policy for Action 2/2019*.
- Tatum, A. (2018). "Workplace Climate and Job Satisfaction: A Test of Social Cognitive Career Theory (SCCT)'s Workplace Self-Management Model with Sexual Minority Employees". Dissertations. 2984. https://ecommons.luc.edu/luc_diss/2984

ATTITUDES OF STUDENTS TOWARDS GAMETE DONATION AND BASIC LIFE VALUES

Jelena Opsenica Kostic, Damjana Panic, & Milica Mitrovic
Department of Psychology, Faculty of Philosophy, University of Nis (Serbia)

Abstract

Gamete donation is a procedure that includes the “reproductive others” in the process of conception. There are numerous dilemmas related to donation while various European countries have different ways of solving them. In the Republic of Serbia, only voluntary gamete donation is allowed, and donors can only be women and men from the general population, or women included in the In vitro fertilization process. The donors remain anonymous to the child which was conceived with their help. Overcoming infertility in this way usually includes building public awareness, especially when it is not a common practice in that society, and work should be done on forming positive attitudes towards the donation. Experience from other countries indicates that sperm donation usually does not represent a problem, but there is greater demand for egg cells than the existing supply, which is an additional reason for studying attitudes and planning appropriate campaigns. In this study, the attitudes of university students ($N = 503$; 206 young men, 297 young women) towards gamete donation were analyzed, as were the differences in the extent of basic values about acceptance of the donation. We used several questions to determine the attitudes towards donations, including those specially designed for this research and the Schwartz Personal Values Questionnaire (Schwartz, 2002). University students are young people who represent not only potential donors but also the everyday environment of couples who require a donation. As highly educated individuals, they have the potential to be attitude holders. The results have shown generally positive attitudes of the students towards donation. The differences in certain basic values among the participants who support donation were obtained only for the sub-sample of young men: a more pronounced Openness to change and Self-transcendence. The authors present some specific ideas regarding the promotion of gamete donation in general – for example, we believe that in the supporting campaign for donation it would be more appropriate to use Self-transcendence than Openness to change.

Keywords: *Gamete donation, potential donors, attitudes towards donation, basic life values.*

1. Introduction

Gamete donation in the Republic of Serbia was made legal by the Law on Biomedically Assisted Fertility from April 2017 (Law on BMAF; Official Gazette of the RS, 40/2017). However, the law is still not being realized in practice – additional regulations were passed in 2019, but there are still many unresolved issues in practice. The obstacles were not removed in 2020, a year that has placed the health system under significant pressure due to the pandemic caused by COVID-19. The aim of this study is to obtain information that is useful in the process of planning the promotion of voluntary gamete donation, as provided by law.

1.1. Gamete donation

Gamete donation – the donation of sperm and egg cells – for the purpose of overcoming infertility is a 'third party' fertility treatment (ESHRE fact sheets 3, 2017), that is, one that includes 'reproductive others' (Freeman, Graham, Ebtehaj, & Richards, 2014), as is the case with embryo donation and surrogate motherhood. The European IVF-monitoring Consortium (EIM) has published a summary of the data related to assisted human reproduction in European countries, based on the data obtained in December 2018 (Calhaz-Jorge et al., 2020). The data indicate that the use of donated gametes is allowed in most countries. However, many countries have reported that they do not have local donors. Even though the report has (accurately) showed what is allowed in the Republic of Serbia and to whom (Calhaz-Jorge et al., 2020), these data refer only to the options that the law makes provisions for – as stated at the beginning, the law is still not in effect. At the same time, the law only makes provisions for

voluntary gamete donation, while donors can be both women and men from the general population or women included in the In vitro fertilization process. The donors remain anonymous to the child conceived with their help.

1.2. Attitudes and motives related to gamete donation

The social and psychological factors which determine donation are of great importance for fertility clinics, lawmakers, and promotional campaigns. A study carried out in six European countries (France, Germany, Italy, Spain, Sweden, and the UK) indicates that 78% of the respondents from the general population support egg and sperm donation (Fauser, 2019). The most frequently studied aspect is motivation regarding oocyte donation (ED), which is understandable considering the demand and the complexity of the procedure. Any decision-making process is additionally burdened by the fact that there is more than one type of donor. The basic division is into patient-donors and non-patient ones. Patient-donors are individuals undergoing IVF, who for some reason would like to donate their reproductive cells or unused embryos. Non-patient donors are usually divided by researchers into known, commercial, voluntary, and potential (Purewal & van den Akker, 2009a). Although many donors have altruistic motivations behind their decision, most would not donate without some monetary compensation (Lee et al., 2017; Kenney & McGowan, 2010).

In studies which involved voluntary egg donors, the most important motive or basic value that was singled out was altruism (e.g., Byrd, Sidebotham, & Lieberman, 2002; Kirkman, 2003; Jadva, Freeman, Kramer, & Golombok 2011; Lampic, Skoog-Svanberg, & Sydsjö 2014). Research has shown that many voluntary donors have experience with infertility through their family members, friends, or business ties, which motivates them to help others (Bracewell-Milnes et al., 2016; Byrd et al., 2002). It is interesting that most voluntary donors are opposed to financial compensation for oocyte donation (Purewal & van den Akker, 2009a). When it comes to potential donors, studies have shown that both men and women from the general population display positive attitudes towards ED (e.g., Chliaoutakis, Koukouli, & Papadakaki, 2002; Isikoglu et al., 2006; Khalili, Isikoglu, & Ghasemi, 2006; Purewal and van den Akker, 2006, 2009). In some studies it was determined that men have more positive attitudes towards ED than some women (Chliaoutakis et al., 2002; Isikoglu et al., 2006). Despite the positive attitudes of potential donors, the number of donated cells, especially eggs, is still too small. Basic life values, as desirable goals, also have a motivational function in the lives of people – for that reason it would be good to obtain information on the basic values of potential donors, and focus a promotional campaign, among other things, on promoting these values.

1.3. Objectives

The basic aim of this study is to analyze student attitudes, as attitudes of potential donors, towards gamete donation, along with any potential differences in basic life values between groups divided based on gender and their attitude towards gamete donation (young men/women who are in favor of it, and those who are undecided and against donation).

2. Methods

2.1. The sample of respondents and the procedure

The sample of respondents consisted of 503 students of the University of Nis, Serbia, 206 young men and 297 young women (aged from 18 to 27; $M = 20.57$, $SD = 1.41$). The study was carried out in various faculties in the spring of 2019. The respondents were informed about the goals of the study and gave their oral consent to participate in the research. They were also provided with the information that they could at any time, without any explanation, choose not to fill out the questionnaire.

2.2. The instruments

At the very beginning of the questionnaire, a short text was provided which informed the respondent that the Republic of Serbia has a law which allows the donation of a gamete, since we wanted to be sure that the respondents understood that we were asking them about a real possibility for overcoming infertility in Serbia. After that the respondents first answered the question of whether they had, prior to viewing the questionnaire, been aware of the existence of such a law. What followed was a set of questions regarding whether the respondents support gamete donation, formulated based on the questionnaire on oocyte donation, as well as questions on general attitudes towards donation (Skoog-Svanberg, Lampic, Bergh, & Lundkvist, 2003). Based on their responses, the respondents were divided into two groups: those who were consistently in favor of this option, and those who were undecided or against donation.

To measure the basic values we used the Schwartz questionnaire, a form which was designed for ESS research (European Social Survey; Schwartz, 2002). The questionnaire consisted of 21 statements on various goals in life, and the respondents provided answers on a six-level Likert scale, ranging from 1 – *completely irrelevant*, to 6 – *exceptionally important* (for the respondent). The analysis of the results used scores which denote four categories of the highest order: Openness to change, Conservation, Self-transcendence, and Self-enhancement.

3. Results

Most of the respondents (74,3% young men and 60,9% you women) had no knowledge of the Law on BMAF before completing the survey questionnaire. Based on whether they consistently support donation (that it is a good way of assisting couples without children; adoption should/should not be the couple's first choice; supporting a friend as a donor and as a recipient of donated cells), the respondents were divided into two groups. One group included respondents who were consistently in favor of donation, while the other consisted of respondents who were undecided and against donation. The results indicate that 53,4% of the young men (N=110) and 73,4% of the young women (N=218) consistently support donation; the difference is statistically significant ($\chi^2 = 21,45$; $p < .001$). The analyses were carried out for the young men and women separately, since they differ in terms of expressed basic life values: Openness to change ($t=4.200$; $p < .001$), Self-transcendence ($t=4.511$; $p < .001$) and Self-enhancement ($t=2.574$; $p = .01$) were more pronounced among the young women; significant differences were not determined for Conservation.

Table 1. Differences in the extent of basic values in relation to the category of the attitude toward gamete donation among young men (consistently in favor of compared to undecided and against).

| | t | df | p | M | SE difference | 95% confidence interval | |
|--------------------|-------|---------|--------|-----|---------------|-------------------------|------|
| | | | | | | Upp. | Low. |
| Openness to change | 4,072 | 171,392 | < .001 | .55 | .14 | .28 | .82 |
| Conservation | 1,548 | 184,423 | NS | .18 | .12 | -.05 | .42 |
| Self-transcendence | 4,104 | 182,128 | < .001 | .56 | .14 | .29 | .83 |
| Self-enhancement | 1,736 | 204 | NS | .19 | .11 | -.02 | .40 |

Note. NS – the difference is not statistically significant.

The young men in favor of gamete donation scored higher on Openness to change and Self-enhancement, compared to young men who were undecided or against donation. The differences in Conservation and Self-transcendence were not statistically significant.

Table 2. Differences in the extent of basic values in relation to the category of attitudes toward gamete donation among the young women (consistently in favor of compared to undecided and against).

| | t | df | p | M | SE difference | 95% confidence interval | |
|--------------------|-------|--------|----|-----|---------------|-------------------------|------|
| | | | | | | Upp. | Low. |
| Openness to change | ,747 | 109,28 | NS | .07 | .10 | -.12 | .26 |
| Conservation | ,880 | 295 | NS | .08 | .09 | -.10 | .26 |
| Self-transcendence | ,873 | 97,52 | NS | .07 | .08 | -.09 | .24 |
| Self-enhancement | 1,335 | 295 | NS | .12 | .09 | -.06 | .31 |

Note. NS – the difference is not statistically significant.

In the case of the young women, no statistically significant differences were determined in the extent of the basic values among those who are in favor of donation and those who are undecided or against donation.

4. Discussion

The results indicate that most of the respondents were not aware of the Law on BMAF. The enactment of the law was reported in the daily news, but it is clear that these are not the channels that reach young people. The first step in developing positive attitudes towards donation must include an analysis of the media which young people follow, and the choice of suitable means/individuals to convey information. The population of young people is especially important as they represent not only potential donors, but also the environment of the couples in need of a donation. As highly educated individuals

they have the potential to be attitude holders in their environment, but they must first be given the opportunity to formulate clear opinions based on reliable information.

Considering that our respondents are not familiar with the law, they were not informed about donating, and considering that they had not had the opportunity meet any donors or families that emerged as a result of donation in their environment, none of the components of their attitudes (cognitive, affective, behavioral) could be defined clearly. Still, we resorted to the responses given to several of the questions that refer to their general attitude towards donation (that it is a good way of assisting couples without children; adoption should/should not be the couple's first choice; supporting a friend as a donor and as a recipient of donated cells) in order to divide our respondents into those in favor of donation and those who are unsure or who are against donation. Significantly more young women support donation. The study does not allow us to provide any explanations of these differences in terms of gender; we can assume that the problem of infertility causes greater empathy among young women, and thus leads to greater support for donation on their part, but this hypothesis warrants further analysis. Support for donation is somewhat lower compared to the average results reported in European countries (Calhaz-Jorge et al., 2020), but all these countries have years of practice in gamete donation (with the exception of oocyte donation in Germany, where it is not allowed), so that the increasing number of positive attitudes could be the result of positive experiences with donation.

The basic aim of the study was to analyze the differences in the strength of life values among the respondents who unequivocally support donation and those who are undecided or who are against. In the case of the young men, Openness to change and Self-transcendence were values more pronounced in the group which unequivocally supports gamete donation. Even though it is understandable that young people who believe that it is important to do things your way and try new things in life (Openness to change = Self-direction and Stimulation) support donation, maybe this is not very helpful for the campaign – donation is far from an adventure. The value which can certainly be beneficial is Self-transcendence (Benevolence and Universalism). Thus, in our sample it was confirmed that altruistic values are important for showing support for donation, but only in the case of the young men. Among the young women, none of the differences were statistically significant. In other words, we cannot say that the studied basic values contributed to understanding why some of the young women were in favor of, and some were undecided regarding donation. At the same time, it is interesting that Openness to change and Self-transcendence are actually more pronounced among the young women. We will once again refer to the idea that among the young women more positive attitudes towards donation are shaped more by a specific empathy towards an infertile couple than the general values of universalism and altruism. This should be evaluated in future studies, and, if proven correct, ethically used in the campaign. It is worth mentioning that Conservation (Security, Conformity, and Tradition) is not a basic life value which, for this sample of students, contributes to the differences in attitudes.

In future studies, once donation actually begins in the Republic of Serbia, we should analyze the attitudes towards anonymity and financial compensation for donors, as well as towards the rights of the child to know its origins, that is, analyze the compatibility between the attitudes of the general population, the recipients of donated eggs, and the existing legal acts.

References

- Bracewell-Milnes, T., Saso, S., Bora, S., Ismail, A. M., Al-Memar, M., Hamed, A. H., Abdalla, H., & Thum, M.Y. (2016). Investigating psychosocial attitudes, motivations and experiences of oocyte donors, recipients and egg sharers: a systematic review. *Human Reproduction Update*, 22(4), 450–465. doi:10.1093/humupd/dmw006
- Byrd, L. M., Sidebotham, M., & Lieberman B. (2002). Egg donation-the donor's views: an aid to future recruitment. *Human Fertility*, 5, 175–182.
- Calhaz-Jorge, C., De Geyter, C. h, Kupka, M. S., Wyns, C., Mocanu, E., Motrenko, T., Scravelli, G., Smeenk, J., Vidakovic, S. & Goossens, V. (2020). Survey on ART and IUI: legislation, regulation, funding and registries in European countries. *Human Reproduction Open*, 2020(1). doi:10.1093/hropen/hoz044
- Chliaoutakis, J. E., Koukouli, S., & Papadakaki, M. (2002). Using attitudinal indicators to explain the public's intention to have recourse to gamete donation and surrogacy. *Human Reproduction*, 17(11), 2995–3002. doi:10.1093/humrep/17.11.2995
- ESHRE fact sheets 3 (2017). *Egg donation*. Retrieved March 15. 2019. from <https://www.eshre.eu/Press-Room/Resources>

- Fausser, B. C. J. M., Boivin, J., Barri, P. N., Tarlatzis, B. C., Schmidt, L., & Levy-Toledano, R. (2019). Beliefs, attitudes and funding of assisted reproductive technology: Public perception of over 6,000 respondents from 6 European countries. *PLOS ONE*, *14*(1), e0211150. doi:10.1371/journal.pone.0211150
- Freeman, T., Graham, S., Ebtehaj, F., & Richards, M. (2014). *Relatedness in Assisted Reproduction. Families, Origins and Identities*. Cambridge University Press.
- Isikoglu, M., Senol, Y., Berkanoglu, M., Ozgur, K., Donmez, L., & Stones-Abbasi, A. (2006). Public opinion regarding oocyte donation in Turkey: first data from a secular population among the Islamic world. *Human Reproduction*, *21*, 318–323. doi:10.1093/humrep/dei274
- Jadva, V., Freeman, T., Kramer, W., & Golombok, S. (2011). Sperm and oocyte donors' experiences of anonymous donation and subsequent contact with their donor offspring. *Human Reproduction*, *26*, 638–645. doi: 10.1093/humrep/deq364
- Kenney, N. J., & McGowan, M. L. (2010). Looking back: egg donors' retrospective evaluations of their motivations, expectations, and experiences during their first donation cycle. *Fertility and Sterility*, *93*(2), 455–466. doi:10.1016/j.fertnstert.2008.09.081
- Khalili, M.A., Isikoglu, M., & Ghasemi, M. (2006). Attitudes of Christians and Muslims to an oocyte donation program in Iran. *Eubios Journal of Asian and International Bioethics* *16*(3), 66–71.
- Lampic, C., Skoog Svanberg, A., Sydsjö, G. (2014). Attitudes towards disclosure and relationship to donor offspring among a national cohort of identity-release oocyte and sperm donors. *Human Reproduction*, *29*, 1978–1986. doi: 10.1093/humrep/deu152
- Lee, M. S., Farland, L. V., Missmer, S. A., & Ginsburg, E. S. (2017). Limitations on the compensation of gamete donors: a public opinion survey. *Fertility and Sterility*, *107*(6), 1355–1363.e4. doi:10.1016/j.fertnstert.2017.03.001
- Purewal, S., & van den Akker OBA. (2006). British women's attitudes towards oocyte donation: ethnic differences and altruism. *Patient Education and Counseling*, *64*, 43–49.
- Purewal, S., & van den Akker, O.B.A. (2009). Systematic review of oocyte donation: investigating attitudes, motivations and experiences. *Human Reproduction Update*, *15*(5), 499–515.
- Schwartz, S. H. (2002). A Proposal for Measuring Value Orientations across Nations. <https://pdfs.semanticscholar.org/376a/d809f1313cb41dfcfa8bd180949c273f8c2.pdf>
- Skoog-Svanberg, A., Lampic, C., Bergh, T., & Lundkvist, Ö. (2003b). Public opinion regarding oocyte donation in Sweden. *Human Reproduction*, *18*, 1107–1114. doi: 10.1093/humrep/deg222
- Zakon o Biomedicinski potpomognutoj oplodnji - Law on Biomedically Assisted Fertility (2017). Available at: http://www.pravno_informacioni_sistem.rs/SIGlasnikPortal/eli/rep/sgrs/skupstina/zakon/2017/40/1

IDEAS ABOUT MARRIAGE DEPENDING ON THE STRUCTURE OF VALUABLE ORIENTATIONS OF WOMEN IN EARLY ADULTHOOD

Svetlana Merzlyakova¹, & Marina Golubeva²

¹ *Chair of General and Cognitive Psychology, Astrakhan State University (Russia)*

² *Chair of English Language for Humanitarian Specialties, Astrakhan State University (Russia)*

Abstract

The phenomenon of marriage is one of the little-studied questions of family psychology. The resolution of the contradiction between the need of modern society to form complete and adequate ideas about the marital role among students and the need to identify socio-psychological factors that influence the development of ideas about marriage determines the problem of research.

The purpose of the study is to identify the features of ideas about marriage (Ideal husband, Ideal wife) depending on the structure of valuable orientations of young women in early adulthood.

Methods of research. Theoretical and methodological literature analysis, questionnaire, psycho-diagnostic methods (the questionnaire "A Value and Availability Ratio in Various Vital Spheres Technique" by E.B. Fantalova, the method of Semantic Differential, developed by Charles E. Osgood, projective technique of "Incomplete Sentences", the questionnaire "Role Expectations and Claims in Marriage" by A. N. Volkova); mathematical and statistical data processing methods. During the analytical stage we used mathematical and statistical methods that allowed us to establish the reliability of the research results. All calculations were performed using the IBM SPSS Statistics 21 computer program. The analysis included descriptive statistics, cluster analysis (K-means method), Kolmogorov-Smirnov test for one sample, Shapiro-Wilkes criterion, and correlation analysis.

The study involved 310 female students in age from 20 to 22 from Astrakhan State University and the Astrakhan Branch of the Russian Presidential Academy of National Economy and Public Administration. It was found that among young female students 45 people (14.5 %) are focused on the values of professional self-realization, 59 people (19 %) are focused on gnostic and aesthetic values, and 206 people (66.5 %) are focused on the values of personal happiness.

The results showed that the concepts of marriage have both common features and specific features due to the influence of the structure of valuable orientations of the respondents. Ideas about marriage are characterized by fragmentary formation of emotional and behavioral components, in some cases the presence of cognitive distortions. The obtained results actualize the importance and necessity of psychological and pedagogical support of the process of family self-determination of students, the formation of complete and adequate ideas about marriage in the conditions of the educational environment of the university.

Keywords: *Ideas about marriage, valuable orientations.*

1. Introduction

Demographic and social problems of modern family are largely related to the complexity of performing marital and parental roles by young people. E. I. Zakharova analyzes the function of representations about the content of such social roles as spouse and parent from the positions of P. Ya. Galperin's teaching about orientation (Zakharova, 2012). When starting to develop a new field of activity a person relies on the specific ideas he has about the nature of its implementation. Ideas about the social role (spouse, parent) are formed long before he begins to master it ("latent learning") and perform an orienting function (Zakharova, Karabanova, Starostina, & Dolgikh, 2019).

The phenomenon of marriage is one of the little-studied questions of family psychology. Relying on P. Ya. Galperin, O. A. Karabanova, E. I. Zakharova's ideas we consider the concept of marriage as a reference point, based on which a person will build their marital behavior in the future. The structure of ideas about marriage includes cognitive, emotional, and behavioral components. The cognitive component is the image of oneself as a spouse and marriage partner, knowledge and understanding of

marital functions, awareness of the qualities necessary for mastering marital functions and implementing marital behavior. The emotional component is a positive attitude towards the family, marriage partner, future children, marital rights and responsibilities, and the need for a family lifestyle. The behavioral component is awareness of the ways to implement marital functions, role expectations (setting for the active performance of family duties by the marriage partner) and role claims (readiness and ability to perform family duties). The resolution of the contradiction between the need of modern society to form complete and adequate ideas about the marital role among students and the need to identify socio-psychological factors that influence the development of ideas about marriage determines the problem of research.

2. Objectives

The purpose of the study is to identify the features of ideas about marriage (Ideal husband, Ideal wife) depending on the structure of valuable orientations of young women in early adulthood.

3. Methods

To diagnose the structure of valuable orientations we used the questionnaire "A Value and Availability Ratio in Various Vital Spheres Technique" by E. B. Fantalova (2001). To identify the content characteristics in the representations of marriage we used the following psych diagnostic methods: The Method of Semantic Differential, developed by Charles E. Osgood (Solomin, 2001), Projective Technique of "Incomplete Sentences" (Raigorodsky, 2001), the questionnaire "Role Expectations and Claims in Marriage" by A. N. Volkova (Volkova & Trapeznikova, 2012). Using a modified version of the semantic differential method we determined the value attitude of female students towards such concepts as "Ideal husband", "Ideal wife". In addition, they established the significance of such personal qualities as performance of duties, care, personal independence, responsibility, sexuality, patience, hard work, respect for another person, balance, success, empathy which formed the content of the cognitive component of ideas about marriage. The "Incomplete Sentences" Projective Technique allowed us to study the elements of the emotional component of ideas about marriage: the relationship to the family as a social institution, one's own family, the future marriage partner, oneself, future children, romantic love, sex, family conflicts, divorce, primacy and responsibility in the family, the rights and duties of spouses, family recreation and leisure. Using the questionnaire "Role Expectations and Claims in Marriage" by A. N. Volkova we have identified the installation of youths to actively fulfill future marriage partner family roles (role expectations) and their own personal commitment to family responsibilities in the household, parental educational, emotional and psychotherapeutic spheres of social activity, visual appeal (role claim) which was the behavioral component views about marriage.

During the analytical stage we used mathematical and statistical methods that allowed us to establish the reliability of the research results. All calculations were performed using the IBM SPSS Statistics 21 computer program. The analysis included descriptive statistics, cluster analysis (K-means method), Kolmogorov-Smirnov test for one sample, Shapiro-Wilkes criterion, and correlation analysis.

The study involved 310 female students in age from 20 to 22 from Astrakhan State University and the Astrakhan Branch of the Russian Presidential Academy of National Economy and Public Administration. All respondents were informed about the study and agreed to participate. We reported on the topic, stressed the confidentiality of the research and the voluntary participation of students and stayed in the audience to answer any questions.

4. Discussion

Using the questionnaire "A Value and Availability Ratio in Various Vital Spheres Technique" by E. B. Fantalova we determined the hierarchy of values of students. As a result of divisive clustering of the empirical sample there were identified three homogeneous clusters. In the age group of early adulthood 45 people (14.5 %) were identified with an orientation to the values of professional self-realization, 59 people (19 %) with an orientation to gnostic and aesthetic values, and 206 people (66.5 %) with an orientation to the values of personal happiness.

Further, using correlation analysis we identified the content characteristics of ideas about marriage depending on the structure of valuable orientations of young women. For this purpose, we calculated the correlation coefficients between a particular image (Ideal husband, Ideal wife) and elements of the cognitive, emotional and behavioral components. For quantitative variables whose distribution corresponds to the normal law (established by calculating the Kolmogorov-Smirnov test for

one sample, the Shapiro-Wilkes test) we calculated the Pearson linear correlation coefficient (r). For ordinal variables and quantitative variables whose distribution significantly differs from the normal law, the Spearman rank correlation coefficient (r_s) is used. For final conclusions we used results at the level of statistical significance $p \leq 0.05$; $p \leq 0.01$. The procedure of ranking by the value of the correlation coefficient allowed us to determine the hierarchy of content characteristics in representations of marriage from the most important to the least significant.

The objective dependence of ideas about marriage on the formed structure of valuable orientations among young women in early adulthood (from 20 to 22 years) is established. Table. 1. presents the results of a correlation analysis of ideas about marriage depending on the structure of valuable orientations of young women aged 20 to 22 years.

Table 1. Research of features of representations about Ideal husband depending on the structure of valuable orientations of female students aged from 20 to 22 years.

| Content characteristics | Orientation on the values of professional self-realization | Orientation to gnostic and aesthetic values | Orientation on the values of personal life |
|--|--|---|--|
| My father | $r_s = 0,079$ | $r = 0,250$ | $r_s = 0,378^{**}$ |
| Performance of duties | $r_s = 0,319^* (8)$ | $r = 0,373^{**} (7)$ | $r_s = 0,257^{**} (11)$ |
| Caring | $r_s = 0,413^{**} (5)$ | $r = 0,631^{**} (1)$ | $r_s = 0,587^{**} (1)$ |
| Personal independence | $r_s = 0,476^{**} (2)$ | $r = 0,418^{**} (6)$ | $r_s = 0,453^{**} (4)$ |
| Responsibility | $r_s = 0,317^* (9)$ | $r = 0,238$ | $r_s = 0,358^{**} (6)$ |
| Sexuality | $r_s = 0,449^{**} (3)$ | $r = 0,537^{**} (3)$ | $r_s = 0,458^{**} (3)$ |
| Patience | $r_s = 0,397^{**} (7)$ | $r = 0,308^* (9)$ | $r_s = 0,339^{**} (8)$ |
| Industriousness | $r_s = 0,499^{**} (1)$ | $r = 0,497^{**} (4)$ | $r_s = 0,340^{**} (7)$ |
| Respect for other people | $r_s = 0,403^{**} (6)$ | $r = 0,593^{**} (2)$ | $r_s = 0,479^{**} (2)$ |
| Balance | $r_s = 0,262$ | $r = 0,262^* (10)$ | $r_s = 0,408^{**} (5)$ |
| Successfulness | $r_s = 0,425^{**} (4)$ | $r = 0,343^{**} (8)$ | $r_s = 0,358^{**} (6)$ |
| Empathy | $r_s = 0,276$ | $r = 0,421^{**} (5)$ | $r_s = 0,216^{**} (13)$ |
| Attitude towards family as a social institution | $r_s = 0,163$ | $r_s = -0,129$ | $r_s = 0,209^{**} (14)$ |
| Attitude towards one's own family | $r_s = -0,005$ | $r_s = -0,070$ | $r_s = 0,263^{**} (10)$ |
| Attitude towards future marriage partner | $r_s = 0,252$ | $r_s = 0,042$ | $r_s = 0,180^* (15)$ |
| Attitude towards oneself | $r_s = 0,016$ | $r_s = 0,103$ | $r_s = 0,117$ |
| Attitude towards future children | $r_s = -0,102$ | $r_s = -0,118$ | $r_s = 0,084$ |
| Attitude towards love of the romantic type | $r_s = 0,037$ | $r_s = 0,109$ | $r_s = 0,236^{**} (12)$ |
| Attitude towards sex | $r_s = -0,109$ | $r_s = 0,099$ | $r_s = -0,003$ |
| Attitude towards divorce | $r_s = -0,125$ | $r_s = 0,004$ | $r_s = -0,008$ |
| Attitude towards conflicts | $r_s = -0,354^* (10)$ | $r_s = -0,046$ | $r_s = -0,028$ |
| Leadership and responsibility in the family | $r_s = 0,046$ | $r_s = -0,169$ | $r_s = 0,015$ |
| Rights and obligations of spouses | $r_s = 0,290$ | $r_s = 0,119$ | $r_s = 0,049$ |
| Attitude towards family recreation and leisure | $r_s = 0,020$ | $r_s = -0,103$ | $r_s = 0,033$ |
| Intimately sexual scale | $r_s = 0,100$ | $r = 0,037$ | $r_s = -0,049$ |
| Personal identification with your spouse | $r_s = 0,249$ | $r = 0,298$ | $r_s = -0,020$ |
| Household sphere (role expectations) | $r_s = -0,034$ | $r = 0,345$ | $r_s = -0,217$ |
| Parent-educational sphere (role expectations) | $r_s = 0,110$ | $r = 0,072$ | $r_s = -0,116$ |
| Social activity (role expectations) | $r_s = 0,168$ | $r = 0,092$ | $r_s = 0,010$ |
| Emotional and psychotherapeutic sphere (role expectations) | $r_s = 0,132$ | $r_s = 0,256$ | $r_s = 0,177$ |
| External attractiveness (role expectations) | $r_s = 0,240$ | $r = 0,191$ | $r_s = 0,325^{**} (9)$ |

Notes: * - correlation is significant at 0.05, ** - correlation is significant at 0.01

The image “Ideal husband” is characterized by a fullness of the elements of the cognitive component, a weak representation of the emotional and behavioral components. Common personal qualities in the image “Ideal husband” are caring, sexuality, respect for other people, personal independence, industriousness, successfulness, patience, and performance of duties. In early adulthood the image “Ideal husband” increases the importance of personal independence, sexuality, and patience.

The image “Ideal husband” for young women who are focused on the values of professional self-realization acquires more masculine features is supplemented by responsibility, a negative attitude towards family conflicts. In early adulthood young women focused on gnostic and aesthetic values the image “Ideal husband” includes such qualities as balance, empathy. The image “Ideal husband” for young women who are focused on the values of personal life is supplemented with elements of cognitive (responsibility, balance, empathy), emotional (positive attitude towards family as a social institution, towards their own family, towards the future marriage partner, towards love of the romantic type), behavioral (external attractiveness) components. The image of their own father is a guide in the formation of ideas about ideal husband only for young women who are focused on the values of personal life.

An invariant characteristic of the image “Ideal wife” among young women in early adulthood is the formation of the cognitive component of ideas about the marital role (Table. 2).

Table 2. Research of features of representations about Ideal wife depending on the structure of valuable orientations of female students aged from 20 to 22 years.

| Content characteristics | Orientation on the values of professional self-realization | Orientation to gnostic and aesthetic values | Orientation on the values of personal life |
|--|--|---|--|
| My mother | $r_s = 0,325^*$ | $r = 0,466^{**}$ | $r_s = 0,430^{**}$ |
| Performance of duties | $r_s = 0,396^{**} (7)$ | $r = 0,471^{**} (8)$ | $r_s = 0,354^{**} (11)$ |
| Caring | $r_s = 0,661^{**} (1)$ | $r = 0,712^{**} (2)$ | $r_s = 0,597^{**} (1)$ |
| Personal independence | $r_s = 0,562^{**} (4)$ | $r = 0,530^{**} (4)$ | $r_s = 0,530^{**} (3)$ |
| Responsibility | $r_s = 0,323^* (11)$ | $r = 0,366^{**} (10)$ | $r_s = 0,377^{**} (10)$ |
| Sexuality | $r_s = 0,469^{**} (5)$ | $r = 0,490^{**} (6)$ | $r_s = 0,496^{**} (4)$ |
| Patience | $r_s = 0,444^{**} (6)$ | $r = 0,278^* (11)$ | $r_s = 0,392^{**} (7)$ |
| Industriousness | $r_s = 0,573^{**} (3)$ | $r = 0,719^{**} (1)$ | $r_s = 0,459^{**} (5)$ |
| Respect for other people | $r_s = 0,611^{**} (2)$ | $r = 0,614^{**} (3)$ | $r_s = 0,551^{**} (2)$ |
| Balance | $r_s = 0,339^* (9)$ | $r = 0,376^{**} (9)$ | $r_s = 0,386^{**} (8)$ |
| Successfulness | $r_s = 0,338^* (10)$ | $r = 0,485^{**} (7)$ | $r_s = 0,404^{**} (6)$ |
| Empathy | $r_s = 0,358^* (8)$ | $r = 0,501^{**} (5)$ | $r_s = 0,384^{**} (9)$ |
| Attitude towards family as a social institution | $r_s = 0,046$ | $r_s = -0,302^* (12)$ | $r_s = 0,222^{**} (14)$ |
| Attitude towards one's own family | $r_s = 0,001$ | $r_s = -0,096$ | $r_s = 0,184^* (17)$ |
| Attitude towards future marriage partner | $r_s = 0,077$ | $r_s = 0,001$ | $r_s = 0,217^{**} (15)$ |
| Attitude towards oneself | $r_s = 0,082$ | $r_s = -0,006$ | $r_s = 0,131$ |
| Attitude towards future children | $r_s = -0,162$ | $r_s = -0,009$ | $r_s = 0,058$ |
| Attitude towards love of the romantic type | $r_s = -0,171$ | $r_s = 0,016$ | $r_s = 0,272^{**} (12)$ |
| Attitude towards sex | $r_s = -0,142$ | $r_s = -0,125$ | $r_s = 0,047$ |
| Attitude towards divorce | $r_s = 0,024$ | $r_s = -0,012$ | $r_s = -0,097$ |
| Attitude towards conflicts | $r_s = -0,034$ | $r_s = -0,020$ | $r_s = -0,163^* (18)$ |
| Leadership and responsibility in the family | $r_s = -0,181$ | $r_s = -0,137$ | $r_s = 0,103$ |
| Rights and obligations of spouses | $r_s = 0,156$ | $r_s = 0,219$ | $r_s = 0,134$ |
| Attitude towards family recreation and leisure | $r_s = -0,220$ | $r_s = -0,125$ | $r_s = 0,203^* (16)$ |
| Intimately sexual scale | $r_s = 0,073$ | $r = -0,358$ | $r_s = 0,126$ |
| Personal identification with your spouse | $r_s = 0,039$ | $r = -0,084$ | $r_s = 0,182$ |
| Household sphere (role claims) | $r_s = 0,236$ | $r = -0,138$ | $r_s = 0,099$ |
| Parent-educational sphere (role claims) | $r_s = 0,173$ | $r = -0,505^{**} (13)$ | $r_s = 0,050$ |
| Social activity (role claims) | $r_s = 0,027$ | $r = 0,177$ | $r_s = 0,014$ |
| Emotional and psychotherapeutic sphere (role claims) | $r_s = 0,267$ | $r = 0,103$ | $r_s = 0,255$ |
| External attractiveness (role claims) | $r_s = -0,120$ | $r = -0,014$ | $r_s = 0,268^{**} (13)$ |

Notes: * - correlation is significant at 0.05, ** - correlation is significant at 0.01

Common personal qualities in the image “Ideal wife” are: caring, respect for other people, industriousness, personal independence, sexuality, empathy, successfulness, patience, balance, performance of duties, responsibility. Among young women's ideas about ideal wife the importance of respect for other people, sexuality, and empathy increases. When developing ideas about ideal wife young women continue to focus on the image of their own mother. The image “Ideal wife” among young women who are focused on gnostic and aesthetic values is characterized by the presence of cognitive distortions which are manifested in a negative attitude towards family as a social institution, the low importance of parental and educational functions and the role of the mother. Young women who are focused on the values of personal life in the image “Ideal wife” there are additional elements of emotional (positive attitude towards family as a social institution, towards their own family, towards the future marriage partner, towards romantic love, towards family recreation and leisure, negative attitude towards family conflicts) and behavioral components (external attractiveness).

5. Conclusions

So, the structure of valuable orientations is a personal factor that determines the specifics of ideas about marriage among young women in early adulthood. The dynamics of ideas about marriage is characterized by heterochronous formation of cognitive, emotional and behavioral components. Ideas about the social role of the spouse (Ideal husband, Ideal wife) are considered as reference points based on which young women will build their own marital behavior in the future. The concepts of marriage have both common features and specific features due to the influence of the structure of valuable orientations. Due to the lack of purposeful work on formation of the younger generation readiness for marital views about marriage are characterized by fragmentation of formation of emotional and behavioral component, in some cases, the presence of cognitive distortion (the image “Ideal wife” young women with a focus on the gnostic and aesthetic value in early adulthood).

Acknowledgments

The reported study was funded by RFBR, project number 20-013-00072.

References

- Fantalova, E. B. (2001). *Diagnostics and psychotherapy of internal conflict*. Samara.
- Raigorodsky, D. Ya. (Ed. and compiler). (2001). *Practical Psych Diagnostics. Methods and Tests. Tutorial*. Samara: Publishing House “BAKHRAKH-M”.
- Solomin, I. L. (2001). *Psychosemantic diagnosis of hidden motivation*. Methodical manual. SPb.: IMATON.
- Volkova, A. N., & Trapeznikova, T. M. (2012). Methodical Receptions of Diagnostics of Matrimonial Relations. *Questions of psychology*, 5, 110–116.
- Zakharova, E. I. (2012). Individual Notions of Social Role Characteristics as Means of Orientation. *Cultural-historical Psychology*, 4, 38-41.
- Zakharova, E. I., & Karabanova, O. A., & Starostina, Y.A., & Dolgikh, A. G. (2019). Ideas about the Future of Parenthood in Adolescence and Young Adulthood. *Russian Psychological Journal*, 2 (16), 103-122.

ALTERNATIVES TO DISENCHANTMENT? AN INTERNET-MEDIATED RESEARCH DURING THE COVID-19 PANDEMIC

Rosângela Araújo Darwich¹, Maira de Cássia Evangelista de Sousa¹,
& Ana Letícia de Moraes Nunes²

¹Graduate Program in Communication, Languages and Cultur, Universidade da Amazônia (Brazil)

²Center for Health and Biological Sciences, Universidade da Amazônia (Brazil)

Abstract

Over the past three decades, extraordinary changes have taken place in the daily lives of families with sufficiently high purchasing power to guarantee access to digital devices and internet connection. Nowadays people have access to nearly unlimited information on their digital, mobile and ubiquitous devices and are themselves information to be accessed from anywhere in the world. Not only does the internet connect people to machines, but also to other people through social networks, online games, blogs / websites and the most diverse digital platforms, such as Facebook, Google, Uber, Ifood, Netflix, Tinder and Spotify. The notions of time and space are transformed, and we start to live in a hybrid space, where real and virtual coexist. In parallel with the use of digital platforms, balance and health started to be sought, more and more, by means of psychotropic drugs, whose consumption starts in childhood and makes us wonder what this world is, which saddens, shakes, bewilders, and disenchant. It is in this sense that people seem to be adapting to a new historical moment in which a large part of thoughts and feelings disturbs them. By struggling against those, human beings struggle against their own humanity. Some other problems came to light with the COVID-19 pandemic: the physical contact restriction confined people to their homes, where they often found even more discomfort and, in many cases, violence of all kinds. On the other hand, digital technologies have enabled social isolation to be circumvented, given the countless possibilities for interaction that they offer. Therefore, this study aims to reflect on the possibilities of personal and social action in the face of challenging situations, towards the construction of assertive and respectful, non-coercive relationships. To this end, based on Behavior Analysis concepts, we attempt to clarify the extent to which the same circumstances that cause pleasure can justify an increasing difficulty in dealing with frustrations, boredom and other emotions identified as being negative, taking into account consideration the internet use during the COVID-19 pandemic. To illustrate this perspective, we present an internet-mediated research, developed this year with ten families, aiming the creation of spaces for dialogue and reflection between a child and its mother or father, favoring the quality of the relationship between them and the child's self-esteem. We point out that participants, as well as us all, can reinvent contemplative activities alongside greater proactivity.

Keywords: *Digital platforms, internet-mediated research, COVID-19, behavior analysis.*

1. Introduction

1969 was the year that man stepped on the moon and the first steps towards the internet were taken (Collins, 2019; Curran, 2016). Three decades later, Bauman (2000) unified, under the term "liquid modernity", the idea that something had been lost in human relations, in terms of consistency and stability. More pessimistic and more optimistic views have been added around the human experience, which, through the clash between culture and nature, values, and impulses, had already been meticulously investigated by thinkers from different areas, such as Nietzsche (1998) and Freud (1930).

Skinner (1986), resuming the debate with the intention of clarifying what can be done to build an eventual peace between desire and satisfaction, indicated that contentment cannot be found disconnected from taking action. It is interesting to note that, just a few years later, there was a growth in the availability of access to digital devices and the internet, when contemplative attitudes started to become increasingly present in the daily life.

Around these circumstances, this study aims to reflect on the possibilities of personal and social action in the face of challenging situations, towards the construction of assertive and respectful, non-coercive relationships. We present, as an example, a research that uses the internet to bring together

people from the same family who, isolated in their homes due to the COVID-19 pandemic, found themselves with limited conditions to practice the types of actions that would allow them to naturally achieve greater balance.

2. Third millennium

The third millennium is marked by relations mediated by the internet and, therefore, by innovations that precede it. The 1960s and 1970s were fundamental for the development of all the technological communicational apparatus that exists today. Computers were generated in World War II and were born in 1946 in Philadelphia, United States. Before that, there were already some experiments with warlike ends (Castells, 1999). However, it was in the 1960s that computers came to be seen as communication machines (Streeter, 2011).

In the 1970s there were thousands of young people in Silicon Valley, in the United States, who had fun making radios, high-fidelity amplifiers and telecommunication technologies (Lévy, 1993). It was in this context that the personal computer was invented. In 1976, Steve Jobs and Steve Wozniak founded Apple to market a personal computer, the Apple 1. From then on there has been the development of microprocessors, miniaturization and lower prices of these technologies, allowing them to be popularized and be part of people's routine (Castells, 1999).

The publication of information on mobile digital media, in turn, was made possible thanks to the process of miniaturizing phones and computers in addition to the emergence of the mobile internet (Goggin, Ling, & Hjorth, 2015; Westlund, 2014).

Mobile phone services have been available since the 1960s and from the late 1970s and early 1980s they began to be commercialized (Goggin et al., 2015). In the 1980s, cell phones only had the function of calling. The first digital cell phones appeared in the 1990s with the second generation (2G), making it possible to send and receive SMS (Short Message Service) and browse the internet through the WAP protocol (Wireless Application Protocol) - even though the speed of data transmission was low and the cost high. Currently, the fifth generation (5G) is already available in some countries. Apple's iPhone and iPad launches in 2007 and 2010 are considered milestones in the history of mobile digital media (Pellanda, 2009). With each new function added to these devices, they would become more like computers.

The creation and development of the internet resulted from the union of military strategy, scientific cooperation, technological initiative and countercultural innovation. The internet emerged in 1969, when the United States Department of Security Research Agency (ARPA) created a computer network called ARPANET (Castells, 1999; Streeter, 2011). In the 1990s, the development of Ted Nelson's hypertext, using Tim Berners Lee's HTML language, developed the World Wide Web (www), which facilitated the spread of the internet. In the same decade, the spread of the mobile internet began.

Digital mobile devices, especially smartphones, are responsible for the wider access to the internet because they cost much less than desktop computers and laptops. Currently, the most diverse activities of our daily lives can be mediated by digital platforms, such as Facebook, Google, Uber, Ifood, Netflix, Tinder and Spotify. These platforms are "(re)programmable digital infrastructures that facilitate and shape personalized interactions between end users and complementors, organized through systematic collection, algorithmic processing, monetization and data circulation" (Poell, Nieborg, & Van Dijck, 2020, p. 4).

At first, after the emergence of the web, cyberspace was considered disconnected from physical reality. Understanding that the connection through mobile digital supports transforms the space experience by placing remote contexts within present contexts, Souza e Silva (2006) proposed the definition of hybrid spaces for "mobile spaces, created by the constant movement of users who carry portable communication devices continuously connected to the internet and other users" (p. 24).

Due to the intense use of digital platforms during the Covid-19 pandemic, Lemos (2020) stated that we are not experiencing social isolation, but physical isolation: digital media, according to the author, "help to combat loneliness, whether for fun, remote work, psychosocial support, or seeking information about the various dimensions of the pandemic. This is a fundamental difference in relation to other forms of social isolation implemented by other epidemics" (para. 3).

3. Disenchantment and reinforcement

When reflecting on the advances of humanity, Harari (2016) concludes that the biggest health problems of today can be prevented with healthy eating and, more than ever, people die from old age. As such, "the average human being is far more likely to die from bingeing at McDonald's than from drought, Ebola, or an al-Qaeda attack." On the other hand: "more people commit suicide than all killed by soldiers, terrorists and criminals combined" (p. 12).

Use of psychotropic drugs since childhood and increasing difficulty in dealing with emotions make up the same phenomenon: the reality that provides us with the basis for having a good life, disenchant us. Much of the thoughts and feelings are disturbing, and as we fight them, we fight our own humanity and turn any possible satisfaction into more frustration and boredom.

These circumstances, however, are not as new as they may seem. More than thirty years ago, Skinner (1986) wondered what is wrong with everyday life in the Western world and his answers remain current for the West and also for those who have reached a similar standard of living, even if they live in countries that represent, according to Hall (2016), “the rest”.

To understand Skinner’s and, therefore, Behavior Analysis reasoning, we need to consider that there are two types of reinforcement - positive and negative. The negative reinforcement corresponds to successful escapes and avoidances, and the positive is central to the analysis of the discontent of the wealthiest people - precisely those who seemly could have a good quality of life (Skinner, 1976, 1965).

In positive reinforcement, we come in contact with reinforcers, like in watching television and cycling. Obviously, nothing is equally reinforcing for all people, but we tend to feel good about what is reinforcing to us. In addition, we need not consciously realize the effects that relationships have on us so that they affect us (Skinner, 1965).

When trying to answer why we are not satisfied even with so many reinforcers available, Skinner (1986) draws attention to the difference between reinforcers with whom we come in contact through the adoption of more contemplative (like watching television) or more active postures (like riding a bicycle). The search for an explanation led him to the history of the human species.

Nowadays, we can do many things with pleasant consequences, but they are often quite different from what we did during much of the history of the development of the human species. Our organism is the product of thousands of years of evolution in which the sensation of pleasure depended on chains of extraordinarily complex actions. For a long time, there was no food in the refrigerator, kept at a step of the hands, or a remote control that would turn on a device and put us in front of other places or other times. Merely contemplative actions certainly did not guarantee our survival (Skinner, 1986).

In the clash between phylogenesis and culture, there are daily practices that represent the loss of the inclination to act, which allowed us to survive as a species. Thus, “where thousands of millions of people in other parts of the world cannot do many of the things they want to do, hundreds of millions of people in the West do not want to do many of the things they can do” (Skinner, 1986, p. 568). An example is the presence of elevator operators, so that we, who no longer need to climb stairs, avoid even pressing a button corresponding to the desired floor. Automation has been exponentially increasing the number of examples, but if we consider the simple following of rules, which guarantees accurate movements towards what we want, we will see how much we no longer need to experiment, make mistakes, discover, and invent.

Engaging in contemplative activities is not bad - on the contrary. We would not have art without those who admire it and we certainly had no culture without rules. What hurts is the imbalance, when contemplative activities take up almost all of our free time. In a movement to remedy the hardships of easy access to pleasure, now transformed into the difficulty of experiencing the sensation of pleasure, health professionals, such as Melo, Oliveira and Vasconcelos-Raposo (2014), tirelessly repeat that we must do physical activities so that we can have balance, including mental.

While we were thinking about these issues, the year of 2020 began and a pandemic that would put us indoors full time, surrendered to the sophisticated contemplation that the internet provides and that guaranteed, for many, social contact and a source of income.

4. Internet mediation: An example of family intervention

Started in 2020, the COVID-19 pandemic has put reality in new terms. Serious problems were added to the health crisis. For example, restricting people to the limits of their homes has generated a huge increase in domestic and family violence (Evans, Lindauer, & Farrell, 2020). Remote activities, such as home office and homeschooling, were also accompanied by a considerable increase in stress experienced on a daily basis (Homayoun, 2020).

In addition, the pandemic destabilized the hypothesis of Harari (2016) regarding the era of natural epidemics having come to an end and hindered the proactivity encouraged by Skinner (1986). An important challenge became how to fight contagion and, at the same time, counterbalance contemplative activities to reduce the destructive impact that they usually promote.

Digital technologies have, in a way, overcome social isolation, given the countless possibilities for interaction that they offer. We briefly present a study conducted this year at the Universidade da Amazônia (UNAMA), which foresaw the formation of face-to-face groups of children in schools, but needed to be remodeled due to the pandemic. The use of literary texts was maintained in interventions mediated by the

internet that brought together members of the same family. WhatsApp enabled the sharing of interventional material, such as Google Forms and children's storytelling videos available on the YouTube¹ platform. At the end of the process, a form was sent only to the adult participant with questions regarding the child's assessment and his own (Darwich, Carvalho and Moura, 2020).

We paid special attention to the creation of non-coercive spaces for dialogue and reflection between the child and his mother or father in order to favor interaction at that moment, but also to serve as an example for all social exchanges (Sidman, 1989). We encouraged the adult to show closeness and affection, with presentation of clear but flexible rules and limits, which characterizes the democratic or authoritative parenting style, favoring the healthy development of the child (Santrock, 2014). Attention to the child as a person, with their strengths and deficiencies to be overcome and with space for authentic expression of thoughts and feelings should be especially favorable to self-esteem (Guilhardi, 2002).

In addition, the use of storytelling aimed to open space for the pleasure of reading, writing and sharing own creations, evaluated by other studies of ours. Thus, we also seek to indirectly combat the problem of school dropout (Darwich & Garcia, 2019; Darwich, Nunes, & Souza, 2020).

The sample comprised ten pairs of participants, each one from the same family and with children aged 4 to 11 years, from Brazil and Portugal. In this sense, the parents acquired the role originally assigned to the researchers, staying with the child, talking to the child and filling out forms.

Six children's books were selected, with different challenges and overcoming strategies. From the books, videos were edited by the research group, and the questions on the forms were created. An average of six questions per form related the story told in the video to the children's experiences and emphasized the possibility of practical actions in different contexts. Two categories of analysis were created to assess the favoring of children's self-esteem by adults: attention to the person and attention to behaviors. As a result, the adult participants revealed that the research provided moments of positive exchange with the children and made it clear to them the value of having family dialogue.

5. Conclusions

For Behavior Analysis, most of our life experiences correspond to the intertwining between the contexts in which we participate, our actions and the consequences they generate, regardless of whether we consciously perceive the changes we cause in the world, and therefore, in ourselves (Skinner, 1965, 1976). This would explain why it is so often difficult to put into practice what we want, even though theoretically it just depended on moving in that direction.

Generally speaking, the same circumstances that generate pleasure can justify an increasing difficulty in dealing with frustrations, boredom and other emotions identified as negative. Astonished by his own emotions, the human being tries to control them at any price and ends up paying with his own health (Skinner, 1986).

In a pandemic situation, researchers and participants were able to share activities carried out through the internet and digital technologies. Thus, communication mediated by the internet reconfigured behaviors, but also research practices. In the example described here, we brought together a parent and a son or daughter, out of a total of ten families. The results demonstrate positive effects of the attention received by the child for having the adult watching video with him, reading questions and writing down the answers in the absence of charges or other pressures.

The pandemic offered our research group new possibilities to not only study resilience, but to put it into practice. Like Skinner (1948), we find it necessary to always try new alternatives, maintaining proactive postures in response to the challenges we face. The procedures we created for internet-mediated intervention are also suitable for face-to-face group intervention, as in the case of conversation circles. We hope to contribute to debates that unfold in even more researches aimed at building citizenship and more harmonious and non-coercive social relations.

We ended by remembering *The Little Prince* (Saint-Exupéry, 2000) who, in front of a seller of pills to quench his thirst that allowed him to save fifty-three minutes a week, thought: "if I had fifty-three minutes to spend as I liked, I should walk at my leisure toward a spring of fresh water" (p. 63).

¹Our videos can be found in the "Reading with the Experiential Groups" playlist on YouTube. Retrieved from https://www.youtube.com/playlist?list=PLx6cJKqj-gtcaqAq3SjF8sE2iCRuYMx_0.

References

- Bauman, Z. (2000). *Liquid Modernity*. Cambridge: Polity Press.
- Castells, M. (1999). *A sociedade em rede* [The network society]. São Paulo: Paz e Terra.
- Collins, M. (2019). *Carrying the Fire: An Astronaut's Journeys*. New York: Farrar, Straus and Giroux.
- Curran, J. (2016). *The internet of history: Rethinking the internet's past*. In J. Curran & D. Freedman (Eds.), *Misunderstanding the internet* (pp. 48-76). Oxfordshire, United Kingdom: Taylor and Francis.
- Darwich, R. A., & Garcia, M. L. G. (2019). Grupos vivenciais e permanência com sucesso na escola: conquista de direitos [Experiential groups and successful stay in school: winning rights]. *Katálysis*, 22(3), 558-565. doi: <http://dx.doi.org/10.1590/1982-02592019v22n3p558>.
- Darwich, R. A., Carvalho, L. F., & Moura, M. S. (2020). Grupos vivenciais e pandemia de Covid-19: pesquisa mediada pela internet [Experiential groups and the Covid-19 pandemic: internet-mediated research]. *Asas da Palavra*, 17(2), 13-21.
- Darwich, R. A., Nunes, A. L. M., & Souza, A. C. A. (2020). Non-coercion beyond virtual environments: Can studying be pleasant? *Psychological Applications and Trends 2020*, InPact 2020, p. 259-261. doi: 10.36315/2020inpact059.
- Evans, M. L., Lindauer, M., & Farrell, M. E. (2020). A pandemic within a pandemic - Intimate partner violence during Covid-19. *The New England Journal of Medicine*, 383, 2302-2304. doi: 10.1056/NEJMp2024046.
- Freud, S. (1930). *Das Unbehagen in der Kultur* [Civilization and Its Discontents]. Vienna: Internationaler Psychoanalytischer Verlag.
- Goggin, G., Ling, R., & Hjorth, L. (2015). "Must-Read" Mobile Technology Research: A Field Guide. In G. Goggin, R. Ling, & L. Hjorth (Eds.), *Mobile Technologies*. New York: Routledge.
- Guilhardi, H. (2002). Autoestima, autoconfiança e responsabilidade [Self-esteem, self-confidence and responsibility]. In M. Z. S. Brandão, F. C. S. Conte, & S. M. B. Mezzaroba (Eds.), *Comportamento humano: Tudo (ou quase tudo) que você precisa saber para viver melhor* (pp. 63-98). Santo André, SP: ESETec.
- Hall, S. (2016). O ocidente e o resto: discurso e poder [The west and the rest: discourse and power]. *Projeto História*, 56, 314-361.
- Harari, Y. N. (2016). *Homo Deus: A brief history of tomorrow*. New York: Harper.
- Homayoun, A. (2020, April 2). How to actually do this remote-learning thing while also working from home. *The Washington Post*. Retrieved from shorturl.at/uwADI.
- Lemos, A. (2020). *Coronavírus: isolamento digital é um luxo para poucos em um país de miseráveis* [Coronavirus: digital isolation is a luxury for the few in a country of wretchedness]. Retrieved from <https://cutt.ly/ZjTEhup>.
- Lévy, P. (1993) *As tecnologias da inteligência: o futuro do pensamento na era da informática* [Intelligence technologies: the future of thinking in the computer age]. Rio de Janeiro: Ed. 34.
- Melo, L. G. S. C., Oliveira, K. R. S. G., & Vasconcelos-Raposo, J. (2014). A educação física no âmbito do tratamento em saúde mental: um esforço coletivo e integrado [Physical education in mental health treatment: a collective and integrated project]. *Revista Latinoamericana de Psicopatologia Fundamental*, 17, 3, 501-514. doi: <https://doi.org/10.1590/1415-4714.2014v17n3p501-8>.
- Nietzsche, F. (1998). *Zur Genealogie der Moral* [On the Genealogy of Morality]. Leipzig: Reclam.
- Pellanda, S. C. (2009). Comunicação móvel: das potencialidades aos usos e aplicações [Mobile communication: from potential to uses and applications]. *Em Questão*, 15(1), 89-98.
- Poell, T., Nieborg, D., & Van Dijck, J. (2020). Plataformização [Platforming]. *Fronteiras*, 22(1).
- Saint-Exupéry (2000), A. *The Little Prince*. North Carolina: Harvest Books.
- Santrock, J. W. (2014). *Adolescência* [Adolescence] (14th ed.). Porto Alegre: AMGH.
- Sidman, M. (1989). *Coercion and its fallout*. Massachusetts: Authors Cooperative, 1989.
- Skinner, B. F. (1948). *Walden Two*. Indianapolis: Hackett Publishing Company.
- Skinner, B. F. (1965). *Science and human behavior*. New York: Free Press.
- Skinner, B. F. (1976). *About Behaviorism*. New York: Vintage Books.
- Skinner, B. F. (1986). What is wrong with daily life in the Western world? *American Psychologist*, 41(5), 568-574. doi: <https://doi.org/10.1037/0003-066X.41.5.568>.
- Souza e Silva, A. S. (2006). Do ciber ao híbrido: tecnologias móveis como interfaces de espaços híbridos [From cyber to hybrid: mobile technologies as interfaces of hybrid spaces]. In D. C. Araújo (Ed.), *Imagem (ir)realidade: comunicação e cibermídia* (pp. 21-51). Porto Alegre: Sulina.
- Streeter, T. (2011). *The Net Effect: Romanticism, Capitalism, and the Internet*. New York: The New York University Press.
- Westlund, O. (2014). The production and consumption of mobile news. In G. Goggin & L. Hjorth (Eds.), *The mobile media companion* (pp. 135-145). New York: Routledge.

THE WORKPLACE ATTACHMENT STYLES QUESTIONNAIRE IN SHORTENED 9-ITEM VERSION

Kristína Mrázková, & Elena Lisá

*Institute of Applied Psychology, Faculty of Social and Economic Sciences, Comenius University
(Slovakia)*

Abstract

Introduction: Place attachment is multi-dimensional and depends on a reciprocal relationship between behavior and experience. It comes from environmental psychology, and it has its roots in the theory of attachment because of an emotional link between an individual and a place. The present paper aims to describe the psychometric characteristics of the Slovak version of The Workplace Attachment Styles Questionnaire (Srima, 2018). *Methods:* The original questionnaire consists of 15 items with a Likert scale ranging from totally disagree to agree. The research sample consisted of 645 working adults of a convenience sample, aged from 16 to 78 years, consisting of 54.9% women, from various work fields (finance, sales, education). We randomly divided the sample into two halves for separate studies. *Results:* In the first study with 323 adult participants, we used exploratory factor analysis to examine its construct validity. According to exploratory factor analysis, we reduced the 15-item questionnaire to a 9-item structure with three original factors: secure ($AM = 6.23$, $SD = 2.32$), dismissive ($AM = 3.64$, $SD = 2.54$), and preoccupied ($AM = 3.64$, $SD = 2.31$) workplace attachment styles, with an average internal consistency of 0.75. In the second study with 322 participants, we executed the confirmatory factor analysis, which confirmed the three-factor structure, with an average internal consistency of 0.65. *Discussion:* The results confirmed the original three-factor structure of The Workplace Attachment Styles Questionnaire with 9 original items instead of 15. This paper contributes to the shorter version of the Workplace Attachment Styles questionnaire adapted to the Slovak population. The study's limitations are the absence of other measurement tools that could verify the construct of workplace attachment itself (Adult Attachment in the Workplace, Experience in Close Relationship Questionnaire). That is also what is worth doing in the next research.

Keywords: *Workplace attachment, attachment styles, secure, dismissive, preoccupied.*

1. Introduction

Attachment is a widely studied construct rooted in human biological nature. The field of attachment research initially encompasses only the emotional bond between the infant and the mother (Bowlby 2010). Gradually, children's behavior after separation from their mothers began to be studied, and attachment methods ensued. Thus, attachment styles emerged that made it easier to identify individuals' behavior in interactions with others (Ainsworth 1979). Further research focused on attachment styles' stability over time and confirmed their relative stability through school age (Main et al. 1985). In time, the research field focused on transferring attachment from childhood to adulthood and close relationships (Hazan & Shaver 1994). However, only a few studies have focused on attachment in an organizational context (Scrima 2014, 2017).

Place attachment bases on the roots of urban sociology, human geography, and environmental psychology. Within environmental psychology, place attachment is an interdisciplinary concept that contributes to merging different scientific disciplines. It emphasizes the symbolic meaning for people and the strength of the emotional relationship with the place (Naništová 1998). Under this approach, place attachment has been measured with one-dimensional scales used in several studies (Bonaiuto, Fornara, & Bonnes 2003; Rioux & Mokoukolo 2005; Velasco & Rioux 2010). The best known one-dimensional scale for examining workplace attachment is The Workplace Attachment Scale (Rioux 2006), which defines workplace attachment as an emotional bond that results from the dynamic interaction between employees and the organizational environment and is an essential aspect of the quality of work life. The relationship between attachment theory and workplace attachment primarily concerns the emotional bonds individuals form with the physical environment (Giuliani 2003). Scrima et al. were the first to

examine workplace attachment within the organizational environment (Scrima et al. 2014, 2017), focusing on the relationships between workplace attachment and attachment styles (Scrima 2018). Scrima also developed a methodology for measuring workplace attachment styles - The Workplace Attachment Style Questionnaire. According to the study, securely attached workers have more positive attitudes toward work, more substantial organizational commitment, and greater engagement at work. When they can adapt to the job, their overall performance, quality of work/life, and well-being increased. Ambivalently attached workers are more emotionally attached to the work environment and more fearful of losing their jobs. Overall emotional devotion to work is more characteristic of insecure attachment styles. Increasing the employee's commitment to the organization is also influenced mainly by participation in organizational life (Scrima et al., 2015).

The aim of creating The Workplace Attachment Style Questionnaire was to identify the intensity of attachment and the quality of workplace attachment - i.e., the existence of four workplace attachment styles, based on a two-dimensional model by Bartholomew and Horowitz (1991). The first dimension, "Thoughts of Self" is a mental representation of oneself. The second dimension of "Thoughts of Place" is an emotional and cognitive representation of place. Both dimensions carry a positive and a negative charge, and their different combinations can result in 4 styles of workplace attachment - i.e., secure, dismissive, preoccupied, and fearful workplace attachment style. Scrima (2018), together with three experts, created a list of items most consistent with the assessment of workplace attachment. The fearful style was not included in the questionnaire because it is associated with the clinical population and is less probable in employed people (Levy 2005). A subsequent content analysis, which resulted in excluding redundant items, yielded a list of 33 items. An exploratory factor analysis took place to examine the factor structure of the scale. Following EFA (factor weighting into two factors, low factor weighting, and semantically inconsistent items), the 33-item scale was reduced to 15 items answered on a 5-point Likert scale ranging from "Totally Disagree" to "Totally Agree." In a sample of 342 Italian employees working in the public and private sectors, the authors found a three-factor solution based on an exploratory factor analysis, including secure, dismissive, and preoccupied workplace attachment style. The questionnaire has high internal reliability (0.83 to 0.91) in all three dimensions. In the second study on a sample of 226 Italian workers, confirmatory factor analysis confirmed the three-factor model's suitability.

This study aims to test the validity of the Slovak translation of the Workplace Attachment Style Questionnaire. We suppose that the Slovak translation of WASQ is a 3-dimensional construct (exploratory factor analysis). We suppose the best fit for a model with a 3-factor structure. At the same time, we aim to find out the correlations and differences between sociodemographic variables.

2. Methods

We used the approach used by the author of the questionnaire in the review of the WASQ (Scrima 2018). 706 questionnaires were distributed, with a response rate of 93.76%. Of the 662 questionnaires, we excluded an additional 17 due to incomplete data. We randomly divided the research sample into two halves. Thus, the paper contains two research studies. In study 1, we tested the 3-factor structure of the WASQ questionnaire using EFA. In study 2, we confirm the appropriateness of the 3-factor model using CFA.

2.1. Methods of study 1

Our sample consisted of 323 participants aged 16 to 78 years ($M = 37.09$; $SD = 11.74$), of whom 42.4% were men and 53.9% were women. Participants were working adults or part-time employees from various labor market sectors (finance, business, education). Length of organizational tenure from 0.20 years to 40 years ($M = 5$; $SD = 5.47$). 13.6% of the sample were managers, and 86.4% were subordinates. Participants got information that participation in the study was voluntary and anonymous and signed an informed consent form. They received the Workplace Attachment Style Questionnaire (Scrima 2018) in the paper form, which was translated into Slovak by two independent psychologists by consensus. They answered the questionnaire on a 5-point Likert scale from 0 - strongly disagree to 4 - strongly agree. In addition to the questionnaire, the participants also filled in sociodemographic variables such as age, gender, organizational tenure, and professional status.

As for data analysis, we used Exploratory factor analyses using the Principal Axes factoring extraction method with Direct Oblimin rotation, Cronbach's alphas, Spearman's correlation analysis, and Mann-Whitney U test.

2.2. Results of study 1

Based on the exploratory factor analysis, we reduced the number of items from 15 to 9. We eliminated items with a factor weight of less than 0.30 and those with a factor weight in at least two

factors. Thus, items 3, 5, 8, 9, 10, and 12 were excluded. Table 1 shows the final three-factor model with 9 items explaining 55.97% of the variance. According to the Kaiser-Meyer-Olkin test ($KMO = 0.797$, $p = 0.000$), the data are sufficient for use in factor analysis. The first one corresponds to the dismissive style of workplace attachment ($AM = 3.64$, $SD = 2.54$) with 34.97% of the explained variance. This dimension contains three items (e.g., "In my organization, I prefer to avoid some jobs, even if it hinders my work."). Cronbach's alpha = 0.803. The second factor secure workplace attachment style ($AM = 6.23$, $SD = 2.32$), which provides 13.21% explained variance with Cronbach's alpha = 0.639, contains 3 items (e.g., "My workplace is like me"). The third factor is preoccupied workplace attachment style ($AM = 3.64$, $SD = 2.31$), with three items (e.g., "My workplace sometimes feels oppressed"), yields 5.5% explained variance with Cronbach's alpha = 0.706. The correlation matrix in Table 2 shows a significant negative correlation between the secure style and the preoccupied style. Two insecure styles correlated significantly with each other at the level ($\rho = 0.609$, $p < 0.001$). A weak positive correlation was between the secure style and organizational tenure. Within gender, there was a small factual difference in dismissive style. There was no statistically significant difference between attachment styles and labor market sectors.

Table 1. Exploratory factor analysis of WASQ.

| | Factor 1 | Factor 2 | Factor 3 |
|----------------------------------|----------|----------|----------|
| Dismissive workplace attachment | | | |
| Item_1 | .547 | | |
| Item_2 | .992 | | |
| Item_14 | .666 | | |
| Preoccupied workplace attachment | | | |
| Item_4 | | | .720 |
| Item_7 | | | .655 |
| Item_15 | | | .499 |
| Secure workplace attachment | | | |
| Item_6 | | .350 | |
| Item_11 | | .755 | |
| Item_13 | | .733 | |
| Explained variance | 34.97 % | 13,21% | 5.5% |
| Cronbach's alpha | .803 | .639 | .706 |

Table 2. Correlations between attachment styles and sociodemographic variables.

| | 1 | 2 | 3 | 4 | 5 |
|--------------------------|---------|--------|-------|--------|---|
| 1. Secure style | 1 | | | | |
| 2. Dismissive style | -.093 | 1 | | | |
| 3. Preoccupied style | -.215** | .609** | 1 | | |
| 4. Age | .070 | -.066 | -.094 | 1 | |
| 5. Organizational tenure | .194** | .042 | .060 | .441** | 1 |

**= $p < 0.01$; *= $p < 0.05$

2.3. Methods of study 2

In the second study, the research sample consisted of 322 participants aged 18 to 70 years ($M = 38.63$, $SD = 10.85$). Of these, 41.1% were men, and 47.5% were women. The organizational tenure ranged from less than one year to 27 years ($M = 5.77$, $SD = 5.19$). 14.6% of the sample were leaders, and 85.3% were subordinates.

We performed confirmatory factor analysis based on structural equation modeling (SEM) to confirm the factor structure. Parameters were estimated with the robust maximum likelihood method (ML), and we used the software lavaan (Satorra & Bentler 1994). The parameters were also estimated using the robust Tucker-Lewis Index (TLI), with a value greater than 0.90, then the robust comparative fit index (CFI), with values ranging from 0 to 1. A value greater than 0.95 indicates a good model fit (Hu & Bentler, 1999). The robust Root Mean Square Error of Approximation (RMSEA) ranges from 0 to 1, where the smaller value indicates the better model fit. According to Brown (2015), a value of 0.06 or less is an acceptable model fit indicator. Finally, we used robust standardized Root Mean Square Residuals (SRMR), ranging from 0 to 1, with values less than 0.80 being a criterion for an acceptable model (Hu & Bentler 1999).

2.4. Results of study 2

Figure 1 shows the structure of a shortened version of the WASQ. All items (structural parameters) correlated with factors at the level of $p < 0.001$. Correlations between factors were confirmed only for two insecure styles ($r = 0.65$, $p < 0.001$). For secure style, the correlation was not confirmed ($r = -0.19$, $p < 0.06$; $r = -0.12$, $p < 0.15$). All items had a higher factor saturation than 0.30. Table 3 compares several models. We compared the three-factor model of the shortened version of WASQ with an alternative model containing 1 factor and with a model containing two factors secure style with three items and insecure style with six items. We can say that only the model with three factors (secure, dismissive, and preoccupied) meets all the acceptance criteria. Internal consistency of secure style was $\alpha = 0.552$, dismissive style $\alpha = 0.761$ and preoccupied $\alpha = 0.739$.

Figure 1. Confirmatory factor analysis shortened version of WASQ.

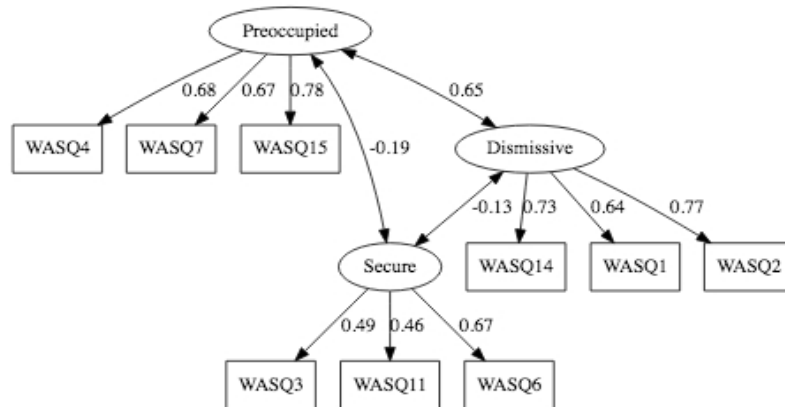


Table 3. Fit indices of confirmatory factor analysis.

| Model | CFI | TLI | SRMR | RMSEA(lower-upper) |
|-----------|-------|-------|-------|-----------------------|
| 1 factor | 0.680 | 0.573 | 0.113 | 0.170 (0.151 – 0.189) |
| 2 factors | 0.847 | 0.788 | 0.071 | 0.107 (0.086 – 0.130) |
| 3 factors | 0.966 | 0.950 | 0.053 | 0.052 (0.020 – 0.080) |

3. Discussion

The paper aimed to examine the psychometric characteristics of the Slovak translation of the Workplace Attachment style questionnaire by Scrima (2018). The WASQ is the first questionnaire based on two-dimensionality, from which four types of attachment styles are derived. WASQ measures the intensity and quality of attachment to the workplace and bases it on Bowlby's classic attachment theory. The paper consists of two research studies. In study 1, we examined the construct validity of WASQ based on exploratory factor analysis. We extracted nine items from the original 15-item questionnaire, which formed the questionnaire's 3-factor structure with secure, dismissive, and preoccupied workplace attachment styles. The dimensions had high internal reliability, and the insecure styles correlated. There was also a positive relationship between organizational tenure and secure workplace attachment style. Within the gender, there was a small difference in the dismissive style. The confirmatory factor analysis in study 2 verified the suitability of the 3-factor structure of WASQ. The 9-item version of WASQ showed similar parameters as the original 15-item version (Scrima 2018). The study limit is the absent verification of discriminant and predictive validity with other instruments such as Experience in Close Relationships (Brennan et al. 1998) or Adult Attachment in the Workplace (Scrima, Rioux & Lorito 2014). The WASQ can help HR managers to indicate whether employees feel safe in the workplace or not. In the event of insecure attachment styles, they could provide information on the need for interventions to increase the secure attachment and thus satisfaction and performance in the workplace (Scrima 2018). The situation changed dramatically around the world in the last year. The data in the presented paper were collected from February to April 2020, when the Covid pandemic was in its infancy. The subsequent nationwide lockdown in Slovakia began on March 12, 2020. With the onset of the Covid pandemic, several people moved their jobs to the home office. However, not everyone prefers to work from home, which could cause a reduction in the overall employees' performance and satisfaction. Therefore, it would be appropriate to examine how WASQ relates to performance and other organizational behavioral variables to predict the consequences of social isolation during the Covid pandemic.

References

- Ainsworth, M. S. (1979). Infant–mother attachment. *American Psychologist*, 34(10), 932–937. <https://doi.org/10.1037/0003-066X.34.10.932>
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, 61(2), 226–244. <https://doi.org/10.1037/0022-3514.61.2.226>
- Bonaiuto, M., Fornara, F., & Bonnes, M. (2003). Indexes of perceived residential environment quality and neighbourhood attachment in urban environments: a confirmation study on the city of Rome. *Landscape and Urban Planning*, 65(1–2), 41–52. [https://doi.org/10.1016/s0169-2046\(02\)00236-0](https://doi.org/10.1016/s0169-2046(02)00236-0)
- Bowlby, J. (2010). *Vazba – Teorie kvality ranných vztahů mezi matkou a dítětem*. Praha: Portál.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Selfreport measurement of adult attachment: An integrative overview. In J. A. Simpson, W. S. Rholes (Eds.). *Attachment theory and close relationships*. (p. 46-76). New York: Guilford Press.
- Brown, T. (2015). *Confirmatory factor analysis for applied research*. New York: Guilford Press.
- Giuliani, M. V. (2003). Theory of attachment and place attachment. In M. Bonnes, T. Lee, & M. Bonaiuto (Eds.), *Psychological theories for environmental issues* (pp. 137–170). New York: Routledge.
- Hazan, C., & Shaver, P. R. (1994). Attachment as an Organizational Framework for Research on Close Relationships. *Psychological Inquiry*, 5(1), 1-22. https://doi.org/10.1207/s15327965pli0501_1
- Hu, L., & Bentler, P. M. (1999). "Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives". *Structural Equation Modeling: A Multidisciplinary Journal*. 6 (1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Levy, K. N. (2005). The implications of attachment theory and research for understanding borderline personality disorder. *Development and Psychopathology*, 17(4), 959–986. DOI: 10.1017/s0954579405050455
- Main, M, Kaplan, N, & Cassidy, J. (1985). Security in infancy, child- hood, and adulthood: A move to the level of representation. *Monographs of the Society for Research in Child Development*, 50(1-2), 66–104. <https://doi.org/10.2307/3333827>
- Naništová, E. (1998). *Človek a príroda: Enviromentálna psychológia*. In J. Výrost, I. Slaměník (Eds.). *Aplikovaná sociální psychologie I*. Portal.
- Rioux, L. (2006). Construction of a scale of commitment to the workplace: An exploratory step. *Canadian Journal of Behavioural Science - Revue Canadienne des Sciences du Comportement*, 38, 325-336. doi:10.1037/cjbs2006018.
- Rioux, L., & Mokoukolo, R. (2005) Neighbourhood attachment and adolescence: a comparative study carried out in two neighbourhoods presenting a great cultural diversity. *Bulletin de psychologie*, 57(6), 611-620.
- Scrima, F. (2018). The psychometric properties of the workplace attachment style questionnaire. *Current Psychology*. <https://doi.org/10.4135/9781412963978.n256>.
- Scrima, F., Di Stefano, G., Guarnaccia, C., Lorito, L. (2015). The impact of adult attachment style on organizational commitment and adult attachment in the workplace. *Personality and Individual Differences*, 86, 432–437. <https://doi.org/10.1016/j.paid.2015.07.013>.
- Scrima, F., Rioux, L., & Di Stefano, G. (2017). I hate my workplace but I am very attached to it: workplace attachment style. *Personnel Review*, 46(5), 936–949. <https://doi.org/10.1108/pr-05-2015-0128>
- Scrima, F., Rioux, L., & Lorito, L. (2014). Three-factor structure of Adult Attachment in the Workplace: Comparison of British, French, and Italian samples. *Psychological Reports: Sociocultural Issues in Psychology*, 115,627-642.
- Velasco, L., & Rioux, L. (2010) Psychosocial approach to workplace attachment: a study carried out among hospital staff. *Estudios de Psicología*, 31(3), 309-323. DOI: 10.1174/021093910793154385

SELF-KNOWLEDGE OF GRADUATE STUDENTS IN NORTHERN BRAZIL

Rosângela Araújo Darwich¹, Ana Letícia de Moraes Nunes², Lia Cristina da Silva Botega³,
& Agnes Caroline Alves de Souza³

¹Graduate Program in Communication, Languages and Culture; Center for Health and Biological Sciences, Universidade da Amazônia (Brazil)

²Center for Health and Biological Sciences, Universidade da Amazônia (Brazil)

³Graduate Program in Communication, Languages and Culture, Universidade da Amazônia (Brazil)

Abstract

The setting of goals and ways to achieve them is a possibility that the human species acquired with the development of language. Planning and executing, however, are different behaviors, as are the circumstances that favor or prevent them. Getting into graduate school in Brazil is still surrounded by uncertainties, including those regarding the future job market. In addition, the tasks required throughout the course present challenges for most students. Resilience, a necessary characteristic for overcoming adversity, can be investigated through different factors that favor decision-making and maintaining persistence towards the achievement of goals. In addition, self-knowledge mediates the development of these factors. Based on these fundamentals, we aimed to identify the impacts of storytelling videos, accompanied by reflection scripts, on the self-knowledge of students in graduate courses in Belém, in northern Brazil. For that, six videos, six reflection scripts and an on-line interview were prepared by the research group, in addition to an invitation to participate and a participant consent form. The videos were stored on the YouTube platform, and the other materials were made available through Google Forms. The social network WhatsApp was used to forward our invitation, the consent form and the links that allowed access to data collection instruments. Among students who underwent the initial procedures, ten went through all the steps and became participants in this research. The responses made it possible to relate the participants' contact with the characters of the stories told in the videos to reflections on the need to pay more attention to themselves, in the sense of self-care and towards positive changes. It is also worth highlighting the recognition of the importance of social exchanges in effecting these changes. Although with different emphases, the results point to the occurrence of advances in the participants' self-knowledge, with practical consequences in 90% of cases. We conclude that, in the COVID-19 pandemic situation, internet-mediated research can achieve goals beyond data collection, generating positive effects on participants' lives.

Keywords: *Self-knowledge, graduate students, internet-mediated research, storytelling, YouTube.*

1. Introduction

An action research entitled "Poetry in Daily Life: Experiential Groups and Resilience" is being accomplished at the Universidade da Amazônia (UNAMA), between 2020 and 2022. Due to the Covid-19 pandemic and the recommendations of public health agencies for social isolation in 2020, face-to-face group activities were suspended and the conduct of internet-mediated research was a promising alternative. The central objective remained: to generate knowledge and, at the same time, benefits to the participants. In this sense, this study focused on the self-knowledge of graduate students.

Many studies sought to investigate how to support resilience factors, in order to make it more likely to overcome challenges in crisis situations (Fischer & Fröhlich-Gildhoff, 2019). In 2020, the radical changes in people's daily lives, given the high risk of illness and death, made clear the value of a resilient posture. Unusual but extremely necessary acts, such as the adoption of protective measures regarding the use of masks and constant hand hygiene, as well as maintaining physical distance are all the simpler to perform, the more you are resilient.

The realization of a graduate course can also be a challenge, even though just being admitted to it is alone the fulfillment of a dream. When we ask ourselves why the performance of different academic activities in parallel with the writing of a dissertation or thesis under the guidance of a teacher generates

various concerns that, added to the uncertainties about the future job market, sometimes lead to mental disorders and / or psychosomatic diseases, the answer seems to value a relationship inversely proportional to the presence of resilience.

We realize the value of resilience while knowing that it cannot be trained directly. The alternative is to develop the so-called resilience factors, identified through different skills.

We assume that eleven personal characteristics correspond to factors or pillars of resilience: *positive acceptance of change* (recognition of changes and difficult situations as opportunities for growth), *self-confidence* (security, belief in yourself), *self-efficacy* (perception of one's abilities), *good mood* (optimism and lightness even in the face of problems), *emotional control* (maintaining balance and assertiveness), *empathy* (ability to perceive another person's emotional state), *independence* (ability to keep emotional and physical distance from other people, without falling into isolation), *positive orientation towards the future* (positive attitude towards life and towards goals), *reflection* (ability to maintain self-distancing in the face of a problem in order to reflect on the best solution), *sociability* (ability to create bonds, balancing the need for affection) and *positive values* (personal desire for well-being, extended to all humanity) (Cardoso & Martins, 2013).

Self-knowledge is a trait that permeates the presence of these factors and gains prominence when we consider the importance of planning what we want to achieve and recognizing circumstances that favor or hamper the execution of what is planned. The individual who knows himself well, recognizes his strengths, his deficiencies and how to achieve the goals he creates. We perceived, therefore, the need for such a capacity for both decision making and persistence towards achieving goals (Brandenburg & Weber, 2005; Baum, 1999; Skinner, 1976).

Improvement in self-knowledge can be achieved in different ways, but considering that it is a social product makes room for investigations that invest in spaces for reflection, as is the case in this study. "A person who has been 'made aware of himself' by the questions he has been asked is in a better position to predict and control his own behavior" (Skinner, 1974, p. 35). Therefore, we aimed to identify the impacts of storytelling videos, accompanied by reflection scripts, on the self-knowledge of students in graduate courses in Belém, in northern Brazil.

2. Methods

This internet-mediated research was carried out in the second half of 2020 by four psychologists who are part of a study and a research group at the Universidade da Amazônia. Two of the researchers are teachers, one is a master's degree student at the same institution and the other is a graduate of the program.

An invitation and research details were sent via cell phone application to master and doctoral students from two institutions, one private and the other public. The participants, ten graduate students, were selected from among twenty individuals who were invited for taking part in all the proposed activities.

The participants' identification is made by the letter "F" or "M", meaning respectively "female" or "male", accompanied by their age. Thus, F57, is the oldest female participant and M24 is the youngest male participant.

The sample that makes up this study is non-probabilistic and participation was voluntary. It is considered heterogeneous, insofar as the selection of participants was based on an invitation to graduate students from two universities, without any other restrictions. In addition, the inclusion criterion was that participants completed all steps of the procedure.

Eight participants in this study are female (F25, F35, F45, F47, F49, F50, F52 and F57) and two, male (M24 and M49). Two of them were the same age (F49 and M49), two were in their 20s (M24 and F25), one was in their 30s (F35), four in their 40s (F45, F47, F49 and M49) and three in the 50s (F50, F52 and F57). Seven participants were studying for a master's degree. Of these, one was in the process of concluding the course, one started in 2018 (F25), two started it in 2019 (M24 and F35) and four, in 2020 (F45, F49, M49, F50 and F52). Of the three participants pursuing doctorates, one started the course in 2019 (F49) and two in 2020 (F47 and F57). Three participants were pursuing doctorates, one of which started the course in 2019 (F49) and two, in 2020 (F47 and F57).

Seven participants were taking a graduate course at a private university, in an interdisciplinary program in Communication, Languages and Culture (M24, F25, F45, F47, M49, F50 and F52). Another three were studying at a federal university, continuing in their home areas (F35, F49 and F57). The training of participants at undergraduate level varied between the courses of Psychology (F25, F35, F50 and F57), Pedagogy (F45 and F47), Letters (M24 and F52), Librarianship (M49), Dentistry (F49) and Law (F52). The latter two have two degrees: Dentistry and Psychology (F50) and Law and Letters (F52).

The instruments used, six children's storytelling videos, six reflection scripts with questions on the topics covered in each story and an online interview script, were developed by the research group. The videos were created from the narration of children's story books. A participant's consent form was also

applied, as requested by the Research Ethics Committee of the Universidade da Amazônia, which approved the study via “Plataforma Brasil”.

The WhatsApp social network was used to send participants the invitation to participate in the research, the consent form and the links that allowed access to the data collection instruments: scripts and videos with the narrations of the stories. The videos were made available in the “Reading with the Experiential Groups” playlist, on the YouTube platform, and Google forms were used to provide the scripts with questions for reflection. The videos correspond to the following children's stories: “Mamãe, você me ama?” [“Mommy, do you love me?”] (Joose, 2007), “Quero colo!” [“I want lap!”] (Barbieri & Vilela, 2016), Rosa Parks (Kaiser, 2017), “Entra aqui, sai lá” [“It goes in one ear and out the other”] (Winterberg, 2015), “Pedro vira porco-espinho” [“Pedro becomes porcupine”] (Tokitaka, 2017) and “Este é o lobo” [“This is the wolf”] (Rampazo, 2016).

Using the content analysis methodology (Bardin, 2001), three categories of analysis were created, corresponding to personal characteristics that participants believe they have, that they would like to improve or that they consider necessary for the current life context, as graduate students. They are present in one of the questions in the online interview, but they go through, directly or indirectly, all the steps of the intervention.

We put participants in a position to reflect on eleven personal characteristics that correspond to factors or pillars of resilience (Cardoso & Martins, 2013) in order to favor the development of their self-knowledge. Thus, we chose videos with children's storytelling that made it possible to elaborate questions focused on these factors. Each of the six videos led to the creation of five questions and the investigation of six factors. Each factor was present three times throughout the total of videos, with the exception of emotional control, present in all of them. We believe that, in addition to balancing the presence of resilience factors, consistent and repeated reflections on one of them could help to promote self-knowledge, since different perspectives were raised around different axes, but also on a common axis.

In the closing online interview, three questions aimed to identify personal characteristics or resilience factors that the participants recognized in themselves after having reflected on them through exposure to the six story-telling videos and six reflection scripts. Participants should point out personal characteristics that they believe they have, that they would like to improve and that they consider necessary to meet the requirements of graduate studies. A fourth question aimed to investigate whether the participants perceived the occurrence of concrete personal changes based on the reflections experienced.

3. Results and discussion

In the online interview, the participants pointed out personal characteristics that they believe they have, that they would like to improve and that they consider necessary for them to cope with the requirements of the graduate program. Three resilience factors were grouped as they were always present together in the participants responses: self-confidence and self-efficacy, good mood and independence, and emotional control and reflection.

Six factors were identified by the participants in the three possibilities, in the sense of observing that they are present in their lives, which would be something to improve and necessary for the context of graduate studies: sociability, self-confidence / self-efficacy, positive orientation for the future and emotional control / reflection. In addition, empathy was identified only as a present factor, while positive values were identified as being present and also as a point to be improved, and positive acceptance of change, as present and necessary.

Factors that were both present and necessary were identified by F35 (sociability) and F57 (positive acceptance of change), which is very positive. On the other hand, self-confidence / self-efficacy was identified by four participants (F25, F45, F50 and F52) both as something that needs to be improved, as well as what is needed. In addition, the same participants also identified as something to be improved and necessary, respectively, the following factors: sociability (F25), F45 and F52 (self-confidence / self-efficacy) and emotional control / reflection (F50). This perspective is positive as it recognizes objectives to be achieved in the short term. Finally, F25 identified good humor / independence as something he already has, but still wants to improve.

All participants responded that the videos and scripts were an opportunity for reflection, allowing them to establish greater contact with themselves. Nine of them also described practical consequences of the act of reflecting throughout the interventions, all indicative of advancement in self-knowledge, such as the recognition of the need for commitment to better deal with stress (M24) and to acquire more sociability and better emotional control, in addition to movement to take more care of themselves (F25). Four other participants recognized the need to take more care of themselves (F35, F47, M49 and F50). In this regard, F35 replied: “I want to listen to myself more generously. We are in difficult times and we cannot handle everything”.

Three participants were less specific, indicating the possibility of changes broadly, without further details (F45, F49 and F57). Only one participant clearly identified the occurrence of change only as a possibility (F52): “the reflections helped me to remove emotions from inside me that were hidden, blocked. It is difficult to say whether there will be any changes”.

The data can be complemented with information provided by the participants in the six reflection scripts that accompanied the videos, among which we highlight the answers to a question that is directly related to their self-perception regarding the relationship between commitment and performance they were having in the graduate studies and the value they attach to the grades they take in the evaluations they perform.

Only one participant, F35, proved to be self-demanding to the point of perceiving an unfavorable imbalance between commitment and performance: “I think the grades are fairly generous (haha), but I understand that in the subjects they are not only related to my writing. The evaluation also follows other elements”. The other participants reported that they are satisfied with the result of the investment they are making in the studies.

Regarding the value they attach to the notes, F49 indicated that, “if I pass, it's ok”. Three other participants clearly expressed themselves in this regard, all minimizing the importance of the notes. For M49, they "are only evaluation mechanisms" and for F45 "what matters is what you have done with dedication to your life while learning". From a perspective similar to that of F45, F57 expressed that "the other's expectation about us is his and does not correspond to what we really are [...], so we don't need to correspond and try to be what we are not to please the other".

The online interview was, theoretically, the moment when the thoughts elaborated during the experience with six videos and six reflection scripts could already demonstrate some kind of progress in the adopted perspectives. Therefore, we compared the reports of five participants (F35, F45, F49, M49 and F57) in two moments: when they completed the second reflection script and in the interview.

F45, F49 and F57 have in common the fact that they did not present details about the possibility of change precisely because they identified wide possibilities for personal changes after reflections. F45 initially minimized the value it gives to external evaluations, taking, for example, the grades in the subjects taken in graduate school (“what matters is what you did with dedication to your life while learning”). After, she identified self-confidence and self-efficacy as personal characteristics that would still need to improve and, even, that are necessary for the academic moment that she is experiencing. Therefore, it is possible that she has somehow realized that external evaluation has relevance to be considered as a parameter for personal decisions and reviews.

Initially, when referring to the value he assigns to the grades, F49 showed little self-demand and said that he is satisfied with the minimum necessary in relation to grades in the assessments. Subsequently, she was one of three participants to recognize that, based on the reflections she made, she could change widely, that is, in different areas of her life. This seems to imply the recognition that you can want more from yourself - and achieve more.

Initially, F57 was against the need to please the other, taking, for example, the external evaluation of the results of his studies. Then, she indicated that she had a necessary characteristic for the experience of graduate studies: positive acceptance of change (recognition of changes and difficult situations as opportunities for growth). We can see the fundamental role that external evaluations play when the participant evaluates them more generally in her life after having made other reflections about herself and her relationship with the world.

F35 is the participant who initially demonstrated to be very self-demanding. Later, she highlighted sociability (ability to create bonds, balancing the need for affection) as a characteristic of her that is necessary in graduate school and recognized the need to take more care of herself. We can argue that she may have realized that she has the necessary social skills to invest even in the way she treats herself, becoming more balanced in her self-assessments.

Initially, M49 considered the grades in the evaluations in a strictly rational way (“they are only evaluation mechanisms”) and later, regarding internal and subjective evaluations, he recognized the need to take more care of himself.

4. Conclusions

Considering the objective of this study, the responses obtained through the different data collection instruments allowed us to verify that watching storytelling videos and having a space to write about themselves positively favored the participants self-knowledge. Taking time for themselves also seems to have contributed to the reaffirmation of the need for self-care, as well as the value of social exchanges for the realization of personal changes.

Nine of the ten participants recognized the movement of change towards the construction of personal characteristics necessary for different experiences, including those they face in the graduate course. We can consider that, in the videos, the participants were faced with action models corresponding to the presence of resilience factors that convey an idea that there are always new possibilities for maturing with each challenge faced. The questions present in the reflection scripts also had this objective, adding new perspectives for evaluating the experiences presented.

Even with the Covid-19 pandemic situation, it was possible to continue studies that combine data collection with the opportunity for personal advances on the part of those participating in the research - in this case, mediated by the internet. It was not a simple move, as it was necessary to scan four of the six children's storybooks and edit the six videos, with the voices of adults and children from different countries, in order to make them as attractive as possible. It is worth mentioning that the material, available on YouTube, remains used in different studies and interventions by our research group, with participants from all age groups and with children with atypical development.

We believe that this study, which uses videos and reflection guides, serves as a starting point for others, carried out with different objectives and with participants who share different characteristics. The proposed procedure can be adapted for face-to-face group meetings. In these cases, for example, the videos, one at each meeting, can be watched by the group of participants and the reflection guides can be used by the facilitators as a guide for intervention in the conversation.

References

- Barbieri, S., & Vilela, F. (2016). *Quero colo!* [I want lap!]. São Paulo: SM.
- Bardin, L. (2001). *L'Analyse de Contenu* [Content Analysis]. Paris: Presses Universitaires de France.
- Baum, W. M. (2005). *Understanding behaviorism: Behavior, culture and evolution* (2nd. ed.). Oxford: Blackwell Publishing.
- Brandenburg, O. J. & Weber, L. N. D. (2005). Autoconhecimento e liberdade no behaviorismo radical [Self-knowledge and freedom in radical behaviorism]. *Psicologia-USF*, 10 (1), 87-92
- Cardoso, T., & Martins, M. C. F. (2013). *Escala dos Pilares da Resiliência* [Scale of Pillars of Resilience]. São Paulo: Vetor.
- Fischer, S., & Fröhlich-Gildhoff, K. (2019). *Chancen-gleich. Kulturelle Vielfalt als Ressource in frühkindlichen Bildungsprozessen. Manual zur Qualifizierung pädagogischer Fachkräfte* [Equal opportunities. Cultural diversity as a resource in early childhood educational processes. Manual for the qualification of pedagogical specialists]. Stuttgart, Germany: Kohlhammer.
- Joose, B. (2007). *Mamãe, você me ama?* [Mommy, do you love me?]. Brinque Book.
- Kaiser, L. (2017). *Little People, Big Dreams: Rosa Parks*. London: Frances Lincoln Children's Books.
- Rampazo, A. (2016). *Este é o lobo* [This is the wolf]. São Paulo: Farol Literário.
- Skinner, B. F. (1976). *About Behaviorism*. New York: Vintage Books.
- Tokitaka, J. (2017). *Pedro vira porco-espinho* [Pedro becomes porcupine]. São Paulo: Jujuba.
- Winterberg, P. (2015). *Entra aqui, sai lá!* [It goes in one ear and out the other]. Kindle Edition.

THE ACCEPTANCE OF DIFFERENT TYPES OF MIGRANTS TO SLOVAKIA BASED ON GENDER

Miroslava Bozogáňová, & Tatiana Pethö

The Institute of Social Sciences, Centre of Social and Psychological Sciences, Slovak Academy of Sciences (Slovakia)

Abstract

Schahbasi, Huber and Fieder (2020) found that men are generally more sceptical toward migration than women. The goal of this paper is to analyse the acceptance of different types of migrants to Slovakia based on gender. An experimental vignette methodology (EVM) with a simple experimental design was used - the reason for coming to Slovakia was manipulated. Respondents were randomly assigned to one of three different vignettes. The research sample consisted of 1001 respondents (49% men) aged 17 to 75 years ($M = 44.81$; $SD = 14.92$). Each vignette describes a different type of migrant according to the reasons for coming to Slovakia, while the word "migrant" was omitted to avoid prejudice. Control group (general description of people coming to Slovakia) - 334 respondents (51.2% men), group 1 (people coming for work / study) - 335 respondents (47.5% men); and group 2 (people arriving for a threat in their home country) - 332 respondents (48.2% men). The data were collected online (panel collection) in the Slovak Republic with the ambition to obtain a representative sample. Respondents were asked if they would accept a person coming to Slovakia from another country for ... a close relative acquired by marriage, a close personal friend, a neighbour living on the same street, co-worker / colleague, citizen of the SR and visitor of the SR, where 1 = strongly agree – 5 = strongly disagree. The comparison of respondents using t-test for independent samples showed that there were significant differences between men and women in control group - women had more acceptance for coming people as a close personal friend (Cohen's $d = 0.251$) and less for co-worker / colleague (Cohen's $d = 0.224$) than men. Women from group 1 had also more acceptance in terms of co-worker / colleague (Cohen's $d = 0.331$) and the visitor of the SR (Cohen's $d = 0.276$) than men. There were no differences in group 2. For the interpretation of the results, it is necessary to look at the negligible size of the differences between men and women. Respondents were in the "accepting" part of the scale ($M = 2.31$; $SD = 0.82$). The results suggest that there are almost none differences in the acceptance of migrants between men and women, regardless of vignette they evaluated in Slovakia. Based on our data it seems, that gender is not the main factor of acceptance rate of different types of migrants.

Keywords: *Migrants, acceptance, Slovak Republic, vignette.*

1. Introduction

The construction and social evaluation of different migrant categorizations has been predominantly based on how "perceived forcedness and associated perils" diminish the ability to resist coercive "push" factors for migration (Echterhoff et al., 2020). The difference between category of migrants, foreigners and refugee is not clearly defined in Slovak conditions and on the basis of this ambiguity it performs to form similar attitudes towards migrants in relation to categories of migrants. For example, the difference between political refugees and asylum seekers is economic and political reason. Given that political refugees fleeing persecution have no other choice than to leave their home country, they are likely viewed as deserving of support. By contrast, asylum seekers who primarily migrate for economic reasons may be perceived as less deserving (Hager, & Veit, 2019).

Ceobanu and Escandell (2010, p. 314) define „immigrants“ as people who come to live in (country) from "abroad". Refugee is characterized as a burden within society. Anderson and Ferguson (2018) points to the fact that are portrayed in society as less than fully human, that repressive policies are being developed to deal with refugees and that, as a result, there is a psychological need to distance oneself from them. Findor, Hruška, Jankovská and Pobudová (2021) state that in Slovakia it is important to point out the terms „refugees“ over „migrants“ in the framework of public opinion and individual

preferences through testing of intergroup contact hypothesis. Public opinion is formed on the basis of feelings, attitudes, trust, social distance, attitudes to integration, while it would be appropriate to compare the evaluation and experience of participants with individual target groups of migrants.

The assessment of opinion on migrants is related not only to the knowledge of their categorization, but also to the hypothesis of social distance. Social distance is according to Halperin, Canetti and Pedahzur (2007) defined as the extent to which people wish to maintain social distance and avoid increasing levels of intimate contact between themselves and members of different social, racial, ethnic or national groups. Duckitt (2006) states when in-group members feel threatened by out-group members, they may develop negative attitudes towards them. The process of formation of an integrative subjective evaluation of the conflict (threat perception) may be influenced by both contextual factors (conditions) and individual.

Gender differences in the assessment of individual categories of migrants with respect to hypothesis of social distance have not been explicitly the subject of previous research. On the other hand, Cowling, Anderson and Ferguson (2019) found that men showed more negative attitudes towards migrants than women. In particular, it was found that politically conservative, highly nationally identified, less educated, religiously affiliated and male were factors that statistically significant correlated with negative attitudes towards migrants. Previous research by O'Rourke and Sinnott (2006) has found that women tend to be less pro-market in their attitudes than are men and this might lead them to oppose immigration.

From this short theoretical overview, it is clear that the acceptance of different types of migrants based on hypothesis of social distance is influenced by public opinion and attitudes towards migrants. Comprehensive study of this issue is needed to understand the whole process.

2. Goal

The goal of this paper is to analyse the acceptance of different types of migrants to Slovakia based of gender. Based on previous research (for example Schahbasi, Huber & Fieder, 2020) we assume, that women will be more accepting than men.

3. Methods

The Social Distance Intensity Score (Mather, Jones, & Moats, 2017), which combines the Bogardus scale and Likert scale, was used to report whether respondents would relate to members of an out-group (different kinds of migrant) in a variety of ways ranging from "accepting them as close relatives by marriage" to "excluding them from my country." Respondents were asked if they would accept a person coming to Slovakia from another country for ... a close relative acquired by marriage, a close personal friend, a neighbour living on the same street, co-worker / colleague, citizen of the SR and visitor of the SR, where 1 = strongly agree – 5 = strongly disagree.

3.1. Research sample

The research sample consisted of 1001 respondents (49% men) aged 17 to 75 years ($M = 44.81$; $SD = 14.92$) from Slovakia. Each vignette describes a different type of migrant according to the reasons for coming to Slovakia, while the word "migrant" was omitted to avoid prejudice. Control group (general description of people coming to Slovakia) - 334 respondents (51.2% men), group 1 (people coming for work / study) - 335 respondents (47.5% men); and group 2 (people arriving for a threat in their home country) - 332 respondents (48.2% men). The data were collected online (panel collection) in the Slovak Republic with the ambition to obtain a representative sample. Jamovi 1.6.11 was used for data processing.

4. Results

Table 1. Descriptive statistics.

| I would accept a person coming to Slovakia from another country for... | Control group | | Group 1 | | Group 2 | | |
|--|---------------|------|---------|------|---------|------|-------|
| | Group | Mean | SD | Mean | SD | Mean | SD |
| ... a close relative acquired by marriage | men | 2.77 | 1.218 | 2.59 | 1.149 | 2.64 | 1.055 |
| | women | 2.65 | 1.173 | 2.61 | 1.131 | 2.63 | 1.210 |
| ... a close personal friend | men | 2.41 | 1.050 | 2.31 | 0.921 | 2.38 | 1.033 |
| | women | 2.16 | 0.936 | 2.25 | 0.941 | 2.26 | 1.068 |
| ... a neighbour living on the same street | men | 2.44 | 1.006 | 2.35 | 0.934 | 2.39 | 1.010 |
| | women | 2.29 | 0.894 | 2.17 | 0.929 | 2.24 | 1.031 |
| ... a co-worker/colleague | men | 2.29 | 0.950 | 2.26 | 0.889 | 2.17 | 0.992 |
| | women | 2.90 | 0.830 | 1.98 | 0.810 | 2.5 | 0.891 |
| ... a citizen of the SR | men | 2.36 | 1.056 | 2.44 | 1.053 | 2.36 | 1.067 |
| | women | 2.37 | 1.013 | 2.27 | 0.988 | 2.35 | 1.074 |
| ... a visitor of the SR | men | 2.13 | 1.015 | 2.18 | 0.885 | 2.13 | 1.016 |
| | women | 2.70 | 0.920 | 1.94 | 0.889 | 2.10 | 1.030 |

Respondents were in the "accepting" part of the scale (M = 2.31; SD = 0.82).

Table 2. Student's *t*-test for independent samples between control group, group 1 and group 2 in acceptance of migrants.

| | t | df | p | Mean difference | SE difference | Effect Size |
|---|---|---|--------|-----------------|---------------|-------------|
| control group | ... a close relative acquired by marriage | 0.929 | 332 | 0.354 | 0.122 | 0.102 |
| | ... a close personal friend | 2.292 | 332 | 0.023* | 0.250 | 0.251 |
| | ... a neighbour living on the same street | 1.440 | 332 | 0.151 | 0.150 | 0.158 |
| | ... a co-worker/colleague | 2.049 | 332 | 0.041* | 0.200 | 0.224 |
| | ... a citizen of the SR | -0.103 | 332 | 0.918 | -0.012 | -0.011 |
| | ... a visitor of the SR | 0.518 | 332 | 0.605 | 0.055 | 0.057 |
| | group 1 | ... a close relative acquired by marriage | -0.180 | 333 | 0.857 | -0.022 |
| ... a close personal friend | | 0.571 | 333 | 0.568 | 0.058 | 0.063 |
| ... a neighbour living on the same street | | 1.722 | 333 | 0.086 | 0.176 | 0.188 |
| ... a co-worker/colleague | | 3.028 | 333 | 0.003** | 0.281 | 0.331 |
| ... a citizen of the SR | | 1.502 | 333 | 0.134 | 0.168 | 0.164 |
| ... a visitor of the SR | | 2.523 | 333 | 0.012* | 0.245 | 0.276 |
| Group 2 | | ... a close relative acquired by marriage | 0.077 | 330 | 0.939 | 0.009 |
| | ... a close personal friend | 1.036 | 330 | 0.301 | 0.120 | 0.114 |
| | ... a neighbour living on the same street | 1.380 | 330 | 0.183 | 0.150 | 0.147 |
| | ... a co-worker/colleague | 1.183 | 330 | 0.238 | 0.122 | 0.130 |
| | ... a citizen of the SR | 0.116 | 330 | 0.908 | 0.014 | 0.013 |
| | ... a visitor of the SR | 0.288 | 330 | 0.773 | 0.032 | 0.032 |

** p < .01, * p < .05

The comparison of respondents using t-test for independent samples showed that there were significant differences between men and women in control group - women had more acceptance for coming people as a close personal friend (Cohen's $d = 0.251$) and less acceptance for coming people as the co-worker / colleague (Cohen's $d = 0.224$) than men. Women from group 1 had more acceptance in terms of co-worker / colleague (Cohen's $d = 0.331$) and the visitor of the SR (Cohen's $d = 0.276$) than men. There were no differences in group 2. For the interpretation of the results, it is necessary to look at the small size of the differences between men and women.

5. Discussion and conclusion

The assessment of certain types of migrants (e.g. refugees, immigrants) with respect to gender differences is the subject of research by several authors (Rourke, & Sinnott, 2006; Cowling, Anderson, & Ferguson, 2019; Schahbassi, Huber, & Fieder 2020). The above research studies have found that men were less accepting than women. Our research showed significant differences between men and women in control group - women had more acceptance for coming people as a close friend. Women from group 1 had more acceptance in terms of co-worker / colleague. This is consistent with previous research from Rourke and Sinnott (2006), who found that women appear to be less anti-migrant.

In the context of opinions on individual types of migrants and the hypothesis of social distance authors Sniderman, Hagendoorn and Prior (2004) point out large portion of the contemporary studies which examine the determinants of negative attitudes and social distance emphasize the role of competition on political, social, economic or cultural grounds, as a pivotal motivator of these attitudes. Within the research, respondents did not express a high level of acceptance of individual types of migrants, which is related to the findings of Cowling, Anderson and Ferguson (2019) that threat perception was identified as being the strongest correlate of negative attitudes (though, given the limited size of the literature, this claim is made with a level of caution). Threat perceptions are often the result of false beliefs, usually attributed to media influence that reinforces the threat that refugees pose to national identity and security. For this reason, it would be appropriate to examine the issue of migrants as a threat to society.

Continued work in this sphere is necessary to understand the consequences of prejudice for refugees, not only in terms of their negative impact of being targeted, but for the practical aspects such as how it impacts their treatment by host-culture members (Cowling, Anderson, & Ferguson, 2019).

In the conditions of Slovakia, the issue of migration and individual types of migrants is promoted through the media and social media, which significantly distort and create especially sensations concerning migrants. The issue of individual types of migrants is the subject of political discussions, where there are also distortions about this issue. For this reason, we agree with the opinion of the above authors about the consequences of predecision for individual types of migrants. Given this, it is necessary to educate respondents from Slovakia in the field of migration, categorization of migrants and provide them real information that will allow them to create their own opinion and acceptance of individual types of migrants.

Acknowledgements

This research was supported by grant VEGA 2/0068/19: Attitudes towards Migrants in the Socio-psychological Context.

References

- Anderson, J. R., & Ferguson, R. (2018). Demographic and Ideological Correlates of Negative Attitudes toward Asylum Seekers: A Meta-analytic Review'. *Australian Journal of Psychology*, 70(1). <https://doi.org/10.1111/ajpy.12162>.
- Ceobanu, A. M., & Escandell, X. (2010). Comparative analyses of public attitudes toward immigrants and immigration using multinational survey data: A review of theories and research. *Annual Review of Sociology*, 36(1), 309–328. <https://doi.org/10.1146/annurev.soc.012809.102651>
- Cowling, M. M., Anderson, J. R., & Ferguson, R. (2019). Prejudice-relevant correlates of attitudes towards refugees: A meta-analysis. *Journal of Refugee Studies*, 32(3), 502–524. <https://doi.org/10.1093/jrs/fey062>
- Duckitt, J. (2006). Intergroup threat and competitiveness mediate the relationships between dual dimensions of ideological attitudes and prejudice. *Personality and Social Psychology Bulletin*.

- Echterhoff, G., Hellmann, J. H., Back, M. D., Kärtner, J., Morina, N., & Hertel, G. (2020). Psychological antecedents of refugee integration (PARI). *Perspectives on Psychological Science: A Journal of the Association for Psychological Science*, 15(4), 856–879. <https://doi.org/10.1177/1745691619898838>.
- Findor, A., Hruška, M., Jankovská, P., & Pobudová, M. (2021). Re-examining public opinion preferences for migrant categorizations: “Refugees” are evaluated more negatively than “migrants” and “foreigners” related to participants’ direct, extended, and mass-mediated intergroup contact experiences. *International Journal of Intercultural Relations: IJIR*, 80, 262–273. <https://doi.org/10.1016/j.ijintrel.2020.12.004>
- Hager, A., & Veit, S. (2019). Attitudes toward asylum seekers: Evidence from Germany. *Public Opinion Quarterly*. <https://doi.org/10.1093/poq/nfz023>
- Halperin, E., Canetti-Nisim, D., & Pedahzur, A. (2007). Threatened by the uncontrollable: Psychological and socio-economic antecedents of social distance towards labor migrants in Israel. *International Journal of Intercultural Relations: IJIR*, 31(4), 459–478. <https://doi.org/10.1016/j.ijintrel.2007.01.003>
- Mather, D. M., Jones, S. W., & Moats, S. (2017). Improving upon Bogardus: Creating a more sensitive and dynamic social distance scale. *Survey Practice*, 10(4), 1–9. doi: <https://dx.doi.org/10.29115/sp-2017-0026>
- O’Rourke, K. H., & Sinnott, R. (2006). The determinants of individual attitudes towards immigration. *European Journal of Political Economy*, 22(4), 838–861. <https://doi.org/10.1016/j.ejpoleco.2005.10.005>
- Schahbasi, A., Huber, S., & Fieder, M. (2020). Factors affecting attitudes toward migrants-An evolutionary approach. *American Journal of Human Biology: The Official Journal of the Human Biology Council*, 33(1), 1-13. doi: <https://doi.org/10.1002/ajhb.23435>
- Sniderman, P. M., Hagendoorn, L., & M. (2004). Prior Predisposing factors and situational triggers: Exclusionary reactions to immigrant minorities. *American Political Science Review*, 98, 35–49. <https://doi.org/10.1017/S000305540400098X>
- The jamovi project (2020). *jamovi*. (Version 1.6) [Computer Software]. Retrieved from <https://www.jamovi.org>.

THE PSYCHOLOGICAL CONDITION OF RUSSIAN SOCIETY IN THE CONTEXT OF THE COVID-19 PANDEMIC

Olga Deyneka¹, & Alexandr Maksimenko²

¹*Department of Psychology, Saint-Petersburg State University (Russia)*

²*Laboratory of Anti-Corruption Policy, National Research University «Higher School of Economics» (Russia)*

Abstract

The problem of the psychological impact of a pandemic, quarantine and self-isolation on the state of society attracts increased attention of specialists (Hua J., Shaw R., 2020; Li S., Wang Y. et al, 2020, Enikolopov S. et al, 2020; Fedosenko E., 2020). The objective of our work was to find the most common attitudes and types of responses of Russians to the epidemic COVID-19 taking into account their involvement in social networks, critical thinking and severity of psychopathological symptoms. The study was carried out during the recession of the first wave of the pandemic in early June 2020. The main tool was the questionnaire of T. Nestik in an abridged version. Additionally, a questionnaire of critical thinking was used (CTI, Epstein, adapted by S. Enikolopov and S. Lebedev, 2004); test of psychopathological symptoms SCL-90-R; social media engagement questionnaire (Karadag, 2015) was used. The study involved 986 people (56.9% male, 43.1% female) aged 18 to 76 years. Using exploratory factor analysis, 6 types of responses to the epidemic situation caused by COVID-19 were identified (fans / opponents of the "conspiracy theory"; responsible / irresponsible, covid-dissidents, covid-optimists, misophobes, anti-vaccinators). The dominant belief among the respondents is that the emergence of new infectious diseases is a natural process of mutation that occurs in nature without the participation of people, or the result of someone's mistake. Conspiracy theories were significantly more common among elderly people and women. Citizens see salvation from the epidemic in the moral conscience and responsibility of everyone. At the same time, they do not trust both official information and information from fellow citizens. Representatives of the older generation have higher confidence in the country's leadership, in the possibilities of medicine and science, and in fellow citizens. Correlations of non-critical thinking with manifestations of misophobia and fear of new epidemics were revealed. Depressive subjects were more concerned about the illegal behavior of fellow citizens and misophobia. Long-term fear of epidemics has been correlated with anxiety. Among those who prefer social networks to official information (television, radio, print), statistically significantly more are those who not only do not trust official information about the epidemic situation, but also do not trust their fellow citizens, attributing to them possible facts of concealing information about the disease because of the fear of being quarantined. Thus, the COVID-consciousness of Russians demonstrated a combination of rather contradictory attitudes.

Keywords: *COVID-19, attitude towards the pandemic, psychological condition of society, Russian society, typology.*

1. Introduction

The problem of the psychological impact of a pandemic, quarantine and self-isolation on the state of society attracts increased attention of specialists. The works of scientists from China, Italy, Japan, Spain, France and other countries published since December 2019 analyze the impact of the pandemic on the emotions and behavior of people, the first reaction to challenges and a reformatted way of life during the outbreak of the epidemic (see: Deyneka, Maksimenko, 2020). Negative psychological reactions of people to threats to health, life, well-being and stability in society were intensified by "infodemia". Aggravation of economic and environmental problems was recorded, in particular, a decrease in confidence in the future (Jia at al., 2021), panic buying behavior (Naeem). Some studies have identified not only negative (Liu et al., 2021), but also positive effects of communication on social networks (Mohamad, 2020; Jia at al., 2021) and changes in society. The need for psychological monitoring of the state of society against the background of the epidemiological situation is obvious.

2. Background

The results of empirical studies of the state of Russian society and its adaptation to the pandemic caused by COVID-19 have been covered in scientific and journalistic literature since March 2020. For example, E.V. Fedosenko (2020) results of a study of human psychological resources during the period of forced isolation. The most common reactions of respondents (N = 784 people) to the epidemic situation are highlighted. Fear (47.3%), apathy (22.2%), stupor (14.5%) formed the three most common responses to forced isolation. Also, such psychological "effects" of epidemics and related quarantines as anger, irritation, depression, emotional exhaustion, symptoms of post-traumatic stress were recorded. The author has characterized the epidemic situation as an emergency due to the "psychological effects" that it provokes.

S. N. Enikolopov and his colleagues (2020), having interviewed 430 people at the end of March 2020 using a battery of questionnaires, obtained evidence of an increase in the number of people who view the pandemic as a result of the use of biological weapons, punishment for sins, and retribution for neglect of environmental problems. The respondents showed a statistically significant increase in depression; sleep worsened; the level of anxiety, fear and panic increased. At the same time, it was noted that Russians turned to religion, the level of constructive thinking and emotional coping fell.

T. A. Nestik (2020) identified 4 types of responses encountered by citizens during an epidemic. The highest level of stress was experienced by "skeptics" (20%), who had a low level of trust in state authorities and official information and consider the threat of a pandemic to be exaggerated. "Alarmists" (30%) showed the greatest concern about the pandemic, believing that everything is much worse than it was broadcasted in the official media, and that more stringent regulatory measures should have been taken in society. "Fatalists" (25%) were convinced that little depends on people and assessed the prospects very pessimistically, developing conspiracy theories on social networks. And finally, "optimists" (25%) considered the threat to be serious, but showed more inclination to empathize with others, more faith in their own strengths and in the efforts of the state.

The objective of this study was to find the most common attitudes and types of responses of Russians to the epidemic COVID-19 taking into account their involvement in social networks, critical thinking and severity of psychopathological symptoms.

3. Method

In this study, data was collected through the Toloka.Yandex.ru service for two weeks (from May 31 to June 10, 2020 with the highest number of responses on June 2 and 9). Since the study was conducted during the recession of the first wave of the COVID-19 pandemic, expectations were associated with the accumulation of some experience in adapting to the epidemiological situation in Russia.

Sample. The study involved 986 people (56.9% males, 43.1% females) aged 18 to 76 years (M = 36.63; SD = 10.2). The survey geography covered various regions of Russia.

Instruments. The main research tool was a shortcut version of the questionnaire developed by T. Nestik to measure attitudes to the pandemic and assess trust in representatives of various social groups (Nestik, 2020), which included 34 statements with a five-point Likert response scale.

Additionally, the symptomatic method SCL-90-R, the questionnaire of critical thinking (CTI, Epstein, 2001 adapted by Enikolopov and Lebedev, 2004), Social Media Addiction Scale of 10 statements with a 5-point scale were used (The reliability of the questionnaire was confirmed by the Cronbach alpha coefficient 0.864). Also, the survey involved filling out a demographic information.

Data processing included exploratory factor analysis with Varimax rotation and Kaiser normalization, and correlation analysis using Spearman's coefficient. The calculation of descriptive statistics, correlation and factor analysis were performed using the statistical package SPSS 20.0.

4. Results

Factorization of the data from the pandemic attitudes' questionnaire yielded eight factors, the last four of which are represented by low factor weights, but can be considered in the context of the general diversity of typical attitudes and perceptions that arose in response to the epidemic situation.

The first factor was named "*the factor of conspiracy theories about coronavirus.*" This factor accounts for 15.9% of the explained variance. It contains the opposition of the idea of the causative agent of a pandemic as a man-made, artificially created by a certain "enemy", as a biological weapon, or, on the contrary, a natural, inartificial phenomenon.

The second factor "*covid-dissidence*" (12.0% of the variance) includes ignoring the danger of infection in combination with a fatalistic approach to the danger (probability) of getting sick. With fewer

contributions, it included manifestations of a negative attitude towards vaccinations, which confirms the fact that among covid dissidents there are more of those who are called "anti-vaccines".

The third factor "*covid-optimism*" is formed by trust in the Governance against the backdrop of a pandemic, faith in domestic medicine and world science, and with the opposite sign (with a small factor load), the factor includes hope only for oneself and one's loved ones in case of infection.

The fourth factor "trust and responsibility in society" embodies the awareness of problems related to the responsibility or irresponsibility of members of society against the background of a pandemic and trust / distrust in the systems "citizen-state" and "citizen-society".

The fifth factor, called "*fear of infection and misophobia*", is formed by the fear of contracting the COVID-19 virus in public places (in transport or at a clinic reception) and refusal to visit them.

Against the background of a pandemic, the manifestations of misophobia (the desire to minimize the need to interact with strangers and avoid touching various things due to the fear of microbes) were provoked by an epidemic situation, i.e., we are talking about situational anxiety and cautious (sometimes excessive) behavior.

Fears, anxiety, panic moods in different forms are embodied in two more factors. Thus, in the sixth factor, or "*the factor of fear, repentance and charity*," the fear of new epidemiological threats and more dangerous epidemics in the future is combined with the interpretation of the pandemic as punishment for sins and a willingness to donate money to elderly people who fell ill during the epidemic.

The seventh factor "*predictive pessimism*" embodies doom, apocalyptic sentiments ("it is likely that in the next 50 years there will be an epidemic from which all people will die"), the expectation of new epidemic threats, doubts about the benefits and safety of vaccinations. The eighth factor "*preference for strict restrictive measures*" united the approval / disapproval of prison sentences for violation of quarantine, the requirement for transparency of movement and contacts of the sick, even to the detriment of privacy, regulation of the life of citizens with iron discipline to save from the epidemic.

Thus, the resulting factorial structure of the survey data reflects the spectrum of rather contradictory attitudes of the Russians' covid consciousness.

As the analysis of descriptive statistics shows, the prevailing belief among respondents is that the emergence of new infectious diseases is a natural process of mutation that occurs in nature without the participation of humans, or the result of someone's mistake. Conspiracy explanations for the emergence of a new infection, called COVID-19, were not popular among Russians in the first ten days of June 2020. The explanation of the pandemic as a punishment of the God turned out to be even less popular (M=1.68, SD=1.02).

The greatest degree of agreement among the Russians participating in the survey was received by the statements from the fourth factor, which reflects trust and responsibility in society. Most of the respondents agree with the opinion that the only salvation from the epidemic lies in the moral conscience and responsibility of everyone (M=3.95, SD=1.07). At the same time, citizens tend to distrust both official information about the number of infected with covid (M=3.68, SD=1.03) and information from fellow citizens who "will conceal the fact of infection with the virus" (M=3.52, SD=1.05).

In terms of severity, trust in world science, which will ensure the creation of a cure for an insidious virus, and trust only in oneself and in the inner circle of people in case of illness, turned out to be practically the same. It should be borne in mind that the study was carried out before the development of the Sputnik V vaccine.

Demographic characteristics of pandemic attitudes

Despite the statistically significant predominance with age of predictive anxiety about epidemiological threats ($p < 0.01$) and specifically recurrence of epidemics in the coming years ($p < 0.001$), as well as fears of side effects of vaccinations ($p < 0.01$), representatives of the older generation showed more confidence in the country's leadership in its efforts to contain the pandemic ($p < 0.001$). Confidence in the capabilities of medicine and science for saving the majority of patients also turned out to be higher with age ($p < 0.01$).

The data indirectly indicate a higher confidence in the World Health Organization, which manifested itself in less agreement ($p < 0.001$) with measures regulating the information flow ("in order to prevent panic, it is necessary to suppress the spread of news that differs from official information and WHO recommendations").

In addition, the factor of age (which may indicate a greater maturity of the individual) manifested itself in greater confidence in fellow citizens in a pandemic situation. The older the respondents were, the less they showed agreement that "in the event of an epidemic, most people will not report that they are sick, so as not to be quarantined" ($p < 0.001$), that "most Russians will not believe the official information on the number of cases and deaths during a pandemic" ($p < 0.01$). At the same time, among the older generation, there were more of those who believe that security is more important than the right to privacy (contacts and movements) ($p < 0.001$).

At the same time, the results of the study showed that the older the respondents were, the more among them were supporters of conspiracy and fatalistic theories of the origin of the pandemic ("viruses like COVID-19 are created artificially for some purpose" ($p < 0.001$), "Epidemics are God's punishment" ($p < 0.001$), "with the help of epidemics, the rich regulate the number of the poor" ($p < 0.01$)). Accordingly, fewer were those who believed that the pandemic was caused by chance or a natural process of mutations ($p < 0.01$).

According to the data obtained, women believe more in conspiracy theories and more often agree that "viruses are created artificially for some purpose" ($p < 0.05$), as well as that "the outbreak is the result of someone else's mistake" ($p < 0.05$). There were more skeptics among men who agree that "during epidemics, information on the number of infected people will be deliberately distorted so as not to sow panic" ($p < 0.05$) and that "the media hype about COVID-19 is used to distract attention of society from more important problems" ($p < 0.05$). Men more often agreed that "pharmaceutical companies deliberately delay the release of certain drugs so that they will cost more in the future" ($p < 0.05$).

Women are more likely than men to show phobias, significantly more often agreeing that they are more afraid of new more dangerous epidemics ($p < 0.05$), and also more afraid to use public transport ($p < 0.05$) and come to an appointment at the clinic ($p < 0.05$), for fear of contracting the virus.

Pandemic Attitudes and Psychopathological Trends

Correlation analysis of the data from the questionnaire of attitudes towards the pandemic and the questionnaire of the severity of psychopathological symptoms SCL-90-R showed that persons with high scores on the anxiety scale have higher fears about new and more dangerous epidemics ($p < 0.001$) and expectations of negative news about epidemiological threats. The higher the indicators on the scale of depression and the scale of phobic anxiety, the higher the manifestations of misophobia ($p < 0.001$), the less trust in people around and the more suspicions about their non-compliance with epidemiological rules ($p < 0.001$). Individuals with high scores on the hostility scale advocate jail sentences for those who violate quarantine ($p < 0.001$).

Attitudes towards a pandemic and critical thinking

The average data on the critical thinking questionnaire (CTI) on all scales were located in the normative zone. Against the background of the loosening of the self-isolation regime in early June 2020, the manifestations of categorical and personal-superstitious thinking increased slightly.

Correlation analysis of the data from the pandemic and CTI questionnaire showed that news about epidemiological threats causes less anxiety in persons with high scores on the emotional coping scale ($r = -0.237$, $p < 0.001$) and the general constructive thinking scale (GCTI). The higher the GCTI scores, the lower the adherence to conspiracy theories of the origin of the pandemic, suspicion, distrust of people around and social institutions, fear of distant threats and manifestations of misophobia.

For the iron discipline against the background of the pandemic, persons with high indicators on the scales of emotional ($r = 0.279$, $p < 0.01$) and behavioral coping ($r = 0.217$, $p < 0.01$) spoke.

The carriers of esoteric thinking believe that epidemics are a weapon used by some people against others ($r = 0.371$, $p < 0.001$), and do not agree that the emergence of new infectious diseases is a natural process of mutation that occurs in nature without the participation of people ($r = -0.260$, $p < 0.001$). People with higher scores on the scales of categorical and personal-superstitious thinking turned out to have lower trust in the media and people around them.

Pandemic Attitudes and Social Media Involvement

The results of the correlation analysis show that among those who prefer social networks to official information (television, radio, print), there are statistically significantly more respondents characterized by low social and institutional trust. They have a more pronounced negative attitude towards the country's leadership, and they do not consider the efforts made by the authorities to contain the pandemic sufficient ($r = -0.230$, $p < 0.001$), do not believe in the possibilities of domestic medicine ($r = -0.200$, $p < 0.001$) and do not rely on themselves and their loved ones in a situation of illness ($r = -0.190$, $p < 0.001$).

In addition, among them there are more of those who not only do not trust official information about the epidemic situation ($r = 0.140$, $p < 0.001$), but also do not trust their fellow citizens, attributing to them possible facts of concealing information about the disease due to fear of being quarantined ($r = 0.130$, $p < 0.001$), and project their distrust of the official statistics on morbidity onto the majority of Russians ($r = 0.180$, $p < 0.001$).

5. Conclusions

The results of the study showed a spectrum of rather contradictory attitudes of the Russians' covid consciousness (fans / opponents of the "conspiracy theory"; responsible / irresponsible, covid-dissidents, covid-optimists, misophobes, anti-vaccinators). Individuals with constructive critical

thinking and emotional coping proved to be more adaptive in assessing the epidemic situation. The older generation shows more confidence in the institutions of power and the people around them against the backdrop of the pandemic. Women have more anxiety and a tendency to misophobia than men. Among those citizens who derive information mainly from social networks, there were fewer people who trust both the authorities and their fellow citizens, as well as skepticism about medicine and vaccination.

References

- Deyneka O.S., Maksimenko A.A. (2020). Psychological condition of society in a pandemic through the analysis of social networks: a review of foreign publications. *Society. Environment. Development*. No.2. pp. 28–39.
- Enikolopov S.N., Kazmina, O.Yu., Vorontsova O.Yu., Medvedeva T.I., Boyko O.M. (2020). Dynamics of psychological reactions at the initial stage of the COVID-19 pandemic. *Psychological and pedagogical research*. Vol. 12. No.2. pp. 108–126.
- Epstein S. (2001). CTI: Constructive Thinking Inventory: professional manual. Lutz, FL: Psychological Assessment Resources.
- Fedosenko E.V. (2020). Life after Quarantine: The Psychology of Meanings and the COVID-19 Coronavirus. *Psychological problems of meaning and acme*. No.1. pp. 34–47.
- Jia Z., Xu S., Zhang Z., Cheng Zh, Han H., Xu H., Wang M., Zhang H., Zhou Y., Zhou Zh. (2021). Association between mental health and community support in lockdown communities during the COVID-19 pandemic: Evidence from rural China. *Journal of rural studies*. pp. 87–97
- Karadag E., Tosuntas S.B., Erzen E., Duru P., Bostan N., Sahin B. M., Culha I, Babadag B. (2015). Determinants of Phubbing, which is the Sum of Many Virtual Addictions: A Structural Equation Model. *Journal of Behavioral Addiction*. Jun; 4(2): 60–74. doi: 10.1556/2006.4.2015.005
- Lebedev S.V., Enikolopov S.N. (2004). Adaptatsiya metodik issledovaniya posttravmaticheskikh stressovykh rasstroistv [Adaptation of methods for research post-traumatic stress disorders]. *Psihologicheskaya diagnostika = Psychological Diagnostic*, No. 3, pp. 19–38. (In Russ.).
- Liu H., Liu W., Yoganathan V., Osburg V.-S. (2021). COVID-19 information overload and generation Z's social media discontinuance intention during the pandemic lockdown, *Technological Forecasting and Social Change*. Vol. 166.
- Mohamad S. M. (2020). Creative production of 'covid-19 social distancing' narratives on social media. *Tijdschrift voor Economische en Sociale Geografie, Royal Dutch Geographical Society KNAG*, vol. 111(3), pp. 347-359
- Naeem M., Ozuem W. (2021) Customers' social interactions and panic buying behavior: insights from social media practices. *Journal of Consumer Behavior* DOI: 10.1002/cb.1925
- Nestik T. A. (2020). Impact of the COVID-19 pandemic on society: socio-psychological analysis. *Institute of Psychology of the Russian Academy of Sciences. Social and Economic Psychology*. Vol. 5. No. 2 (18). pp. 47–82.

PSYCHOLOGICAL TIME AND ECONOMIC MIND OF ENTREPRENEURS. EVIDENCE FROM SMALL BUSINESS OF RUSSIAN INDUSTRIAL REGION

Ekaterina Zabelina, Svetlana Kurnosova, & Ekaterina Vedeneeva

Institute of Education and Practical Psychology, Chelyabinsk State University (Russia)

Abstract

Entrepreneurs, as the most active social group sensitive to public mood, perhaps feel the changes in the time of life in a digital society (time pressure illusion) most of all. On the other hand, the very internal temporal organization of a person involved in entrepreneurial activity can determine the characteristics of his or her mind and behavior in the economic sphere. The aim of the study is to reveal the impact of the psychological time of the representatives of small businesses on their economic minds. The study involves 109 representatives of small businesses in various fields (wholesale and retail trade, education, tourism, consulting, production, etc.), registered in the Chelyabinsk region and operating in the Russian Federation (mean age 34.9, 42% male). The respondents completed electronic forms of Inventory of Time Value as an Economic Resource (Usunier), Zimbardo Time Perspective Inventory, Attitudes towards Time (Nuttin), and Inventory of Polychronic Values (Bluedorn). To diagnose the features of the economic mind of entrepreneurs, the Economic Attitudes Questionnaire (Deyneka & Zabelina, 2018) was used. Regression analysis showed that certain components of psychological time (positive attitude to the past, present and future, the value of time as an economic resource) determine the formation of constructive economic attitudes of small business owners, namely the value of independent economic achievements, willingness to invest, unwillingness to sacrifice vocation and health for money, financial optimism. Thus, the lack of fixation on past failures, a positive attitude towards the present and the future, the ability to transfer time into money create a psychological foundation for the formation of entrepreneurs' attitudes in economic life. The results can be used in the consulting of the future entrepreneurs.

Keywords: *Entrepreneurs, psychological time, small businesses, economic mind.*

1. Introduction

Entrepreneurs are a special category of people, the success of which largely depends on the stable development of the country's economics. This statement is most true for small and medium-sized businesses. However, the reasons for choosing or not doing business in Russia have not been sufficiently studied (Zhuravlev, 2005; Zhuravlev, Kupreichenko, 2007, etc.). In particular, it is not clear what role the psychological time of an individual can play in this choice and success in entrepreneurial activities.

Being the most active social group that are sensitive to public mood, entrepreneurs may feel the changes in the time of life in a digital society (time pressure illusion) most of all. On the other hand, the very internal temporal organization of a person involved in entrepreneurial activity can determine the characteristics of his or her mind and behavior in the economic sphere.

Most of studies in this research area are devoted to the future time perspective of the entrepreneurs (e.g., Przepiorka, 2017). However, there is still no consensus on the future time perspective as a distinctive characteristic of an entrepreneur. For instance, there is a common view that both aspiring and already successful entrepreneurs are highly future-oriented (Przepiorka, 2016; Retsikas, 2017). However, a previous study (the late 1970s) of businessmen (aged from 35 to 64), on the other hand, found that they had a shortened time horizon (LeBlanc, 1969), which was explained by the nature of professional activities associated with uncertain economic risk (LeBlanc, 1969).

Since the previous studies (Chen, Nadkarni, 2017; Przepiorka, 2017) showed that entrepreneurs perceive and experience the time of life in a special way, it was suggested that these features have an impact on their economic mind, on how business owners perceive objects and relations of economic reality. At the same time, there is little knowledge about how the psychological time of the entrepreneur's personality and their economic mind and behavior are connected.

In the modern world economic mind seems to be a reflection of the economic relations and objects that exist not only in the real market but also in the virtual world of goods and services. Although there are various views on the structure of economic mind in science, most scholars note that its essential elements are economic attitudes (Deyneka, 2011; Zabelina E., Deyneka O. and Tsiring D., 2019).

The concept of an attitude has been widely used in social psychology since the first third of the 20th century. In a general sense, attitude is defined as “a relatively enduring organization of beliefs around an object or situation predisposing one to respond in some preferential manner” (Rokeach, 1986, p. 112). Smith observes three components in the structure of attitudes, namely, cognitive, affective, and behavioral one (Smith, 1986). All of these components are closely related, though they even may contradict one another (Conner and Sparks, 2002). The economic attitudes of the individuals and social groups were most actively studied in the last quarter of the 20th century. In particular, there were studied the attitudes toward unemployment (Kalil et al., 2001; Lewis and Furnham, 1986), attitudes toward saving (Furnham, 1985), attitudes in debt and consumer behavior (Lea et al., 1995; Mewse et al., 2010), money attitudes (Furnham, 1996; Von Stumm et al., 2013), and investment attitudes (Antonides and Van Der Sar, 1990). However, most studies do not consider the economic attitudes of the entrepreneurs as a special subject of study.

The lack and inconsistency of data in this knowledge area led to the aim of the study – to reveal the impact of the psychological time of the representatives of small businesses on their economic minds.

2. Method and sample

The aim of the study is to reveal the impact of the psychological time of the representatives of small businesses on their economic minds. The study involves 109 representatives of small businesses in various fields (wholesale and retail trade, education, tourism, consulting, production, etc.), registered in the Chelyabinsk region and operating in the Russian Federation (mean age 34.9, 42% male).

To identify the features of the economic mind of the entrepreneurs, a control group of employees working for hire from various fields of professional activity was formed:

1. IT specialists of commercial organizations (programmers, developers, system administrators) – 111 people aged 19 to 45 years (mean age 26.4), 58.5% male.
2. Employees of state institutions (secondary schools teachers) – 102 people aged 23 to 62 years (mean age 37.5), 25.5% male.
3. Civil servants (officials, the representatives of the city administration, legislative assembly, judges) – 92 people aged 23 to 65 years (mean age 37.1), 43.5 % male.

When determining and forming groups of the respondents, the logic of contrasting characteristics of professional groups was maintained: 1) entrepreneurs vs hard workers; 2) employees of commercial companies vs employees of budgetary (state) institutions. Civil servants are chosen as the most striking contrast to entrepreneurs group, as it represents a certain category according to the Russian legislation. First, civil servants are forbidden to engage in their own business, second, work at the civil service is relatively stable and predictable; third, their activities are strictly regulated, therefore, it gives a modest place to risk and creativity. All these characteristics of professional activity are opposed to entrepreneurship, where risk, uncertainty, and creativity come first. Among the commercial organizations, companies working in the field of information technology were selected, since this direction is actively developing at the present time and brings high revenues to companies.

The respondents completed electronic forms of Inventory of Time Value as an Economic Resource by Usunier (Nestik, 2015), Zimbardo Time Perspective Inventory (Zimbardo, Boyd, 1999; Mitina, Sircova, 2008), Attitudes towards Time (Nuttin, 2004), and Inventory of Polychronic Values by Bluedorn (Nestic, 2015). To diagnose the features of the economic mind of entrepreneurs, the Economic Attitudes Questionnaire (Deyneka, Zabelina, 2018) was used.

The data were processed using SPSS 24.0. statistical package. For the comparative analysis, the Mann-Whitney U criterion was used. Multivariate regression analysis was used to identify the impact of the components of psychological time on economic attitudes of the entrepreneurs.

3. Results and discussion

At the first stage, the features of economic attitudes of the entrepreneurs compared to hired employees were studied (Table 1).

Table 1. Results of comparative analysis of economic attitudes of the entrepreneurs and hired employees.

| Indicators | Mean rank | | | | U | p |
|--|---------------|------------------|-----------------|----------------|--------|-------|
| | Entrepreneurs | IT professionals | School teachers | Civil servants | | |
| Financial literacy | 220,64 | 216,15 | 180,13 | 209,62 | 7.627 | 0.054 |
| Willingness to invest | 244,29 | 211,64 | 187,14 | 178,94 | 19.240 | 0.000 |
| Value of independent achievements | 228,47 | 183,36 | 208,97 | 209,42 | 10.006 | 0.019 |
| Financial optimism | 262,11 | 226,24 | 161,21 | 168,86 | 51.877 | 0.000 |
| Customer satisfaction | 232,47 | 213,89 | 174,83 | 204,14 | 13.177 | 0.004 |
| The priority of the earnings over vocation | 157,42 | 215,42 | 222,53 | 238,71 | 28.244 | 0.000 |
| The priority of the earnings over health | 178,80 | 216,55 | 216,09 | 218,94 | 8.609 | 0.035 |

It was found that the entrepreneurs are more confident in their financial literacy ($H = 7.627$, $p = 0.054$), they are more willing to invest in new projects ($H = 19.240$, $p = 0.000$). Small business owners value independent achievements in the economic sphere more than most of employees do ($H = 10.006$, $p = 0.019$), they have more pronounced financial optimism – the belief that their income level will increase in the future ($H = 51.877$, $p = 0.000$), and higher satisfaction with the possibilities of personal consumption ($H = 13.177$, $p = 0.004$). These features are explained by the specifics of entrepreneurial activity (willingness to take risks, immersion in financial issues, willingness to rely on their own strength, etc.), and also indicate that entrepreneurs are the most active group of the population not only in the field of finance and investment, but also in the field of consumption.

Additionally, there was a lower degree of the agreement with the statement "I am ready to work for a large income even at the expense of my health" ($H = 8.609$, $p = 0.035$) and "The key to well – being is to find a well-paid job, even if it is not your vocation" ($H = 28.244$, $p = 0.000$). Most business owners believe that health and self-realization are more important values than money. Perhaps it is the desire for independence, the unwillingness to work for money in an unloved job (for hire) that pushes some people to open their own business.

Further, the assumption was tested whether the features of the psychological time of the entrepreneurs are the predictors of their economic mind and behavior. Regression analysis has shown that various components of psychological time determine the shaping of certain economic attitudes. A positive and active attitude to one's past, a positively meaningful experience contributes to the self-perception of an entrepreneur as a financially literate person ($\beta = -0.27$, $p = 0.005$). The ability to perceive and value time as an economic tool increases the desire and willingness to invest in promising, even risky, projects, calculate long-term profits ($\beta = 0.24$, $p = 0.013$).

For most entrepreneurs, people who have achieved everything in life themselves are an example to follow, a kind of ideal. Businesspersons treat such people with great respect and reverence, probably projecting this image on themselves. This belief is influenced by an emotionally positive attitude towards one's future ($\beta = -0.44$, $p = 0.013$), as well as a certain fatalism in the perception of present events ($\beta = 0.21$, $p = 0.023$). It seems that entrepreneurs identify themselves with the image of a person who has "made" their own success; they believe that in the future they will also be able to achieve a lot, thanks to their own efforts. At the same time, this belief has for them a certain degree of fatality, predestination, given from above. They probably believe implicitly that their path in business is the only right one.

The largest number of indicators of psychological time is involved in the formation of financial optimism of the entrepreneurs. This phenomenon is based on a complex combination of the value of time as an economic resource ($\beta = 0.37$, $p = 0.000$), a positive emotional attitude to one's future as successful, joyful, manageable ($\beta = -0.25$, $p = 0.007$), self-confidence in managing the events of the present ($\beta = -0.28$, $p = 0.002$), the desire to enjoy the present moment ($\beta = 0.27$, $p = 0.011$) and the lack of fixation on positive events of the past ($\beta = -0.19$, $p = 0.026$). In fact, in this complex of predictors, one can see both rational phenomena (for example, the ability to convert time into monetary equivalent) and irrational ones

(a certain degree of hedonism, optimistic expectations about the future, etc.). Probably, it is from the combination of a holistic perception of economic reality that optimism about their future financial situation develops.

4. Conclusion

Thus, the hypothesis about the relationship between psychological time and economic attitudes of entrepreneurs was confirmed. The absence of "obsession" with past failures, a positive attitude to the present and future, the ability to transfer time into money create a psychological foundation for the formation of entrepreneurs' positive attitudes in economic life, as well as for achieving satisfaction and well-being in it.

The results obtained can be used in the selection and psychological counseling of people participating in training programs for the entrepreneurs. It is necessary to pay attention (diagnose) not only personal qualities (independence, risk-taking, creativity, resilience, etc.), but also the attitude to time. The risk group for engaging in entrepreneurial activities can be people who are focused on their past failures and mistakes for a long time, as well as those who are inclined to believe that a person is not able to influence the circumstances.

The study involved only the entrepreneurs of small business from one Russian region, which is its main limitation. Further research should be conducted to verify the results obtained on the larger sample.

Acknowledgments

The research was funded by RFBR and Chelyabinsk Region, project number 20-413-740009.

References

- Antonides, G., & Van Der Sar, N.L. (1990). Individual expectations, risk perception and preferences in relation to investment decision making. *Journal of Economic Psychology*, 11 (2), 227-245
- Chen, J.H., & Nadkarni, S. (2017). It's about Time! CEOs' Temporal Dispositions, Temporal Leadership, and Corporate Entrepreneurship. *Administrative Science Quarterly*, 62 (1), 31-66
- Conner, M., & Sparks, P. (2002). Ambivalence and attitudes. *European Review of Social Psychology*, 12, 37-70.
- Deyneka, O.S. (2011). Economic mind: phenomenology, structure and potential development. In N.M. Lebedeva, & A.N. Tatarko (Eds.). *Culture and economic behavior: a collection of articles*. Moscow: Maks Press, pp. 118-148. (In Rus.)
- Deyneka, O.S., & Zabelina, E.V. (2018). Multiple-factorial questionnaire for the express diagnostics of economic attitudes: the results of the development. *Psikhologicheskie Issledovaniya*, 11 (58), 9. Retrieved from <http://psystudy.ru/index.php/eng/2018v11n58e/1567-deyneka58e.html> (In Rus.)
- Furnham, A. (1985). Why Do People Save? Attitudes to, and Habits of Saving Money in Britain. *Journal of Applied Social Psychology*, 15 (5), 354-373
- Furnham, A. (1996). Attitudinal correlates and demographic predictors of monetary beliefs and behaviors. *Journal of Organizational Behavior*, 17 (4), 375-388.
- Kalil, A., Schweingruber, H.A., & Seefeldt, K.S. (2001). Correlates of employment among welfare recipients: Do psychological characteristics and attitudes matter? *American Journal of Community Psychology*, 29 (5), 701-723.
- Lea, S.E.G., Webley, P., & Walker, C.M. (1995). Psychological factors in consumer debt: Money management, economic socialization, and credit use. *Journal of Economic Psychology*, 16 (4), 681-701.
- LeBlanc, A.F. (1969). Time Orientation and Time Estimation: A Function of Age. *The Journal of Genetic Psychology*, 115, 187-194.
- Lewis, A., & Furnham, A. (1986). Reducing unemployment: Lay beliefs about how to reduce current unemployment. *Journal of Economic Psychology*, 7 (1), 75-85.
- Mewse, A.J., Lea, S.E.G., & Wrapson, W. (2010). First steps out of debt. Attitudes and social identity as predictors of contact by debtors with creditors. *Journal of Economic Psychology*, 31 (6), 1021-1034

- Mitina, O.V., & Sircova, A. (2008). Questionnaire on Time Perspective of F.Zimbardo (ZTPI) results of the psychometric analysis of the Russian version. *Moscow University Psychology Bulletin*, 4, 67-89 (In Rus).
- Nestik T.A. (2015). *Social'no-psihologicheskaya determinaciya gruppovogo otnosheniya k vremeni* [Social and psychological determination of group attitude to time] Doctoral thesis. Moscow (In Rus.)
- Nuttin, J.M. (2004). *Motivaciya, dejstvie i vremennaya perspektiva budushchego* [Motivation, action and a future time perspective]. Moscow: Smysl. (in Rus.)
- Przepiorka, A. (2016) What makes successful entrepreneurs different in temporal and goal-commitment dimensions? *Time & Society*, 25 (1), 40-60
- Przepiorka, A. (2017) Psychological Determinants of Entrepreneurial Success and Life-Satisfaction. *Current Psychology*, 36 (2), 304–315
- Retsikas, K. (2017) The gift of future time: Islamic welfare and entrepreneurship in 21st century Indonesia. *South East Asia Research*, 25 (3), 284-300
- Rokeach, M. (1986). The Nature of Attitudes. In D. L. Sills (Ed.) *International Encyclopedia of the Social Sciences*, Crowell.
- Smith, M.B. (1986). Attitude Change. In D. L. Sills (Ed.) *International Encyclopedia of the Social Sciences*, Crowell.
- Von Stumm, S., Fenton O'Creevy, M., & Furnham, A. (2013). Financial capability, money attitudes and socioeconomic status: Risks for experiencing adverse financial events. *Personality and Individual Differences*, 54 (3), 344-349.
- Zabelina, E., Deyneka, O., & Tsiring, D. (2019). Entrepreneurial attitudes in the structure of students' economic minds. *International Journal of Entrepreneurial Behavior & Research*, 25(8), 1621-1633.
- Zhuravlev, A.L. (2005). Economic psychology: a place and role in modern science. *Russian Psychological Journal*, 2 (1), 45-56 (In Rus.).
- Zhuravlev, A.L., & Kupreichenko, A.B. (2007). Economic self-determination of youth: structure and determination. *Bulletin of Practical Psychology of Education*, 1, 50-55 (In Rus.).
- Zimbardo, P.G., & Boyd, J.N. (1999) Putting time in perspective: A valid, reliable individual-differences metric. *Journal of Personality and Social Psychology*, 77 (6), 1271-1288.

WORK AND HEALTH IN TRANSITION: TRENDS OF SUBJECTIFICATION IN APPLIED PSYCHOLOGY

Severin Hornung¹, Matthias Weigl², Britta Herbig³, & Jürgen Glaser⁴

¹*Institute of Psychology, University of Innsbruck (Austria)*

²*Institute and Outpatient Clinic for Occupational, Social and Environmental Medicine, LMU University of Munich (Germany) and Institute for Patient Safety (IfPS), University Hospital Bonn (Germany)*

³*Institute and Outpatient Clinic for Occupational, Social and Environmental Medicine, LMU University of Munich (Germany)*

⁴*Institute of Psychology, University of Innsbruck (Austria)*

Abstract

Reported is the synthesis of a series of seven studies on work and health, conducted collaboratively by researchers in applied psychology and occupational medicine. This qualitative meta-study develops a framework, in which reviewed studies are structured, aggregated, integrated, and interpreted in a theory-guided iterative process of themed analysis. Building on empirical results, the subsequent interpretive integration seeks to demonstrate, how overarching, pervasive, and in psychological research typically underemphasized tendencies of “subjectification” manifest in exemplary work contexts, research topics, and results. Subjectification of work is operationalized in dimensions of work intensification (performance focus), work internalization (goal adoption), and work individualization (job personalization). A meta-dimension is work insecurity (personal risk), cultivated in contemporary management ideologies of employee self-reliance. Following thematic description, content-analytical structuring criteria include: a) focus on work task (activity) versus working conditions (context); b) primary (close, direct, explicit) versus secondary (inferred, indirect, subtle) references to and/or indication for identified tendencies of subjectification; and c) theoretically assumed and empirically examined relationships with negative (psychopathological) and positive (psychosalutogenic) short, medium, and longer-term attitudinal and health-related work effects, as well as the personality-shaping impact of long-term occupational socialization. Psychological aspects of work tasks are core to 4 studies, 3 focus on working conditions and organizational practices. References to intensification were dominant in 4 studies, whereas 5 include internalization processes, and 3 predominantly focus on individualization of work. All studies share secondary or indirect references to other subjectifying tendencies. Examined work effects were aggregated into a matrix of short, medium and long-term positive and negative manifestations of health and wellbeing. Results suggest tensions and pressures arising from the motivational individualization of work tasks and conditions, resulting internalization of organizational interests and goals (e.g., performance, efficiency, costs), coupled with system-inherent tendencies of work intensification. These dysfunctional dynamics constitute risks factors for psychologically detrimental or harmful forms of self-management, self-control, and self-endangering work behavior, as manifestations of “internalized” incompatibilities between work and health in the neoliberal workplace, aggravated by existential threats associated with political-economic crisis. Outlined are implications of subjectification for a critical reevaluation and reorientation of basic theoretical assumptions of research and practice in applied psychology and occupational health.

Keywords: *Work and health, neoliberal transformation, work systems analysis, subjectification of work.*

1. Introduction

Fundamental transitions in the world of work require overarching frameworks of challenges facing applied psychology and related medical and social science disciplines. Public, occupational, and individual health and wellbeing need to be understood within broader developments in society (Bliese, Edwards, & Sonnentag, 2017; Hornung & Höge, 2019; Korunka & Kubicek, 2017). Contributing to a reflexive, interdisciplinary, and humanization-oriented perspective, this article presents a conceptually grounded meta-study of seven empirical investigations. Part of an interdisciplinary collaboration with researchers in occupational medicine, studies address health-relevant aspects of work activities in

contemporary organizations. The synthesis aims to show, how these topics are, on a meta-level, interconnected and interdependent. This entails identifying and analyzing major trends in the transition of work and assessing their relevance for the relationships between work and health, characterized by conflicts, synergies, and trade-offs, as well as exploring, how these tendencies are reflected in topics, constructs, and results of the reviewed study portfolio. The methodological approach of this qualitative meta-study is informed by themed analysis, an iterative content-analytical process of theory-based and exploratory (deductive-inductive) categorization, structuring, and synthesis (Munro, 2012). Derived from the interdisciplinary literature and suggested as dominant tendencies in transitional patterns of work and employment in advanced neoliberal economies, are tendencies of intensification, internalization and individualization. These interdependent yet distinct trends are exemplified by embedding reviewed studies from applied psychology and occupational medicine into the broader socio-cultural and historical dynamics of societal, economic, and workplace change. A field of tensions among intensification, internalization, and individualization is suggested as a framework work in transition. This approach reconciles research in psychology with analyses in social science disciplines, such as history, anthropology, sociology, and critical management studies, on the “subjectification” of work (Becke, 2017), “biopower” and “neoliberal governmentality” (Munro, 2012) in post-disciplinary work systems (Weiskopf & Loacker, 2006). Against this background, this review is oriented towards determining, how tendencies of subjectivation, specifically, dynamics of work intensification (escalating performance requirement), internalization (employee identification and goal adoption), and individualization (personalization of work tasks and conditions), are reflected in examined research topics and results. Following thematic description and classification, integrating theories and assumptions of work psychology, three main content-analytical structuring schemes were applied: a) focus on work task (activity) versus working conditions (context); b) primary (close, direct, explicit) versus secondary (inferred, indirect, subtle) references to and/or indication for identified tendencies of subjectification; and c) theoretical and empirical relationships with positive and negative short, medium, and long-term motivational, health and socializing (personality-shaping) work effects.

2. Transformation of work as subjectification

Thematic analysis involved extracting trends from the psychological, sociological, economic, and management literature on the transformation of employment, work, and organizations in the post-industrial (also post-Fordist, post-Taylorist, post-modern, post-disciplinary) era of advanced neoliberal capitalism as dominating (hegemonic) political-economic regime. This review generated major themes associated with the “subjectification of work” (Becke, 2017; Pongratz & Voss, 2003; Weiskopf & Loacker, 2006), sorted into three dimensions: a) intensification; b) internalization; c) individualization. A meta-dimension, energizing tendencies of subjectification, is work insecurity (personal risk), associated with increasing precariousness in employment practices, cultivated in neoliberal management ideologies of employee self-reliance. Theoretically generalizable and empirically established consequence of economic primacy (profit maximization, cost reduction), work intensification refers to performance “improvements” by increasing the (quantitative) amount of work and/or other (qualitative) requirements (Burchell, Ladipo & Wilkinson, 2002; Korunka & Kubicek, 2017). Temporal extension (extensification) of work, is also subsumed under intensification here (Allvin, Aronsson, Hagström, Johansson, & Lundberg, 2011). For “self-managing” employees, intensification manifests as tensions between positive challenges and occupational learning opportunities versus work overload and stressors, including “externalized” (long-term) health (care) costs in precarious employment arrangements. Focal in psychology, processes of internalization refer to employee adoption and integration of organizational (managerial, performance-oriented) norms, goals, and values (Brown, 2017). Tensions manifest as ambiguities between motivation and self-regulation at work versus “self-executed” work stressors and motivated self-endangerment, threatening erosion of long-term health and work ability, reinforced by indirect (subjectifying) organizational (managerial) control practices, e.g., delegation of responsibility, goal setting, and self-management (Glaser, Hornung, & Höge, 2019). Work individualization refers to de-standardization, de-formalization, flexibilization and personalization of working conditions, downsides of which are erosion of employment standards, collective agreements, and other protective labor political instruments (Allvin et al., 2011). For employees, this opens up conflictual areas of tension between self-determination and self-design of work tasks versus insecurity, social isolation and coping behavior for self-responsible fulfillment of expansive and/or unpredictable performance and behavioral demands. Increasing importance of such tensions, contradictions and paradoxes has been identified as a central characteristic of (post-)modern and post-disciplinary high-performance work systems.

3. Psychology of work and health

The second thematic frame relates to the core of work psychology, the human-centered analysis, evaluation, and design of work systems and processes (Oesterreich and Volpert, 1986). In the Organization-Task/Activity-Individual (OTI) approach (Büssing, 1992), work activity is the nexus of interdependent and reciprocal influences between organizational structure (division of labor, supervision, discretion) and working individual (occupational health, skills, attitudes). Although work activity, individual, and organization appear to correspond with intensification, internalization, and individualization, likely, these trends are affecting all three domains. The following section provides some background theorizing on work systems and health impacts of work. A systems-theory perspective posits dialectical relationships between work system structure and dynamics (antagonisms, tensions, interdependencies, emergent properties), both within and across levels of analysis (Glaser et al., 2019). Organizational-level work system (structure) and work process (dynamic) partly determine individual-level job features, partitioned into work tasks (activity) and working conditions (context). The “primacy of the work task”, puts the focus of action regulation on the work activity, distinguished from the conditions, situation, or context these actions are performed in (Büssing, 1992). The work task-conditions (activity-context) separation bears similarities with intrinsic (task-inherent) versus extrinsic (situation-related) job characteristics, but carries activity- and systems-theoretical assumptions on dynamic interactions between work activity, acting individual, and socio-technical embedding in organizational structures (Weber & Jeppesen, 2017). This distinction served as initial structuring element, based on the possibly differential impact of identified transitions on the structure and dynamics of contemporary work systems. Intersection of work psychology and occupational medicine, health-effects were divided into psychopathological health impairments and psychosalutogenic (motivational, health-preserving, personality-promoting) aspects (Huppert, 2009; Stansfeld & Candy, 2006). Categorization of content and temporal horizon yields a matrix of a) positive and b) negative manifestations, in the: i) short to medium-term, ii) medium to long-term, and iii) longer-term perspective (Frese, 1982). In the latter, relatively stable individual predispositions are assumed to change over longer periods of occupational socialization.

4. Methods

Synthesized are 7 empirical studies (S1-S7), conducted at university institutes of occupational medicine and psychology in Germany and Austria, presented between 2015-2019 at the Annual Scientific Congress of the German Association of Environmental and Occupational Medicine (55th-59th DGAUM). Most studies are cross-sectional. The exception, S4 reports data from a long-term longitudinal study with 4 measurement points on working conditions of resident hospital physicians. The occupational context of S2 is geriatric care, analyzing a statewide representative sample of elderly care homes. Studies S6 and S7 use heterogeneous convenience samples. S1 and S3 are in the German public administration; S5 in a Chinese telecommunications company. All constructs are measured with multi-item self-report questionnaires, assessed for validity and reliability (exploratory and/or confirmatory factor analysis, Cronbach’s alpha, scale modifications). Correlational hypotheses are mostly tested in path or structural equation models (S1-S5). In two cases, multiple moderated linear regressions involved testing of interaction effects (S6, S7). Modeling approaches range from manifest-variable (scale-level) path model (S1) to complete (item-level) latent-variable structural equation models (S5), including hybrid combination (S2), and item parceling techniques (S2, S3, S4). One of these studies also tests interaction effects (S3). One uses a complex longitudinal design, with latent variables aggregating constructs across measurement points (S4). All data were verified; some analyses extended; arguments and theorizing integrated. Some construct labels were adapted for precision or emphasizing parallels across studies (e.g., identification vs. commitment). Themed analysis involved an iterative process of theory-guided (deductive) categorizations and explorative (inductive) analyses to identify recurring themes. Studies were structured according to chronological order, similarities in theories, constructs, methods, samples, and outcomes. Brief summaries and short titles were developed as content-descriptors. Three structuring schemes were applied: a) Work system focus distinguishes between the central role of the work task (activity) versus working conditions (context); b) Subjectification of work operationalizes primary (direct, explicit) and secondary (indirect, implicit) connections with tendencies of intensification, internalization, and individualization of work; c) Work-health impact integrates theoretical and empirical relationships with positive and negative short, medium, and long-term motivational, health-related and personality-shaping socializing work effects. Structured by these categories, synthesis results are reported next.

5. Results

Studies share survey methodology, correlational analysis, occupational health focus, overlapping theories, and constructs. Short titles reflect core topics: S1–Work characteristics; S2–Interaction work; S3–Management practices; S4–Work extensification; S5–Job crafting; S6–Work self-redesign; S7–Negotiated fairness. Differentiating the structure (dynamics) of the work system (work process) into work task (work activity) and working conditions (execution context), focal trends were analyzed in both domains. Accordingly, 4 studies refer directly to work tasks and psychological regulation (S1, S2, S5, S6); 3 are more distal to the work activity, focusing on “extrinsic” working conditions as the context of action regulation (S3, S4, S7). Trends of intensification, internalization, individualization were analyzed in both groups, considering different perspectives. Direct references to intensification made 4 studies (S1-S4); 5 studies explicitly examine internalization processes (S1-S3, S5, S6); 3 focus on individualization of work organizations (S5-S7). All share secondary references to other subjectivation tendencies. Core studies focusing on the work activity are the investigation of positive and negative effects of work characteristics according to the job demands-resources model in S1, and the modeling of emotional regulation and health in interactive work in human services in S2. Both have a focus on intensification (time pressure, excessive demands) and internalization processes (organizational and professional identification). Two more studies relate to work tasks (S5, S6), investigating psychological internalization (work motivation, identification, meaning) from an individualization perspective. Focal in S5 are antecedents and motivational effects (psychological empowerment) of self-regulation and task modification. A follow-up, S6 examines proactive self-design of work and implications for quality of working life, focusing on interactive effects of task-related modes of control. The other 3 studies focus on working conditions (context), emphasizing intensification, internalization, individualization to different degrees. Investigating ambiguous effects of employee-oriented management practices on work ability, S3 supports internalization and intensification perspectives. In S4, the focus was on intensification (or extensification) with long-term effects of role conflicts between work and family on affective disorders (depression, anxiety). Part-time work introduced individualization aspect, work priority an internalization component. Individualization was central in S7, examining fairness perceptions regarding personalized working conditions, also including intensification and internalization processes (individual negotiation as management practice). Positive (psycho-) salutogenic effects on wellbeing and health are associated with psychological identification and internalization, specifically, opportunities for need-based personalization of work arrangements. Short to medium term, this refers to positive affect, intrinsic work motivation, and psychological empowerment (S1, S5); medium to long term to organizational identification (S1, S3, S6), self-efficacy, meaning, justice perceptions (S6, S7), and maintaining work ability (S3). Socialization processes apply to personality constructs (included as independent variables) of autonomy orientation and individual growth need (S1, S5), interaction competence, and functional emotion regulation (S2). Psychopathological work effects impairing well-being and health are associated with intensification. This includes short-term negative emotions (S2) and medium-term psychological irritation (S1). Prototypical longer-term effects are burnout (S2), psychosomatic complaints, and affective disorders (S1, S4, S6). Long-term negative socialization is captured in learned helplessness and alienation (S1) dysfunctional emotional regulation (S2) and trait components of depression and anxiety (S4).

6. Discussion

This meta-study illustrates tendencies of intensification, individualization and internalization in applied psychological research. A series of studies was structured and interpreted in a deductive-inductive synthesis. Identified tensions include ambiguous implications of motivational work design and personalization of work tasks or conditions, when employees internalize expansive and intrusive organizational (occupational, social) demands and norms, specifically, health-damaging effects of self-directed work intensification (Burchell et al., 2002; Hornung & Höge, 2019; Korunka & Kubicek, 2017). Associations between internalization of organizational (performance-related) goals and behavior-based (self-directed) intensification correspond with the subjectification thesis in work sociology, stressing relevance of self-endangering work behavior as harmful, interest-based “self-exploitation”, facilitated through manipulation and indirect control (e.g., goal setting) in the context of job and income insecurity, as well as “externalization” of social costs and risks into the individual sphere of responsibility (Pongratz, & Voß, 2003; Weiskopf & Loacker, 2006). Tendencies of subjectification are conceived not as independent, but interacting “synergistically” towards observed psychological impacts. Tension among subjectifying tendencies were analyzed on a conceptual basis and study results explored for indications. The dialectics between intensification and internalization are arguably most central and paradox, relating to conflict and convergence of interests in employment. Work

intensification in the form of externally mandated increases in performance demands trigger resistance and run counterproductive to employee identification with the organization. Internalized (subjectified) work intensification and flexibility are exercised in an “organic” way, bypassing protective mechanisms of employee reactance (Hornung & Höge, 2019). This highlights tensions between motivational personalization of work, employee identification with (inherently expansive) organizational performance requirements, and health-damaging effects of resulting self-enacted work stressors. To capture the dynamic complex interrelationships between work and health, applied psychology and occupational medicine need to revise basic assumptions on the motivational basis of work behavior, considering research in the social sciences on subjectification and governmentality in post-disciplinary work regimes. Increasingly relevant are mechanisms of indirect control through internalized performance norms and psychologically harmful self-management. This “subjectified intensification” of work coincides with erosion of institutional and social protective factors (e.g., employee rights, unions, solidarity) through neoliberal flexibilization and individualization. Work design needs to counteract these tendencies. Occupational psychology and medicine must become ethical instances of social responsibility, transcending disciplinary, organizational and administrative boundaries, actively standing in for the wellbeing of their main constituents.

References

- Allvin, M., Aronsson, G., Hagström, T., Johansson, G., & Lundberg, U. (2011). *Work without boundaries: Psychological perspectives on the new working life*. Chichester: Wiley.
- Becke, G. (2017). The subjectivation of work and established-outsider figurations. *Historical Social Research, 42*, 93-113. doi:10.12759/hsr.42.2017.4.93-113
- Bliese, P. D., Edwards, J. R., & Sonnentag, S. (2017). Stress and well-being at work: A century of empirical trends reflecting theoretical and societal influences. *Journal of Applied Psychology, 102*, 389-402. doi:10.1037/apl0000109
- Brown, A. D. (2017). Identity work and organizational identification. *International Journal of Management Reviews, 19*, 296-317. doi:10.1111/ijmr.12152
- Burchell, B., Ladipo, D., & Wilkinson, F. (Eds.). (2002). *Job insecurity and work intensification*. London: Routledge.
- Büssing, A. (1992). *Organisationsstruktur, Tätigkeit und Individuum* [Organizational structure, activity, and individual]. Bern: Huber.
- Frese, M. (1982). Occupational socialization and psychological development: An underemphasized research perspective in industrial psychology. *Journal of Occupational Psychology, 55*, 209-224. doi:10.1111/j.2044-8325.1982.tb00095.x
- Glaser, J., Hornung, S., & Höge, T. (2019). Organizational tensions, paradoxes, and contradictory demands in flexible work systems. *Journal Psychologie des Alltagshandelns / Psychology of Everyday Activity, 12*(2), 21-32.
- Hornung, S., & Höge, T. (2019). Humanization, rationalization or subjectification of work? Employee-oriented flexibility between i-deals and ideology in the neoliberal era. *Business & Management Studies: An International Journal, 7*, 3090-3119. doi: 10.15295/bmij.v7i5.1384
- Huppert, F. A. (2009). Psychological well-being: Evidence regarding its causes and consequences. *Applied Psychology: Health and Well-Being, 1*, 137-164. doi:10.1111/j.1758-0854.2009.01008.x
- Korunka, C., & Kubicek, B. (2017). *Job demands in a changing world of work. Impact on workers' health and performance and implications for research and practice*. Cham: Springer.
- Munro, I. (2012). The management of circulations: Biopolitical variations after Foucault. *International Journal of Management Reviews, 14*, 345-362. doi:10.1111/j.1468-2370.2011.00320.x
- Oesterreich, R., & Volpert, W. (1986). Task analysis for work design on the basis of action regulation theory. *Economic and Industrial Democracy, 7*, 503-527. doi:10.1177/0143831X8674005
- Pongratz, H. J., & Voß, G. G. (2003). From employee to ‘entreployee’: Towards a ‘self-entrepreneurial’ work force? *Concepts and Transformation, 8*, 239- 254. doi:10.1075/cat.8.3.04pon
- Stansfeld, S., & Candy, B. (2006). Psychosocial work environment and mental health—a meta-analytic review. *Scandinavian Journal of Work, Environment & Health, 32*, 443-462. doi:10.5271/sjweh.1050
- Weber, W. G. & Jeppesen, H. J. (2017). Collective human agency in the context of organizational participation. *Zeitschrift für Arbeits- und Organisationspsychologie, 61*, 51-68. doi:10.1026/0932-4089/a000234
- Weiskopf, R. & Loacker, B. (2006). “A snake's coils are even more intricate than a mole's burrow.” Individualization and subjectification in post-disciplinary regimes of work. *Management Revue, 17*, 395-419. doi:10.5771/0935-9915-2006-4-395

SOCIAL METACOGNITION IN THE PROCESS OF DECISION MAKING

Tatiana V. Folomeeva, & Ekaterina N. Klimochkina

Department of Psychology, Lomonosov Moscow State University (Russia)

Abstract

Individual metacognitions are responsible for monitoring and controlling our knowledge, emotions and actions, while social metacognitions are included in the process of monitoring and controlling each other's knowledge, emotions and actions by group members. The distribution of metacognitive responsibilities among group members increases the visibility of individual metacognitive abilities. The study aimed to investigate the role of social metacognitions in the decision process of choosing current fashion trends: to compare how participants interact and social metacognitions influence their decisions in contradiction to the decisions made in individual work, where only individual metacognitions were available. The study consisted of several stages: starting from current trends analysis and follow up interviews, as well as, filling in individual journals. The last step was group work: discussion. The sample was 40 participants ($M=24,35$, $Sd=2,27$). Gathered data was processed through a descriptive qualitative analysis using the phenomenological method. Lack of knowledge or confidence to make a decision about which trends represent what is current in fashion in individual work, participants compensate with knowing about their own metacognition. Thus, in teamwork, these individuals' level out limitations on knowledge or confidence by choosing the behaviour that can increase their knowledge. Choice of the behaviour strategy relies on individual metacognition. Therefore, teamwork provides individuals with additional resources as other team members, which increases the overall significance of work due to the contribution of individual metacognition. Social metacognitions help to distribute responsibilities among group members according to individual metacognitions. In group work, the visibility of individual metacognitions increases and favourably affects learning between participants, facilitates interaction and improves cognitive processes. Due to social metacognitions, participants who lack knowledge or confidence to make an individual decision solve their difficulties in a social situation, where limitations of individual metacognition are mitigated with social metacognitions.

Keywords: *Metacognition, social metacognition, fashion trends, metacognitive awareness, metacognitive beliefs.*

1. Introduction

We monitor and control our own cognitive processes and this process refers to metacognition. It can be divided into types, implicit and explicit forms, where implicit means automatic and unconscious. We automatically take into account the knowledge and intentions of others through implicit metacognition and adopt "we" mode, which strengthens joint actions. We reflect and justify our behaviour to others through explicit metacognition. However, access to this level is limited for both ourselves and others and our reports on the intentions of others or ourselves can be inaccurate (Frith, 2012).

Research has shown that by discussing our experiences with others, we can recognize them more accurately, even in the absence of objective feedback, as an example, perceptual experiences and sensory cues (Wolfe, 2018). Thus, it creates the potential for us to build accurate knowledge about ourselves and the world we live in. Therefore, the ability to share our values and beliefs, to have a common view of the world is provided by explicit metacognition (Friston, 2015). Explicit metacognition is a uniquely human ability that has evolved through enhanced collaborative decision-making.

One of the central metacognitive assessments that people make is the confidence they attach to their judgments and decision-making. People tend to act decisively based on those judgments in which they are most confident. People are more likely to act cautiously and consult others when they come to judgments they are unsure of. Due to the process of decision making having confirmation from others can reduce the need to find additional data to support the cost of a decision. Collective agreement leads to the accuracy of decision despite a lack of feedback or individual confidence (Bahrami, 2016). Similarly, concurring opinions reduce uncertainty and related information that is compatible with the previous solution which

also increases confidence. Desire to increase confidence despite costs appears like a result of motivation, Schwarz suggests that individuals who are not motivated to process information often base their judgment on how they retrieve information, whereas the motivated are likely to base their judgment on what they retrieve. Therefore, the base for judgments is not only in what comes to mind but also in how comes to mind.

Confidence in the judgement is formed based on previous responses and feedback, which can only happen after a metacognitive assessment of social sources. Shared responsibility for decisions helps to justify decisions and choices (Chiu, 2009). To test confidence people rely on the process of comparing themselves to others or other versions of themselves (past or future). Confidence and satisfaction are key indicators of metacognition. Individual metacognition stands for awareness and control of one's own knowledge, emotions, and actions. Social metacognition is the process responsible for monitoring and controlling each other's knowledge, emotions, and behaviour by group members, and making individual metacognition visible to enhance each group member's experience (Chiu, 2009). Therefore, social metacognition conveys metacognitive requirements among members of the group to increase the visibility of each other's metacognition for the development and enhancement of individual cognition (Carlson, 2016).

Spread responsibility enhances the visibility of metacognitive processes and improves individual cognition. When in teamwork there is an offer to express ideas to each other's or share own thoughts, members of the group must explicitly communicate through words, actions, facial expressions, and etc. (Dillenbourg & Traum, 2006). In collective activities, individuals focus more confidently on cognitive processes and assume responsibility for some metacognitive roles. Greater visibility of cognitive and metacognitive processes also facilitates metacognitive assessment for recognizing correct ideas and easier process of making decisions (Hurme et. al., 2006). In the act of expressing an idea, group members can explore explicit ideas more thoroughly, especially to recognize problems or difficulties of a given idea. Therefore, the ability to share our values and beliefs, to have a common view of the world, where useful group communication is provided, is provided by explicit metacognition as well (Friston, 2015).

Beliefs, values, and goals mostly depend on heritage, family system, and group membership, and the surrounding context. Therefore, metacognitive beliefs can be experimentally altered by social influence (Dweck, 1990). Immersion in society causes interference between the individual and the social. Studies have highlighted the role of metacognitive judgments in social interactions, as well as whether social context can mutually influence individuals' metacognitive perceptions (Chiu & Kuo, 2009). Thus, individuals, as a part of society, can interact, along with exposure to external influences. Metacognitive beliefs are the part of the decision-making process and the product of attitudes, stereotypes and culture (Wells, 2000). The change of metacognitive beliefs is impacted by the received information as soon as it differs from previous beliefs of the individual. We depend on metacognitive beliefs in the measurement of our level of satisfaction with our decisions (Wolfe, 2018).

2. Objectives

The research aimed to investigate the role of social metacognition in the process of decision-making. We hypothesized, that level of confidence in personal decisions (upon fashion trends and relevance in fashion) corresponds with behavioural strategy in social interactions and correlates with metacognitive beliefs.

Metacognitions, specifically, social metacognitions impact individual's awareness and control over cognitive processes, self-regulation of emotions, actions, knowledge in a group activity, therefore, metacognitions and social metacognitions interfere with the way individual's decision-making and stays confident in it.

3. Methods and design

The sample consisted of 40 participants (young females and males (first stage $M=27,7$, $Sd=3,6$; second stage $M=21$, $Sd=0,94$), concluded of university students and experts in the fashion field (following fashion trends, involvement in fashion subcultures, professionals of the fashion field).

The research consisted of several stages. We began by collecting data about relevant fashion trends through current trend-books of marketing agencies (McKinsey&Co).

Thereupon, to investigate a unique understanding of fashion trends 15 interviews with fashion experts were arranged. Gathered qualitative data was processed through a descriptive qualitative analysis using the phenomenological method, where central categories among participants answers were defined.

The second stage of the study consisted of filling in the journal by a control group (25). The journal was developed specifically for the research to study participants daily routine, significant values and fashion

interests. The journal consisted of 36 pages, which included instructions, an introduction with an informed consent form, as well as, various daily categories to fill in, such as mood chart, activity chart, highlights of the day, day satisfaction rate and forms to collect “fashion” data: what fashion trends do you prefer, what is your dream purchase, what your ideal self looks like. Participants were asked to complete 10 days of journaling. At the end of this period, participants were involved in a focus-group, equally, to highlight the experiences of the participants, as well as, to clarify the given answers.

The third part of the research aimed to investigate group work, participants were working on a creative task together. They were asked to reflect on the journaling experience in a form of creating a collective collage in mini-groups, where the roles of creators and analysts (who monitored and recorded steps of the work) were distributed naturally. Participants were presenting their creations in teams. Afterwards, participants were asked to analyse the collages and process of group work.

Alongside, all 40 participants filled in questionnaires to assess the specificity of metacognitions quantitatively. The Metacognitive Awareness Inventory questionnaire (MAI) (Schraw & Dennison, 1994) in the adaptation (Karpov & Skiteva, 2005), allowed to measure the level of metacognitive involvement. Short Form of Metacognitions Questionnaire: Properties of MCQ-30 (Wells & Cartwright-Hatton, 2004) with the approbation on the Russian-speaking population (Sirota et al., 2018) provided data about techniques of control and regulation in the information processing at the meta-level.

4. Discussion

In accordance with the analysis of the trend book for 2021, we discovered relevant fashion trends (both messages, concepts and clothing):

- Living with the virus (economic crisis and fashion bounce back)
- Consumer shifts to digital (growth of online businesses), the expectancy of fashion brands to care for employees and customers health, travel interruption
- Fashion system: less is more, loyalty and deeper partnerships with meaningful businesses, market redistribution, new norms for working models

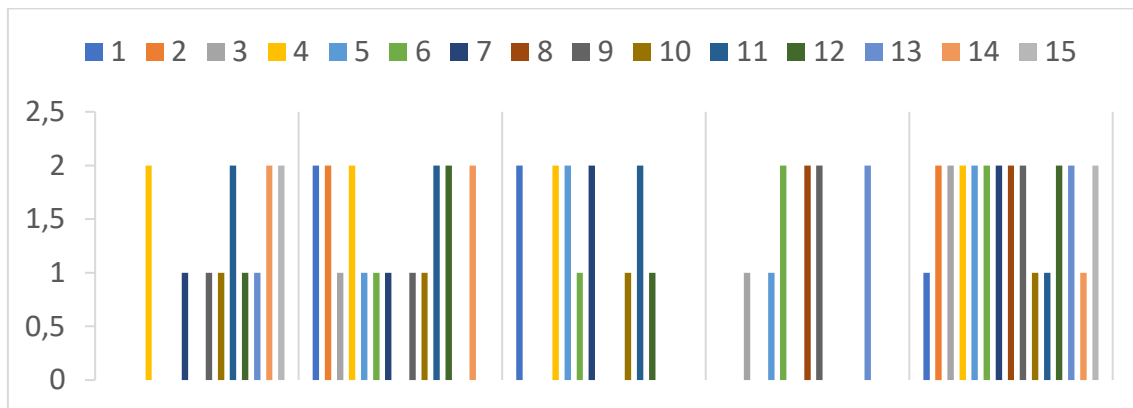
Fashion experts who participated in the research clarified the importance of discovers fashion trends, which allowed us to compare further results to a found standard. Gathered through interviews quality data covers a variety of questions, however, we aimed to investigate the process, rather than the context.

Moving to the results of a control group, we discovered through journals analysis, that participants tend to value several concepts dedicated to life and fashion:

- Lower significance of fashion
- Preference to the online activities
- Less is more: recycling, thrifting, quality over everything else
- Being loyal to approved brands and places, as well as, friends and family
- Self-care: priority to health, body positivity, working out, clean eating, self-acceptance
- New norms: live for yourself and dress for yourself, simplicity
- Femininity (breathy clothing, nude colours, romance)

We need to point out that the freedom of the journaling format created a gap between participants: some used this research to their advantage and fully cooperated, while some filled in the journal briefly. Thus, the difference in “filling level” corresponds with individual results. Correspondently, those who filled in a journal shortly rated day satisfaction the lowest and had a higher significance of metacognitive beliefs (see Fig.1). To illustrate, one of the participants rated the day 5,6 on average with 8,64 variance and had several metacognitive beliefs (positive beliefs about worry, uncontrollability/danger belief, cognitive confidence, cognitive self-consciousness). Using A. Wells theory of metacognitive beliefs, we can state, that this participant worries, feels anxious, catastrophizes the obstacles, experiences uncontrollability and has decreased cognitive functioning. Also, analysis of this participant’s journal shows that after finishing certain tasks (participant was asked to create a stylish look) dedicated to fashion knowledge, a participant was happy with the finished result and self-rated it at the highest mark, but later on, there was an opportunity to save or modify the look which participant rejected. As a next step, we asked (one of the written questions) participant to rate the “created look” afterwards, which led to doubts, lower second self-rating of the task and a request to change it. Therefore, this participant showed a change in confidence due to the assessment of an answer. This example is taken to illustrate the inner and outer behaviour of participants who gained several metacognitive beliefs and overall were less satisfied daily (with their life, as well as, with the research). The same algorithm happened with several participants on various questions about fashion knowledge.

Figure 1. Correspondence of metacognitive beliefs for each participant.



After individual work with journals, we brought participants together and asked them to create collages for the same topic “Relevant state of fashion”. Participants were allocated in mini-groups of 3 to 4 with naturally occurred roles of creators and analysts. Coincidentally, the participant from the previous example took an analyst role, which consisted of monitoring actions and ideas of creators and summing a discussion in the group. Analysts of mini-groups were asked to make a report afterwards with an analysis of their group's collages and all groups’ artworks to give an overview of relevant fashion trends. Accordingly, a participant from the example did an amazing job, made a detailed report with substantial details of team members opinions and arguments to prove what and why is relevant in fashion.

The difference in poor individual work (due to metacognitive beliefs, lack of knowledge or else) and in the report after group work we identify as one’s social metacognition. The participant felt not enough knowledge, nor confidence to rate “created look” successfully, therefore, had a negative judgement on own work known as metacognitive accuracy. In teamwork, participant used metacognitive knowledge about oneself (I’m not knowledgeable in fashion) and decided to be the analyst in a creative group task. By deciding on this role participant demonstrated self-regulation (I’ll better watch and learn, rather than fail as a creator). The decision of an adequate role gave an ability to learn and perform a successful report.

The process of listening to teammates opinions helped to gain knowledge, just like, observing and monitoring each other as a team. Natural role occurring created a situation where each group member showcased personal strength and highlighted individual metacognitions. Together they divided responsibilities: who has better knowledge in fashion, who is better at finding relevant pictures in magazines, etc. Collectively they rejected irrelevant information and reassembled the collage. They did it in a form of a discussion, where they shared ideas and expanded individual opinions on spheres of disagreement (which was protocoled by the analyst). By working as a team each group member exhibited individual strength and made individual metacognitions visible, thus, others used this knowledge to impact collective work and made easier and better decisions. Some participants showed better knowledge of clothing, others in concepts, some were not interested in the topic overall, but in the end, all of them completed the task successfully.

Social metacognition is the process of monitoring each other’s knowledge, sustaining emotional wellbeing, using one’s strengths as a visible enhancer to individual metacognition led to each group member’s increased experience, which led to a peaceful, confident and justified decision on what is relevant in fashion. Therefore, as a result of collective work and decision-making a list of valued fashion and life concepts was broadened in comparison to individual work and consisted of:

- Self-worth: self-care and health routines
- Easy-living: second life of things, being “green” and caring towards each other and nature
- Financial stability: economics and role of being able to work and earn (online, for instance)
- Lower significance of what is considered “worthy”
- Physical appearance (feminine, cosy, nostalgic)

5. Conclusion

Individual work leads to benefits thoroughly from individual metacognition, which affects accuracy and confidence in the process of decision making. If an individual has metacognitive beliefs, such as positive beliefs about danger, uncontrollability/danger belief, cognitive confidence, cognitive self-consciousness, therefore, an individual is affected by it and lacks abilities to perform at one’s own best. Meaning, individual considers himself as not knowledgeable or not competent. Relying on personal

experience, there are ways to use individual metacognitive knowledge and solve problems, manage the situation or make a decision.

However, the limits of one individual provide a plethora of extra resources in a form of others. In the process of decision making what fashion trends are relevant, collective agreement leads to the accuracy of decision despite lack of knowledge or confidence, which was shown individually in journaling at first. Teamwork provides additional resources as other team members. Spreading tasks between the group increases the visibility of others metacognition, thus, increases the overall significance of work due to the contribution of individual metacognitions. Social metacognitions help to distribute responsibilities among group members according to individual metacognitions. Due to social metacognitions, participants who lack knowledge or confidence to make an individual decision solve their difficulties in a social situation, where limitations of individual metacognitions are mitigated with social metacognitions.

References

- Bahrami, B., Pescetelli, N., & Rees, G. (2016). The Perceptual and Social Components of Metacognition. *Journal of Experimental Psychology*, 145(8), 949-965.
- Carlson, E. (2016). Meta-Accuracy and Relationship Quality: Weighing the Costs and Benefits of Knowing What People Really Think About You. *Journal of Personality & Social Psychology*, 111(2), 250-264.
- Chiu, M. (2009). Social metacognition in groups: Benefits, difficulties, learning, and teaching. *Journal of Education Research*, 3(4), 1-19.
- Chiu, M., & Wing Kuo, S. (2009). From Metacognition to Social Metacognition: Similarities, Differences, And Learning. *Journal of Education Research*, 1-19.
- Dillenbourg, P., & Traum, D. (2006). Sharing solutions: Persistence and grounding in multimodal collaborative problem solving. *Journal of the Learning Sciences*, 15(1), 121-151.
- Dweck, C. (1990). Self-theories and goals: Their role in motivation, personality, and development. *Current theory and research in motivation*, 199-235.
- Folomeeva, T., & Klimochkina, E. (2019). Features of Metacognition and Perception of Fashion Trends Among Youth. *The European Proceedings of Social & Behavioural Sciences*, 10.15405.
- Friston K., F. C. (2015). A Duet for one. *Consciousness and Cognition*, 390-405.
- Frith, C. (2012). The role of metacognition in human social interactions. *The Royal Society Publishing*, 367(1599), <https://doi.org/10.1098/rstb.2012.0123>.
- Gajdos, T., Regner, I., & Huguet, P. (2019). Does social context impact metacognition? Evidence from stereotype threat in a visual search task. *PLOS*, 10.1371/journal.pone.0215050.
- Hacker, D., & Bol, L. (2004). Metacognitive theory: Considering the social-cognitive influences. In D. M. Etten. Greenwich, Connecticut: Information Age Publishing, Inc.
- Hurme, T. R., Palonen, T. and J rvel , S. (2006). Metacognition in joint discussions: An analysis of the patterns of interaction and the metacognitive content of the networked discussions in mathematics. *Metacognition Learning*, 1, 181-200.
- Schraw, G., & Dennison, R. (1994). Assessing Metacognitive Awareness. *Contemporary educational psychology*, 19, 460-475.
- Sirota, N., Moskovchenko, D., Yaltonsky, V., & Yaltonskaya, A. (2018). Approbation of the Short Version Questionnaire Metacognitive Belief in Russian-Speaking Population. *Psychology. Journal of the Higher School of Economics*, 15(2), 307-325.
- Wells, A. (2000). Emotional Disorders and Metacognition: Innovative Cognitive Therapy. UK: Wiley: Chichester.
- Wolfe, W. (2018). Poor metacognitive awareness of belief change. *Quarterly Journal of Experimental Psychology*, 71(9), 1898-1910.

PSYCHOMETRIC ANALYSIS OF THE SLOVAK VERSION OF THE POSTPARTUM BONDING QUESTIONNAIRE FOR NON-CLINICAL SAMPLE

Katarína Greškovičová¹, Barbora Zdechovanová², & Rebeka Farkašová²

*¹Institute of Applied Psychology, Faculty of Social and Economic Sciences,
Comenius University in Bratislava (Slovakia)*

²Faculty of psychology, Paneuropean University (Slovakia)

Abstract

Bonding represents an emotional tie that one experiences towards one's own child. There are several instruments to measure the level and quality of bonding. Among them we chose and translated the Postpartum Bonding Questionnaire by Brockington et al. (2001) into Slovak language. The aim of this study was to analyse its psychometric qualities. Our non-clinical sample consisted of women (N= 372) 18 and 44 years (M= 29.74; SD= 5.25) who recently gave birth in Slovakian hospitals. Data collection was carried out from September 2015 until March 2018. Participants filled the Postpartum bonding questionnaire by Brockington et al. (2001) and some of them other three tools: Edinburgh Postnatal Depression Scale by Cox, Holgen and Sagovsky (1987), Depression Anxiety Stress scale-42 (Lovibond & Lovibond, 1995) and Parental Stress Scale (Berry & Jones, 1995). The distributions of the items of the bonding were mostly skewed and leptokurtic. Internal consistency is high for the overall Lack of Bonding ($\alpha = .897$) and varies in factors- $\alpha = .820$ for Impaired Bonding, $\alpha = .779$ for Rejection and Anger, $\alpha = .506$ for Anxiety about Care and $\alpha = .321$ for Risk of Abuse. In order to prove convergent validity, we correlated overall Lack of Bonding with depression (Edinburgh Postnatal Depression Scale, $r_s = .251$, Depression Anxiety Stress scale-42 depression $r_s = .404$; $n = 79$), stress and anxiety (Depression Anxiety Stress scale-42, stress $r_s = .392$; anxiety $r_s = .496$; $n = 79$) and parental stress (Parental Stress Scale score; $r_s = .674$, $n = 99$). We did not confirm original factor structure via confirmatory factor analysis using principal axis factoring with oblimin rotation. Then, we used principal component analysis with varimax rotation method to reduce the items. 6 components were extracted. Component 1 was comprised of 15 items that explained 35,6 % of the variance with loadings from .306 to .733. Hence, we proposed new item-structure for the Slovak PBQ. We concluded that the Slovak version of the PBQ proved to have good overall reliability. We found evidences for the convergent validity with parental stress, anxiety, stress, and partly depression, because there were two different results. We also suggest creating a shorter version based on the analysis. Among limits we can see tools used for validity evidence and sample without participants for clinical population. We advise to use the Slovak version of the Postpartum Bonding Questionnaire as a tool to measure bonding in a research context and to use overall summary index (Lack of Bonding) instead of factors.

Keywords: *Bonding, postpartum bonding questionnaire, psychometric analysis, women.*

1. Introduction

Mother-infant relationship or bonding is difficult to examine and ambiguity of the concept results in various definitions and tools to measure it (Perrelli et al., 2014; van Bussel et al., 2010). Greškovičová (2016) specify postpartum bonding as an emotional bond that is a result of two aspects of parental care system: external and internal. External aspect of bonding represented by behavioral schemas (e.g. holding, carrying, rocking, feeding) is visible and subject to observation, while internal aspect subsumes an affective (emotions of a caregiver towards a child) and cognitive compound (attitudes of a caregiver towards a child and mental representations of these interactions). Observational or other qualitative methods to investigate postpartum bonding are time-consuming, skills and ability demanding. Hence, self-reported tools seem much more feasible while saving time and personnel sources. They study internal aspect of the bonding (Greškovičová, 2016) and aim to catch not only the quantity but also the quality of the relationship. The questions or items in the bonding questionnaires relate mainly to the

mother's own perception of her emotional and cognitive responses to the infant (Brockington et al., 2001; Taylor et al., 2005; Wittkowski et al., 2007).

Since in Slovakia there is still absence of tools to tap mother-infant relationship, we translated the Postpartum Bonding Questionnaire created by psychiatrist Brockington and his team (Brockington et al., 2001) several years ago (Greškovičová, 2016). It has been mostly and widely used tool and has been translated into many different languages (Perrelli et al., 2014). It serves to detect early indications of maternal-child disorders, is used in the first weeks after birth and its design and items formulation fall into the internal aspect of the bonding as stated by Greškovičová (2016). Originally the PBQ items were selected by principal component analysis from a pool of 84 items identified by professionals in the clinical field. Both four components and summary index (lack of bonding) are used in clinical and research practice. Whilst this overall summary index appears to be valid and reliable, later studies and cross-cultural validations have shown other factorial structure (one, three, four, but different to the original one) (Ghahremani et al., 2019). With regard to inconsistent and conflicting results of the factor solution of the PBQ and absence of a proper instrument in Slovakia, it motivated us to scrutinize psychometric properties of the tool. Therefore, we posed following questions:

Q1: Is the Slovak PBQ reliable?

Q2: What are evidences of validity for the Slovak PBQ?

Q3: What is the factor solution for the Slovak PBQ?

2. Methods

Our sample consisted of 372 mothers, ages ranging from 18 – 44 ($M = 29.7$, $SD = 5.26$). Both primiparous (56.7%) and multiparous women were included. They gave birth in Slovakian hospitals. Data collection was carried out from September 2015 until March 2018. All participants completed the Postpartum bonding questionnaire and some of them other three tools.

The Postpartum Bonding Questionnaire (PBQ) (Brockington et al. 2001) is a 25-item screening instrument used to detect problems in bonding. Participants indicate agreement with the items on a six-point scale (0 = Not at all; 6 = Always) in four factors- Impaired Bonding, Rejection and Anger, Anxiety about care and Risk of Abuse. Summary indices are computed for each factor as well as for whole questionnaire (Lack of Bonding). Low scores denote good bonding. The PBQ was translated by one of us (KG, psychologist and translator into/to English) and Eva Szobiová (psychologist). Hence, we achieved consensus and administered items as a part of dissertation project. Since then, we have been collecting data to perform factorial analysis.

The Edinburgh Postnatal Depression Scale (EPDS, Cox et al., 1987) was developed to screen depressive symptoms in postpartum mothers. It is a simple self-assessment tool consisting of 10 items scored on a 4-point scale. High scores indicate more depressive symptoms.

The Depression, Anxiety, and Stress Scale (DASS, Lovibond & Lovibond, 1995) consists of 42 items, divided into subscales of stress, anxiety, and depression, with a 4-point Likert scale. The items focus on physiological states as well as emotional experience. High scores show more symptoms of stress, anxiety, and depression.

18-item Parental stress scale (PSS, Berry & Jones, 1995) is used to measure the level of stress in the non-clinical population including parental rewards, parental stressors, lack of control, and parental satisfaction. Items are evaluated on a 5-point Likert scale. Low scores indicate low level of parental stress.

3. Results

3.1. Descriptive statistics for PBQ items

In table 1 we present descriptive statistics for the PBQ items. Most of the items received low scores and were positively skewed and leptokurtic. Extreme points on the 5-point Likert scale are the most frequent modes except modes in three items. The internal consistency of all factors was assessed using Cronbach's alpha. Internal consistency is high for Lack of Bonding ($\alpha = .897$) and varies in factors- $\alpha = .820$ for Impaired Bonding, $\alpha = .779$ for Rejection and Anger, $\alpha = .506$ for Anxiety about Care and $\alpha = .321$ for Risk of Abuse.

3.2. Confirmatory factor analysis (CFA)

Since in our previous research we found correlations among factors, we chose to perform confirmatory factor analysis (table 1). Both Kaiser-Meyer-Olkin measure of sampling adequacy (KMO .909) and Bartlett's test of sphericity ($p < .001$) were very good. 33.78% of the variance is explained by factor 1 (13 items), 7.98% by factor 2 (8 items), 4.04% by factor 3 (5 items), and 2.40% by

factor 4 (2 items). Three items did not load on any factor and 6 items loaded on more than 1 factor. Eigenvalue of the first factor was at least 4-times greater than of the others. In table 2 we can see that the factors are moderately correlated, either in a positive or negative way.

Table 1. Item descriptive statistics, pattern matrix of CFA and rotated component matrix of PCA, source: authors.

| N= 372 | | | | | Confirmatory factor analysis | | | | Principal component analysis | | | | | |
|--------|------|-------|--------|---------|------------------------------|-------------|--------------|-------------|------------------------------|------|------|------|------|------|
| Items | M | SD | S | K | F1 | F2 | F3 | F4 | C1 | C2 | C3 | C4 | C5 | C6 |
| PBQ1 | .39 | .731 | 2.374 | 6.698 | .662 | | | | .717 | | | | | |
| PBQ2 | 4.45 | .863 | -2.009 | 5.202 | .437 | .321 | | | .567 | .488 | | | | |
| PBQ3 | 4.58 | .802 | -2.283 | 6.011 | .539 | | | | .695 | | | | | |
| PBQ4 | .53 | .882 | 2.027 | 4.726 | .399 | | | | .306 | .339 | | | .413 | |
| PBQ5 | 4.91 | .465 | -6.958 | 56.244 | .601 | | | | .553 | | | | .430 | |
| PBQ6 | 4.75 | .931 | -4.194 | 17.361 | | | | | .407 | | | | | .347 |
| PBQ7 | 4.28 | .951 | -1.390 | 1.815 | | .825 | | | | .850 | | | | |
| PBQ8 | .12 | .505 | 5.492 | 35.919 | .738 | | | | .642 | | .322 | | | |
| PBQ9 | .09 | .438 | 5.647 | 32.516 | .882 | | | | .733 | | .336 | | | |
| PBQ10 | 4.30 | .890 | -1.268 | 1.729 | | .888 | | | | .870 | | | | |
| PBQ11 | .49 | .816 | 2.095 | 5.277 | .381 | .427 | | | .400 | .492 | .414 | | | |
| PBQ12 | 3.60 | .886 | -.801 | 1.124 | | | | .631 | | | | .782 | | |
| PBQ13 | 4.40 | .936 | -1.955 | 4.461 | .482 | .310 | | | .548 | .484 | | .302 | | |
| PBQ14 | 4.38 | .786 | -1.108 | .897 | | .795 | | | | .860 | | | | |
| PBQ15 | 4.95 | .418 | -9.901 | 108.92 | | | -.708 | | | | .813 | | | |
| PBQ16 | .19 | .646 | 4.806 | 27.596 | | | -.490 | | | | .706 | | | |
| PBQ17 | 4.94 | .318 | -5.880 | 37.784 | .452 | | -.391 | | .493 | | .531 | | | |
| PBQ18 | 4.95 | .348 | -9.692 | 118.187 | | | | | | | | | | .825 |
| PBQ19 | 4.58 | .732 | -1.860 | 3.517 | .357 | .352 | | | .449 | .520 | | | | |
| PBQ20 | 4.58 | 1.260 | -3.028 | 7.783 | | | | | | | | | .805 | |
| PBQ21 | 4.76 | .587 | -3.036 | 11.296 | | .454 | -.528 | | | .576 | .554 | | | |
| PBQ22 | 1.03 | 1.135 | 1.439 | 2.217 | .358 | | | | .419 | | .390 | .371 | | |
| PBQ23 | 4.88 | .431 | -4.513 | 25.117 | .551 | | | | .609 | | | | | |
| PBQ24 | 4.87 | .557 | -4.641 | 22.451 | | | -.574 | | .393 | | .626 | | | |
| PBQ25 | 1.47 | 1.187 | .721 | -.002 | | | | .568 | | | | .787 | | |

S- Skewness; K-Kurtosis; SD- standard deviation, M- mean, SE- standard error of mean, F-factor, C- component, *Factor analysis-Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization. Rotation converged in 11 iterations. Principal component analysis- Rotated component matrix, Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 7 iterations.*

Table 2. Factor correlations matrix in confirmatory factor analysis, source: authors.

| Factor | 1 | 2 | 3 | 4 |
|--------|-------|-------|-------|-------|
| 1 | 1.000 | | | |
| 2 | .320 | 1.000 | | |
| 3 | -.451 | -.230 | 1.000 | |
| 4 | .304 | .428 | -.170 | 1.000 |

3.3. Principal component analysis (PCA)

Given that the CFA did not suggest a good comparative fit with the previous factorial solution of the PBQ, we decided to perform PCA with varimax rotation to have the components independent (table 1). 6 components were extracted. Component 1 comprises 15 items that explained 35,58 % of the variance with factor loadings from .306 up to .733. The component 1 was clearly dominant, with an eigenvalue more than at least four times greater than the eigenvalues of the other five components. 2nd component explains 9.42% of the variance, 3rd component 5.97%, 4th component 4.65%, 5th component 4.39%, and 6th component 4.03%.

3.4. New suggestions

One of the solutions would be to keep one-factor solution and choose the best factor from CFA analysis. Factor 1 explains most of the variance (33.78%) compared to other factors. It comprises 13 items (see table 4) and we could name this factor Distance. The internal consistency is high (α .884).

We could also sort and manipulated with the items according to their wording and choose best items for each factor from PAF (bolded factor loadings in Table 2). Factor 1 thus comprises 12 items (PBQ1, PBQ2, PBQ3, PBQ4, PBQ5, PBQ8, PBQ9, PBQ11, PBQ13, PBQ17, PBQ22, PBQ23) with α = .875 and we named it Distance and Regret. Factor 2 includes 5 items (PBQ7, PBQ10, PBQ14, PBQ19, PBQ21; α = .862) and is characterized as Anger. Factor 3 describes feeling of Dislike and 4 items

(PBQ15, PBQ16, PBQ21, PBQ24) are included ($\alpha = .783$). The last factor 4 Uneasiness consists of 2 items (I PBQ12, PBQ25) with $\alpha = .680$. The items ($n=22$) could be counted up since the internal consistency is high ($\alpha = .912$). Factors correlation coefficient varies from .210 up to .577, all statistically significant. Correlation of Uneasiness factor with Dislike was small, with Anger moderate and with other two strong.

Another solution is to keep the first component from PCA that consists of 15 items with explanative power of variance (35,58 %). This first component is the same as the first factor from CFA, but two items are added: PBQ6 (*The baby doesn't seem to be mine.*) and PBQ24 (*I feel like hurting my baby.*) We could name this component Distance and Regret as well. The internal consistency is high ($\alpha = .880$).

3.5. Evidence for convergent validity

Since the original factorial solution was not confirmed, we carried out correlations with summary index (Lack of Bonding) of the PBQ. We found weak and moderate relationship with depression (Edinburgh Postnatal Depression Scale, $r_s = .251$; Depression Anxiety Stress scale-42 depression $r_s = .404$; $n=79$), moderate with stress and anxiety (Depression Anxiety Stress scale-42, stress $r_s = .392$; anxiety $r_s = .496$; $n=79$) and strong with parental stress (Parental Stress Scale score; $r_s = .674$, $n=99$).

4. Discussion

The Slovak version of the Postpartum Bonding Questionnaire proved to have good overall reliability, but Cronbach α was low for two factors (Anxiety about care and Risk of abuse). Most of the items received low scores and were positively skewed and leptokurtic that has been confirmed in a general non-clinical sample in previous research (Greškovičová et al., 2018; Greškovičová & Szobiová, 2016; Ohashi et al., 2016). The factor structure of the PBQ was examined using confirmatory factor analysis with principal axis method with oblimine rotation. We did not extract the original 4-factor solution of the PBQ which seem to be a general problem (Ghahremani et al., 2019; Reck et al., 2006; Wittkowski et al., 2010) could be associated with our non-clinical population and their positively skewed scores which happens in other studies as well (Ohashi et al., 2016). Secondly, Ohashi et al (2016) emphasizes that Brockington et al. (2001) underwent PCA which yields different results than CFA and, consequently, some items load on more than one factor which was also our case (6 items).

Our results instead suggest that the PBQ could have a 1-factor solution. Factor 1 explains most of the variance (33.78%) compared to other factors. It comprises 13 items and could be named as Distance and Regret because it deals with women's feelings toward her maternal role plus physical and emotional distance from the baby. The internal consistency is high ($\alpha = .884$). Very similar result was provided by PCA that we used to minimize the number of items and to produce a general factor with largest possible variance. Both factor 1 and component 1 explained more than 30% of variance and they differed just in two items (added in component 1) and their eigenvalue was at least 4-times higher than the rest of the factors/components. This suggest that there is one strong general factor underlying the PBQ.

We found evidences for the convergent validity of the lack of bonding in PBQ with parental stress (strong relationship), anxiety and stress (moderate relationship), and partly depression (small to moderate strength of the relationships).

Among limits we can see tools used for validity evidence. Only EPDS is usually used to provide the evidence and it is common to use other instrument measuring bonding. Since in Slovakia there is a gap in these instruments, we had to choose other ones. There is also a room to find evidence with other concepts, such as psychological types (Lisá, 2017) or traits (Lisá & Kališ, 2019).

Sample without participants for clinical population could be another drawback. Some of the research is carried out with or without clinical sample. However, we must keep in mind that this instrument is originally designed as a screening instrument, so we feel a strong urge to perform these analyses in a clinical sample as well. Furthermore, we did not provide other reliability confirmation, such as consistency over time or other evidences of validity.

Taking these shortcomings into consideration, we advise to use the Slovak version of the PBQ as a tool to measure bonding in a research context and to use overall summary index (composite score) instead of original factorial solution. Women with lack of or lower intensity of bonding represent a risk group and it is also important to examine factor solution in different samples. Still, process of cross-cultural tools to measure bonding demonstrates the importance of evaluations of conceptual, item, semantic and operational equivalence. We see that lack of bonding is not the same as sufficiency of bonding and we should therefore have more tools to tap the "positive bonding".

Acknowledgments

BZ and RF organized the data collection. KG contributed to the theory development, design, statistical analyses, and writing of the paper.

References

- Berry, J. O., & Jones, W. H. (1995). The Parental Stress Scale: Initial Psychometric Evidence. *Journal of Social and Personal Relationships*, *12*(3), 463–472. <https://doi.org/10.1177/0265407595123009>
- Brockington, I. F., Oates, J., George, S., Turner, D., Vostanis, P., Sullivan, M., Loh, C., & Murdoch, C. (2001). A screening questionnaire for mother-infant bonding disorders. *Archives of Women's Mental Health*, *3*(4), 133–140. <https://doi.org/10.1007/s007370170010>
- Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. *The British Journal of Psychiatry: The Journal of Mental Science*, *150*, 782–786. <https://doi.org/10.1192/bjp.150.6.782>
- Garcia-Esteve, L., Torres, A., Lasheras, G., Palacios-Hernández, B., Farré-Sender, B., Subir??, S., Vald??s, M., & Brockington, I. F. (2016). Assessment of psychometric properties of the Postpartum Bonding Questionnaire (PBQ) in Spanish mothers. *Archives of Women's Mental Health*, *19*(2), Article 2. <https://doi.org/10.1007/s00737-015-0589-x>
- Ghahremani, S., Arian, H., Ghahremani, S., Rakhshanzadeh, F., Rahimi, R., & Ghazanfarpour, M. (2019). Factorial Structures of Postpartum Bonding Questionnaire (PBQ): A Systematic Review. *International Journal of Pediatrics*, *7*(4). <https://doi.org/10.22038/ijp.2018.36262.3164>
- Greškovičová, K. (2016). *Bonding a attachment v kontexte rodičovstva* [Dissertation thesis, Paneuropean University]. <https://opac.crzp.sk/?fn=detailBiblioForm&sid=08B0A201CAF64A608886C6D1F450>
- Greškovičová, K., & Szobiová, E. (2016). Bonding of women and men toward their infants. In L. Pitel (Ed.), *Sociálne procesy a osobnosť 2016* (pp. 126–133). Ústav experimentálnej psychológie, Centrum spoločenských a psychologických vied SAV.
- Greškovičová, K., Szobiová, E., & Zdechovanová, B. (2018). Bonding toward infants in women and men- individual and pair analysis. In L. Sabová (Ed.), *PSYCHOLOGICA XLVII* (pp. 39–46). Stimul.
- Lisá, E. (2017). Analysis of personality traits among psychological types. *Ad Alta*, *7*(2), 118–122.
- Lisá, E., & Kališ, M. (2019). The psychometric characteristics of the Hexaco-100 questionnaire used in the selection and non-selection situation. *Work and Organizational Psychology 2019: Proceedings of the 18th International Conference*, 144–153.
- Lovibond, S. H., & Lovibond, P. F. (1995). Depression, Anxiety and Stress Scale-21 items (DASS-21)—Scale—English. *Manual for the Depression Anxiety & Stress Scales*, 1–2.
- Ohashi, Y., Kitamura, T., Sakanashi, K., & Tanaka, T. (2016). Postpartum Bonding Disorder: Factor Structure, Validity, Reliability and a Model Comparison of the Postnatal Bonding Questionnaire in Japanese Mothers of Infants. *Healthcare*, *4*(3), 50. <https://doi.org/10.3390/healthcare4030050>
- Perrelli, J. G. A., Zambaldi, C. F., Cantilino, A., & Sougey, E. B. (2014). Mother-child bonding assessment tools* *Study conducted at Universidade Federal de Pernambuco, Recife, PE, Brazil. *Revista Paulista de Pediatria (English Edition)*, *32*(3), 257–265. [https://doi.org/10.1016/S2359-3482\(15\)30020-8](https://doi.org/10.1016/S2359-3482(15)30020-8)
- Reck, C., Klier, C. M., Pabst, K., Stehle, E., Steffenelli, U., Struben, K., & Backenstrass, M. (2006). The German version of the Postpartum Bonding Instrument: Psychometric properties and association with postpartum depression. *Archives of Women's Mental Health*, *9*(5), 265–271. <https://doi.org/10.1007/s00737-006-0144-x>
- Taylor, A., Atkins, R., Kumar, R., Adams, D., & Glover, V. (2005). A new Mother-to-Infant Bonding Scale: Links with early maternal mood. *Archives of Women's Mental Health*, *8*(1), 45–51. <https://doi.org/10.1007/s00737-005-0074-z>
- van Bussel, J. C. H., Spitz, B., & Demyttenaere, K. (2010). Three self-report questionnaires of the early mother-to-infant bond: Reliability and validity of the Dutch version of the MPAS, PBQ and MIBS. *Archives of Women's Mental Health*, *13*(5), 373–384. <https://doi.org/10.1007/s00737-009-0140-z>
- Wittkowski, A., Wieck, A., & Mann, S. (2007). An evaluation of two bonding questionnaires: A comparison of the Mother-to-Infant Bonding Scale with the Postpartum Bonding Questionnaire in a sample of primiparous mothers. *Archives of Women's Mental Health*, *10*(4), 171–175. <https://doi.org/10.1007/s00737-007-0191-y>
- Wittkowski, A., Williams, J., & Wieck, A. (2010). An examination of the psychometric properties and factor structure of the Post-partum Bonding Questionnaire in a clinical inpatient sample. *British Journal of Clinical Psychology*, *49*(2), 163–172. <https://doi.org/10.1348/014466509X445589>

POLICE OFFICERS' KNOWLEDGE OF, AND ATTITUDES TOWARDS, MENTAL ILLNESS AND THE MENTALLY ILL INDIVIDUALS

Nahal Salimi¹, Bryan Gere², & Sharo Shafaie³

¹*Northern Illinois University (USA)*

²*University of Maryland Eastern Shore (USA)*

³*Southeast Missouri State University (USA)*

Abstract

Police officers are some of the first professionals that might have direct interaction with individuals with mental illnesses. Statistics show that from 2017 to 2020 about 3986 individuals in the United States were fatally shot by police officers (Statista, 2021). These reports indicate that at least 25% and as many as 50% of all fatal shootings involved individuals with untreated severe mental illness. The purpose of this pilot study was to test the effectiveness of a five-day psycho-educational mental health awareness training in enhancing law enforcement officers' knowledge about mental illness, and their perceptions towards mentally ill individuals using a pretest-posttest design. The Community Attitudes Towards the Mentally Ill (CAMI) scale was used to measure participants' four mental health attitudinal domains - authoritarianism, benevolence, social restrictiveness, and community mental health ideology. The results indicate that at the completion of the training there was an increase in participants' confidence about their knowledge of the mentally ill individuals and mental illness conditions. However, the results also indicate a slight decrease in participants' mental illness social restrictiveness sentiment after the completion of the training. Additionally, the results also show a correlation between demographic variables and some of the domains. Implications for practice are discussed.

Keywords: *Police, mental health, attitudes, mentally ill individuals.*

1. Introduction

Police officers are some of the first professionals that might have direct interaction with individuals with mental illnesses. These encounters occur in several contexts and often require police officers to exercise sound judgment and to make critical decision-making under pressure. Cordner (2006) reported that over 90% of police officers on patrol often encounter an individual with a mental illness. Others (Franz & Borum, 2011; Watson et al., 2014) also noted that 7 to 10% percent of all police encounters involve people affected by mental illness. However, many believe that these encounters are often dangerous for both police officers and individuals with mental illness (Kerr, et al., 2010), but more for people with mental illness (Cordner, 2006). According to Frankham (2018), a quarter of the 2000 individuals that were fatally shot and killed by the police between 2015 and 2016 were individuals with mental illness. Recent data on police-related shootings in 2018 also indicate that a significant portion (25%) of the fatal police 1000 police shootings involved individuals with mental illness (Saleh et al., 2018). Previous research findings showed that police officers' attitudes towards mental illness and mentally ill individuals may determine their interaction with these individuals, as well as the mentally ill individuals' cooperation with the police (Rogers et al., 2019). The prevalence of these incidences has resulted in the growing interest in police officers' attitudes towards the mentally ill as well as interventions targeted at improving negative attitudes.

1.1. Police officers attitude towards persons with mental illness

The results of these previous studies on the attitudes of various professionals towards individuals with mental illness are mixed; whereas, some are positive others are negative (Lavoie et al., 2007; Nauta et al., 2019, Stuber et al., 2014). For instance, both Stuber et al 2014 and Nauta et al., 2019 found that the attitudes of mental health professionals and physicians towards individuals with mental illness to be positive. However, Watson et al. 2014 suggest negative attitudes towards individuals with mental illness among police officers. Callahan (2004) and Lavoie et al. (2007) also found negative attitudes towards inmates with mental illness among correctional officers. Research also shows that compared to the general

population, people with mental disabilities are more likely to encounter the criminal justice system, especially police officers (Hughes et al., 2012; Viljoen et al., 2017). However, even with existing procedures and legislation, the outcomes of the interactions between the mentally ill and police officers have not always been positive. To that end, an important consideration and step that is currently taken to improve the attitudes of police officers towards the mentally ill is the provision of training workshops. For instance, Pinfold et al. (2003) conducted pre and post-research to reduce the psychiatric stigma and discrimination among the police force in the United Kingdom using a total of 109 police officers. A short educational intervention was provided during the training workshops to increase police officers' knowledge of psychiatric disorders. The results of the study showed there was a very small change in participants' attitudes towards people with mental health problems.

1.2. Demographic variables and attitudes towards persons with mental illness

Previous researchers' findings have identified a correlation between disability attitudes and demographic variables such as age, sex, educational level, religious beliefs, academic major, and extent of contact with persons with a disability (Salimi & Crimando 2018, Grames & Leverentz, 2010; Stebnicki & Marini, 2012). The findings, however, have not been reported to be consistent, as the results have depended on the characteristics and disability populations studied. For instance, Yuker and Block (1986) reviewed research findings related to gender and disability attitudes and they found that 44% of the studies reported that women had more favorable attitudes toward people with disabilities than men, whereas only 5% of the studies reported more positive attitudes among men than women. Consequently, more studies need to be completed to assess the relationship between demographic variables and attitudes to persons with disabilities, including those with mental illness. The purpose of this pilot study, therefore, was to test the effectiveness of a five-day psycho-educational Mental Health Awareness training (MHA) in changing police officers' attitudes towards mental illness and the mentally ill individuals' using a pretest-posttest design. The followings were the research questions:

1. Is MHA training effective in improving the law enforcement officers' confidence level about their knowledge of the mentally ill individuals and mental illness conditions?
2. Is MHA training effective in improving the attitude of the law enforcement participants about individuals with mental illness in the following four attitudinal domains of CAMI's scale? (Authoritarianism, Benevolence, Social Restrictiveness, and Community Mental Health Ideology).
3. Is there a correlation between demographic factors and any of those attitudinal domains?
4. Do police officers who have had someone with mental health disability in their immediate family or have had first-hand experience with someone with mental illness show more positive attitudes than those who do not?

2. Methods

2.1. Participants

The participants in this pilot study were 11 law enforcement officers who attended a mental health awareness training in the state of Missouri, USA. The mean age range of the participants was 30-40 years. Of the 11 participants, 6 (54.5%) were male and 5 (45.5%) were female. In terms of race, all of the participants 11(100%) identified themselves as Caucasian. Among the respondents, there were 6 (54.5%) law enforcement officers, 1(9.1%) medical officers, and 4 (36.4%) probation officers. Four (36.4%) of the respondents have a high school diploma, 5(31.3%) have an undergraduate degree and 2(18.2%) have a graduate degree. The majority of the respondents, 9(81.9%) have two or more years of experience.

2.2. Design

A cross-sectional survey design was used for the collection of data in the study. A cross-sectional survey design permits the collection of data from a sample to make inferences about the characteristics as well as the relationship between the characteristics of the population (Gray, et al., 2007). Prior to data collection, discussions were held between one of the researchers, who was a training consultant to a law enforcement agency in a large Midwestern state, to collect data for the study. Following the approval, participants were recruited directly by one of the trainers, who was charged with conducting the Mental Health Awareness (MHA) training which covered topics about various mental illnesses. Participants were voluntarily self-selected to participate in the study. The study also used a one-group pre-test, post-test design. The following research instruments were used:

1. Community Attitudes Towards the Mentally Ill (CAMI; Taylor and Dear, 1970). The CAMI includes 40 statements (5-point scale ranging from 1= strongly agree to 5=strongly disagree)

which are divided into 4 sub-scales: a) Authoritarianism: items for this subscale measure an attitude that people with mental illness are inferior and require custodial care and a coercive approach, b) Benevolence: items for this subscale measures sympathetic view for that experiencing mental illness c) Social Restrictiveness: includes items that view the mentally ill as a threat to society, and d) Community Mental Health Ideology: items that focus on the therapeutic value of community in treating mental illness and acceptance of deinstitutionalizing the mentally ill (Morris et al., 2021). Beyond CAMI measures we also asked respondents one additional question which measured their confidence about their knowledge of the mentally ill individuals and mental illness conditions.

2. A Demographic Questionnaire. The demographic questionnaire gathered information about the law enforcement participants' sex, age, current job, education level, marital status, race, and religion. Three additional questions were also included in the questionnaire. One of the questions asked participants to identify if they have ever had a first-hand experience with an individual with a mental illness, and with the other item, participants were asked if they had any immediate family member with a mental disorder.

3. Mental Health Awareness Training. This five-days long training has been designed according to the national Crisis Intervention Training (CIT) guidelines and is offered by qualified mental health and law enforcement professionals. The CIT is a national evidence-based policing practice focused on reducing the risk of serious injuries during an emergency interaction between an individual who has a history of mental illnesses and police officers (Watson, 2017). The CIT training involves three components; the first component is training for self-selected police officers comprising 40 hours of instruction from community mental health workers, people with mental illness (PMI) and their families and advocates, and police officers familiar with CIT. The second component involves training and special coding for dispatch operators to enable them to recognize community reports with a high probability of PMI involvement and to route CIT officers there preferentially. The third component involves orientation to, a centralized drop-off mental health facility with an automatic acceptance policy to minimize police officer transfer time (Rogers et al., 2019).

3. Data analysis and results

Data from the completed surveys were extracted into the Statistical Package for the Social Sciences (SPSS.27.0) program for analyses. Descriptive statistics such as simple percentages, averages, and correlations were calculated to answer the research questions posed in the study.

The results from the pre-test and post-test mental health awareness intervention training indicate that at the completion of the training there was an increase in participants' confidence level about their knowledge of the mentally ill individuals and mental illness conditions. The results also indicate that the Anti-Sentiments about Authoritarianism increased from 20.02% to 25.48%. Moreover, the Pro-sentiments about Benevolence increased by 27.3 percent, from 49.1% to 76.4%, whereas the Anti-sentiments about benevolence decreased by about 12.5 percent, from 18.1% to 5.6%. Associatively, there was a slight decline in participants' Pro-sentiments about Social Restrictiveness of individuals with mental illnesses, as it declined from 81.9% to 78.26%. Likewise, the Anti-sentiments about Social Restrictiveness slightly dropped from 25.48% to 21.84%. However, the changes in both categories are very small and may not be statistically significant. Further, the participants' Pro-sentiments about "Community Mental Health Ideology" increased by about 11% from 50.96% to 61.88% (Percentages of Strongly Agree & Agree responses). In addition, Anti-sentiments about Community Mental Health Ideology dropped from 9.1% to 5.46%. In terms of demographic variables, results indicated a correlation between age and Anti-Benevolence (.62). Also, gender was negatively (-.68) correlated with social reactivity pro-sentiments. There was no correlation between marital status, education level, race, and religion with any of the domains. Also, having a history of being diagnosed with a mental illness was not correlated with any of the domains. Lastly, there was no correlation between having an immediate family member with a mental disability with any of the domains.

4. Discussions, limitations and future research

Despite the small sample size, the findings suggest that as a result of this training there have been positive changes in the participants' attitude about individuals with mental illness. Moreover, there has been an impressive change in participants' confidence about their knowledge of mentally ill individuals and mental illness conditions. Therefore, it would be beneficial to continue data collection in other training sites and geographical areas to explore this issue. This study presents initial information about the examination of a mental illness awareness intervention. Admittedly, the results may not be generalizable due to several factors. First, we had a very small and homogenous sample (11 participants, all Caucasian, Christians, and mostly married individuals). A more diverse population could have provided different results. Second,

voluntary convenient sampling (participants were largely sampled from individuals that presented for the training) may also limit the generalizability of the results. Lastly, we do not know the extent and types of the participants' contact or experience with individuals with mental illness. Future research is advocated to expand the depth and breadth of our study. For example, our study's sample size is very small and it is devoid of diversity in terms of race, religious beliefs, and marital status. Therefore, it is recommended that for future studies with larger sample size, more demographic variables be tested. In addition, future studies should also focus on ascertaining participants' level of contact with individuals with mental illness besides immediate family members, especially within the community and in the course of law enforcement work.

References

- Callahan, L. (2004). Correctional officer attitudes toward inmates with mental disorders. *International Journal of Forensic Mental Health*, 3(1), 37-54.
- Cordner, G. W. (2006). *People with mental illness*. Washington, DC: US Department of Justice, Office of Community Oriented Policing Services.
- Deutsch, A. (2013). *The mentally ill in America: A history of their care and treatment from colonial times*. Worcestershire, UK: Read Books.
- Frankham, E. (2018). Mental illness affects police fatal shootings. *Contexts*, 17(2), 70-72.
- Franz, S., & Borum, R. (2011). Crisis intervention teams may prevent arrests of people with mental illnesses. *Police practice and research: an international journal*, 12(3), 265-272.
- Grames, M., & Leverentz, C. (2010). Attitudes toward persons with disabilities: A comparison of Chinese and American students. *UW-L Journal of Undergraduate Research*, XIII. Retrieved from <http://www.uwlax.edu/urc/JUR-online/>
- Gray, P.S., Williamson, J. B., Karp, D. A. & Dalphin, J. R. (2007). *The research imagination: An introduction to qualitative and quantitative methods*. New York, NY: Cambridge University Press.
- Hughes, K., Bellis, M. A., Jones, L., Wood, S., Bates, G., Eckley, L., ... & Officer, A. (2012). Prevalence and risk of violence against adults with disabilities: a systematic review and meta-analysis of observational studies. *The Lancet*, 379(9826), 1621-1629.
- Kerr, A. N., Morabito, M., & Watson, A. C. (2010). Police encounters, mental illness, and injury: An exploratory investigation. *Journal of police crisis negotiations*, 10(1-2), 116-132.
- Lavoie Gray, P. S., Williamson, J. B., Karp, D. A., & Dalphin, J. R. (2007). *The research imagination: An introduction to qualitative and quantitative methods*. New York, NY: Cambridge University.
- Morris, R., Scott, P. A., Cocoman, A., Chambers, M., Guise, V., Välimäki, M., & Clinton, G. (2012). Is the Community Attitudes towards the Mentally Ill scale valid for use in the investigation of European nurses' attitudes towards the mentally ill? A confirmatory factor analytic approach. *Journal of Advanced Nursing*, 68(2), 460-470.
- Nauta, K., Boenink, A. D., Wimalaratne, I. K., Menkes, D. B., Mellsop, G., & Broekman, B. F. P. (2019). Attitudes of general hospital consultants towards psychosocial and psychiatric problems in Netherlands. *Psychology, health & medicine*, 24(4), 402-413.
- Pinfold, V., Huxley, P., Thornicroft, G., Farmer, P., Toulmin, H., & Graham, T. (2003). Reducing psychiatric stigma and discrimination. *Social psychiatry and psychiatric epidemiology*, 38(6), 337-344.
- Rogers, M. S., McNiel, D. E., & Binder, R. L. (2019). Effectiveness of police crisis intervention training programs. *The Journal of the American Academy of Psychiatry and the Law*. 47(4), 414-21.
- Saleh, A. Z., Appelbaum, P. S., Liu, X., Stroup, T. S., & Wall, M. (2018). Deaths of people with mental illness during interactions with law enforcement. *International journal of law and psychiatry*, 58, 110-116
- Salimi, N. & Crimando, W. (2020) Multidimensional Attitudes towards Disability among International Students at a Midwestern University in the United States. *Rehabilitation Counselors' and Educators' Journal*, 9 (2), 52-63.
- Statista. (2021, March 5). *Number of people shot to death by the police in the United States from 2017 to 2021, by race* <https://www.statista.com/statistics/585152/people-shot-to-death-by-us-police-by-race>
- Stebnicki, M. A., & Marini, I. (Eds.). (2012). *The psychological and social impact of illness and disability*. New York, NY: Springer.
- Stuber, J. P., Rocha, A., Christian, A., & Link, B. G. (2014). Conceptions of mental illness: Attitudes of mental health professionals and the public. *Psychiatric services*, 65(4), 490-497.
- Taylor, S. M., Dear, M. J., & Hall, G. B. (1979). Attitudes toward the mentally ill and reactions to mental health facilities. *Social Science & Medicine. Part D: Medical Geography*, 13(4), 281-290.

- Viljoen, E., Bornman, J., Wiles, L., & Tönsing, K. M. (2017). Police officer disability sensitivity training: A systematic review. *The Police Journal*, *90*(2), 143-159.
- Watson, A. C., & Wood, J. D. (2017). Everyday police work during mental health encounters: A study of call resolutions in Chicago and their implications for diversion. *Behavioral sciences & the law*, *35*(5-6), 442-455
- Watson, A. C., Swartz, J., Bohrman, C., Kriegel, L. S., & Draine, J. (2014). Understanding how police officers think about mental/emotional disturbance calls. *International journal of law and psychiatry*, *37*(4), 351-358.
- Yuker, H. E., & Block, J. R. (1986). *Research with the attitude toward disabled persons scales (ATDP) 1960 – 1985*. Hempstead, NY: Hofstra University.

THE RELATIONSHIP BETWEEN AUTONOMOUS VERSUS EXTERNAL MOTIVATION AND REGULATORY FOCUS

Marcela Bobková¹, & Ladislav Lovaš²

¹*Institute of Experimental Psychology, Centre of Social and Psychological Sciences, Slovak Academy of Sciences, Bratislava (Slovakia)*

²*Department of Psychology, Faculty of Arts, Pavol Jozef Šafárik University in Košice, Košice (Slovakia)*

Abstract

The objective of the study is to investigate the relationship between different forms of motivation mindsets. The integrative model of motivated behavior (Meyer, Becker, & Vandenberghe, 2004) indicates relations between the forms of motivation identified in the self-determination theory (Deci & Ryan, 1985) and the regulatory focus theory (Higgins, 1997, 1998). A concept of goal regulation proposes relations between autonomous versus external motivation and promotion versus prevention focus. The research involved 288 university students. Participants rated their motivation for three personal goals on scales assessing self-concordance (Sheldon & Elliot, 1999). The regulatory focus was assessed by the Regulatory Focus Questionnaire (RFQ, Higgins et al., 2001). It was found that autonomous motivation was significantly positively related to promotion focus. Furthermore, autonomous motivation predicted promotion focus. Between external motivation and prevention focus a significant relationship was not confirmed. However, external motivation significantly negatively correlated with promotion focus.

Keywords: *Autonomous motivation, external motivation, promotion focus, prevention focus.*

1. Introduction

Behavior is a complex of factors, which explain its character. One of the important ones is motivation. When it comes to setting a goal, we take certain steps to achieve the desired state. Depending on the type of motivation, goal-striving may take on significantly different forms. For example, Higgins et al. (2001) compare two situations of a student who is studying for an exam. In the first one, a student reads not only the study material but also some additional texts. In the second situation, a student reads the study material and keeps reading over and over. We may notice in the first situation that the student is interested in learning additional optional information, in order to make progress and expand his/her knowledge. The student who studies just what is required and makes sure to learn it well probably feels the urge to carry out his/her duties and not fail. Here we illustrated the influence of motivation on the process of goal attainment. Our study's aim is to investigate the relationship between different forms of motivation mindsets. The integrative model of motivated behavior (Meyer, Becker, & Vandenberghe, 2004) presents relations between the forms of motivation identified in the self-determination theory (Deci & Ryan, 1985) and the regulatory focus theory (Higgins, 1997, 1998). What are the relations between motivations defined in these theories? Is there a significant relationship between motivations? Is conceptual integration relevant?

According to the self-determination theory, the extent to which a goal reflects one's own interests and values differentiates the type of motivation. In other words, motivation varies within the autonomy range. More autonomy involves more interest, enjoyment, and congruence while engaging in goal achieving. Autonomous motivation arises in the process of integration of the activity with one's own self. This process may be facilitated by providing a meaningful rationale, acknowledging the individual's perspective and conveying choice rather than control. When the acceptance or internal identification with the activity does not occur, an inner conflict is experienced. External motivation, which follows pressure and demand, is in contrast to autonomous motivation. Autonomous motivation is associated with greater effort, commitment, perseverance, better performance, and other positive consequences. Feelings of anxiety, guilt, or embarrassment indicate external motivation (Deci, Eghrari, Patrick, & Leone, 1994; Deci & Ryan, 2008; Ryan & Deci, 2000; Sheldon & Elliot, 1998; Sheldon & Filak, 2008).

Sheldon and Elliot (1999) use the term self-concordance to define the extent to which one feels autonomy in goal striving. The prevalence of autonomous motivation is captured by the self-concordance index when the result is a positive value. It can be calculated by subtracting external reasons (sum of

extrinsic and introjected motivation) from autonomous reasons (sum intrinsic and identified motivation) (Koestner, Lekes, Chicoine & Powers, 2002). Touré-Tillery and Fishbach (2014) characterize autonomous motivation as process-focused. Positive emotions, satisfaction, greater persistence, and also more time spent solving the task indicate autonomy. External motivation is an outcome-focused motivation, which centers on the desired final state associated with an external reward or benefit. The indicator may be a faster movement toward the goal. Milyavskaya, Inzlicht, Hope, and Koestner (2015) use the terms *want-to* and *have-to* motivation instead of terms autonomous and external motivation.

According to the regulatory focus theory, goal-directed behavior is regulated by two distinct motivational systems, namely promotion and prevention focus. Promotion focus is associated with achieving gains (“+1”), and failure represents non-gains (“0”). Primary concerns are nurturance and growth. This includes, for example, the achievement of ideals, hopes, and aspirations. Exceeding the status and advancing to better states is a strategic mean used to approach the desired end-state. Conversely, prevention focus is associated with achieving non-losses (“0”) and failure represents losses (“-1”). Primary concerns are safety and security. This includes, for example, the achievement of oughts, duties, and obligations. The preferred strategy is to maintain or restore the status quo and prevent falling to worse states (Higgins & Cornwell, 2016).

We may engage in goal activity differently, depending on the promotion or prevention focus of our motivation. Förster, Grant, Idson, and Higgins (2001) found that promotion focus, in the presence of success feedback, increased motivational strength as one moved closer to the goal. When there was failure feedback, the motivational strength near a goal increased with a prevention focus. Success and failure represent positive and negative outcome focused on maintaining (or inducing) a state of eagerness for promotion focus and a state of vigilance for prevention focus. Förster, Higgins, and Bianco (2003) in their studies showed that regulatory focus influenced speed and accuracy for participants in different tasks. As participants move closer to completing a task, those participants with promotion focus have greater speed but accuracy decreases. For participants with a prevention focus, speed decreases and accuracy increases. These results support the notion that motivation may influence quantity/quality differences in performance.

As we can see, there are parallels between concepts of motivation. In the integrative model, Meyer et al. (2004) introduced a concept of goal regulation, which connects self-determination theory with regulatory focus. Motivation, according to the self-determination theory, focuses on the perceived causes of the behavior, that is, why we strive to achieve a goal. To refer to why he/she is pursuing a goal the term perceived locus of causality is used, which reflects the relative strength of internal and external inducements. The regulatory focus theory addresses the purpose of one’s behavior, that is, what we are trying to do while striving to achieve a goal. The term perceived purpose refers to the general purpose in the process of goal attainment. The concept of goal regulation reflects both the reasons for and the purpose of goal-directed activity.

Meyer et al. (2004) propose that the relative salience of internal forces for behavior increases autonomous motivation, and the relative salience of external inducements increases external motivation. Relative salience means that these forces can operate simultaneously and are relatively independent. Goal-directed behavior driven internally should be perceived as the ideal to be achieved. Therefore, a promotion focus should be stronger. Externally driven behavior should be experienced as working towards the oughts that characterize a prevention focus.

2. Objectives

In our study, we aim to examine the relations between autonomous versus external motivation and promotion versus prevention focus. Is there a significant relationship between autonomous motivation and promotion focus? Is there a significant relationship between external motivation and prevention focus? Based on the theoretical background and assumptions by Meyer et al. (2004), we have formulated two hypotheses:

*H*₁: Autonomous motivation statistically significantly predicts promotion focus.

*H*₂: External motivation statistically significantly predicts prevention focus.

3. Method

3.1. Participants and procedure

288 undergraduate students (157 women, 131 men), aged 17-29 ($M = 20.80$, $SD = 1.65$), voluntarily participated in the study. Students were non-randomly selected from the population. First, the respondents described three personal goals. Then they completed 4-item scales assessing self-concordance to each goal (Sheldon & Elliot, 1999). Finally, they completed an 11-item Regulatory Focus Questionnaire (RFQ, Higgins et al., 2001).

3.2. Measures

In the beginning, the following instructions were given: “Goals represent some desired future state that we intend to accomplish. Please, try to briefly describe three goals you are striving to achieve. Write a few sentences for each goal.”

Self-concordance scales (Sheldon & Elliot, 1998)

Participants were asked to rate the reasons for pursuing their goal. The 4 types of reasons for goal pursuing corresponded to a continuum of self-determination ranging from highly external to highly autonomous. Ratings ranged on a scale from 1 (*not at all for this reason*) to 7 (*completely because of this reason*). The items represented external (“striving because somebody else wants you to or because you’ll get something from somebody if you do”), introjected (“striving because you would feel ashamed, guilty, or anxious if you didn’t strive for this”), identified (“striving because you really believe it’s an important goal to have – you endorse it freely and wholeheartedly”), and intrinsic reason (“striving purely because of the fun and enjoyment that striving provides you”). According to Koestner et al. (2002), the self-concordance index is calculated by subtracting the sum of the external and introjected ratings from the sum of the intrinsic and identified ratings.

Regulatory focus questionnaire (RFQ, Higgins et al., 2001)

Participants were asked to answer questions about specific life events in their lives. The items assessed individuals’ subjective histories of success or failure. The 11 items loaded on 2 scales. Ratings ranged on a scale from 1 to 5 (for instance, 1- *never or seldom*, 3- *sometimes*, 5- *very often*). High scores indicate that the individual has been successful in using approach eagerness means or avoidance vigilance means to attain goals. The Promotion scale consists of 6 items (for instance, “Compared to most people, are you typically unable to get what you want out of life?”, “Do you often do well at different things that you try?”). The Prevention scale consists of 5 items (for instance, “How often did you obey rules and regulations that were established by your parents?”, “Not being careful enough has gotten me into trouble at times.”). Internal consistency of the scales was acceptable (Cronbach’s alpha was .65 for the Promotion scale and .76 for the Prevention scale). The regulatory focus predominance can be calculated via the index by subtracting the prevention ratings from the promotion ratings – the resulting positive value indicates the prevalence of the promotion focus and the negative value the prevalence of the prevention focus (Camacho, Higgins, & Luger, 2003).

4. Results

Data were analyzed using the statistical software SPSS 21.0. We calculated the mean score for self-concordance scales across the three goals. Then, we calculated autonomous motivation by summing mean scores of intrinsic and identified reasons, and external motivation by summing mean scores of external and introjected reasons. The relationship among the variables was explored using correlational and regression analyses. Results of the correlational analysis are shown in Table 1.

Table 1. Means, standard deviations and Pearson correlation coefficients among variables.

| Motivation | <i>n</i> | <i>M</i> | <i>SD</i> | 1. | 2. | 3. | 4. |
|---------------|----------|----------|-----------|----|--------|--------|-------|
| 1. autonomous | 285 | 8.52 | 1.58 | – | -.33** | .25** | .04 |
| 2. external | 285 | 4.99 | 1.70 | | – | -.22** | -.01 |
| 3. promotion | 288 | 21.27 | 3.54 | | | – | .17** |
| 4. prevention | 288 | 15.86 | 3.98 | | | | – |

n = sample size, *M* = mean, *SD* = standard deviation, ** $p < .01$

Preliminary analysis shows that autonomous motivation was statistically significantly negatively correlated with external motivation ($r_{xy} = -.33, p < .01$). The promotion focus was statistically significantly positively correlated with prevention focus ($r_{xy} = .17, p < .01$). The calculation of the self-concordance index shows that autonomous motivation dominated ($M = 3.52, SD = 2.68$), and according to the RFQ index calculation, it dominated the promotion focus ($M = 5.41, SD = 4.86$).

The main results show that autonomous motivation was significantly positively correlated with promotion focus ($r_{xy} = .25, p < .01$). External motivation did not correlate with prevention focus ($r_{xy} = -.01, p > .05$), but we found a significant negative relationship with promotion focus ($r_{xy} = -.22, p < .01$). Therefore, we excluded from further analysis the examination of the relationship between external motivation and prevention focus.

To examine whether autonomous motivation predicts promotion focus, we ran a linear regression analysis. After checking the Mahalanobis distance at the critical chi-square value set at $\chi^2_{(1)} = 10.83$, we identified eight cases that exceeded this critical value (max. $\chi^2_{(1)} = 16.91$). We excluded extreme cases to improve the model's ability to estimate the values of the dependent value. Therefore, the subsequent statistical analysis included $n = 277$ cases for autonomous motivation and $n = 280$ cases for promotion focus.

The correlation coefficient between autonomous motivation and the predicted value of the promotion focus was $r_{xy} = .29$ ($p < .0005$). The coefficient (index) of determination had the value $r_{xy}^2 = .08$, which means that through autonomous motivation we can explain 8.2 % of the variability of the promotion focus. Our regression model was statistically significant ($F_{(1)} = 24.57$, $p < .0005$). The standardized regression coefficient had a value of $\beta = .29$ ($b = .85$, $SE = .17$, $t = 4.96$, $p < .0005$, 95 % *CI* [.51, 1.19]). Based on the score in autonomous motivation, it is possible to estimate the score in the scale of promotion focus.

5. Discussion

Meyer et al. (2004) created a concept of goal regulation, which presupposes a connection of autonomous motivation with a promotion focus and a connection of external motivation with a prevention focus. This assumption is based on parallels that exist in these motivation theories. Internally motivated behavior should be perceived as achieving the ideals (stronger promotion focus), and externally motivated behavior should be perceived as achieving the oughts (stronger prevention focus).

As one may expect, a statistically significant negative relationship was found between autonomous and external motivation, but such a result is not always confirmed as reported by Koestner, Otis, Powers, Pelletier, and Gagnon (2008). Based on the result of a statistically significant positive relationship between the promotion and prevention focus we suppose that the relations between types of motivation are more complex.

We confirmed the assumption formulated in hypothesis H_1 that autonomous motivation statistically significantly predicts the promotion focus. Despite the apparent theoretical context, we failed to support all of the assumptions formulated by Meyer et al. (2004). Hypothesis H_2 , that the external motivation will statistically significantly predict prevention focus, was not confirmed. We found that external motivation was statistically significantly negatively correlated with promotion focus. Therefore, the primary consideration should be that an individual with external motivation lacks promotion focus, thus, prevention focus may be process-forming only in a special personal or situational setting. We suppose that the relationship between external motivation and prevention focus could be mediated or moderated by the presence of another important variable such as anxiety (Strauman et al., 2015). Additionally, the amount of autonomy in motivation could also matter.

Future researchers should re-examine the relations between types of motivation, for example, there seems to be no consensus on whether a relation between autonomous and external motivation is negative or positive (Koestner et al., 2008). We also suggest to explore the theory concerning mediation or moderation analysis in order to examine in more detail the relationship between external motivation and prevention focus.

6. Conclusion

The present study aimed to measure the relationship between autonomous versus external motivation and promotion versus prevention focus as proposed by the concept of goal regulation (Meyer et al., 2004). We hypothesized that there is a significant relationship between autonomous motivation and promotion focus; and external motivation and prevention focus. In conclusion, our results showed that autonomous motivation was significantly positively related to promotion focus. Furthermore, autonomous motivation predicted promotion focus. Between external motivation and prevention focus a significant relationship was not confirmed. However, external motivation significantly negatively correlated with promotion focus.

Acknowledgments

This paper was founded by *VEGA 2/0053/21*.

References

- Camacho, C. J., Higgins, E. T., & Luger, L. (2003). Moral value transfer from regulatory fit: What feels right is right and what feels wrong is wrong. *Journal of Personality and Social Psychology, 84*(3), 498-510.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology/Psychologie canadienne, 49*(3), 182-185.
- Deci, E. L., Eghrari, H., Patrick, B. C., & Leone, D. R. (1994). Facilitating internalization: The self-determination theory perspective. *Journal of Personality, 62*(1), 119-142.
- Förster, J., Higgins, E. T., & Bianco, A. T. (2003). Speed/accuracy decisions in task performance: Built-in trade-off or separate strategic concerns? *Organizational Behavior and Human Decision Processes, 90*, 148-164.
- Förster, J., Grant, H., Idson, L. Ch., & Higgins, E. T. (2001). Success/failure feedback, expectancies, and approach/avoidance motivation: How regulatory focus moderates classic relations. *Journal of Experimental Social Psychology, 37*, 253-260.
- Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist, 52*(12), 1280-1300.
- Higgins, E. T. (1998). Promotion and prevention: Regulatory focus as a motivational principle. In Zanna, M. P. (Ed.), *Advances in experimental social psychology* (vol. 30, pp. 1-46). New York: Academic Press.
- Higgins, E. T. et al. (2001). Achievement orientations from subjective histories of success: promotion pride versus prevention pride. *European Journal of Social Psychology, 31*, 3-23.
- Higgins, E. T., & Cornwell, J. F. M. (2016). Securing foundations and advancing frontiers: Prevention and promotion effects on judgment & decision making. *Organizational Behavior and Human Decision Processes, 136*, 56-67.
- Koestner, R., Lekes, N., Chicoine, E., & Powers, T. A. (2002). Attaining personal goals: Self-concordance plus implementation intentions equals success. *Journal of Personality and Social Psychology, 83*(1), 231-244.
- Koestner, R., Otis, N., Powers, T. A., Pelletier, L., & Gagnon, H. (2008). Autonomous motivation, controlled motivation, and goal progress. *Journal of Personality, 76*(5), 1201-1230.
- Meyer, J. P., Becker, T. E., & Vandenberghe, C. (2004). Employee commitment and motivation: A conceptual analysis and integrative model. *Journal of Applied Psychology, 89*(6), 991-1007.
- Milyavskaya, M., Inzlicht, M., Hope, N., & Koestner, R. (2015). Saying “no” to temptation: *Want-to* motivation improves self-regulation by reducing temptation rather than by increasing self-control. *Journal of Personality and Social Psychology, 109*(4), 677-693.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and wellbeing. *American Psychologist, 55*(1), 68-78.
- Sheldon, K. M., & Elliot, A. J. (1999). Goal striving, need satisfaction, and longitudinal well-being: The self-concordance model. *Journal of Personality and Social Psychology, 76*(3), 482-497.
- Sheldon, K. M., & Filak, V. (2008). Manipulating autonomy, competence, and relatedness support in a game-learning context: New evidence that all three needs matter. *British Journal of Social Psychology, 47*(Pt 2), 267-283.
- Sheldon, K.M., & Elliot, A. J. (1998). Not all personal goals are personal: Comparing autonomous and controlled reasons for goals as predictors of effort and attainment. *Personality and Social Psychology Bulletin, 24*(5), 546-557.
- Strauman, T. J. et al. (2015). Microinterventions targeting regulatory focus and regulatory fit selectively reduce dysphoric and anxious mood. *Behaviour Research and Therapy, 72*, 18-29.
- Touré-Tillery, M., & Fishbach, A. (2014). How to measure motivation: A guide for the experimental social psychologist. *Social and Personality Psychology Compass, 8*(7), 328-341.

4 STEPS FOR FIGHTING COVID-RELATED ANXIETY: AN APPLICATION OF VIRTUAL REALITY IN A SMALL COMPANY

Diletta Mora¹, Alessandra Falco², Annamaria Di Sipio², & Alessandro De Carlo¹

¹Lumsa University of Rome (Italy)

²University of Padua (Italy)

Abstract

The need to effectively fight against work-related stress and anxiety, especially due to the COVID-19 outbreak, is crucial. Employees have been faced with two options: adapting to the online environment or risking contagion in public locations—both stressful conditions. Therefore, recovery actions were requested by organizations. To understand recovery processes, refer to the Effort-Recovery Model and the Theory of Conservation of Resources. According to the literature, one should not be excessively exposed to work demands, but, conversely, acquire new resources, including personal ones, to recover those that have been lost. Recovery processes can be initiated through what we call recovery experiences. In recent years, literature and practice have been enriched with contributions about the use of virtual reality (VR) as a tool for combating anxiety disorders, reducing stress, and developing soft skills.

VR proposes a technology that allows people to be immersed in a virtual environment and to interact with different stimuli: it can be used in combination with psychology techniques to improve health and well-being.

A four-step protocol, based on VR, was proposed to a small private company to improve health and performance by learning specific recovery techniques; the protocol aimed to reduce the levels of work-related stress and anxiety, in addition to enhancing personal resources such as resilience, stress management, and self-efficacy.

The participants were the employees and managers of the company (N = 14) who were administered a four-week training protocol comprising four one-hour VR-based sessions. Two sessions (the first and the third) focused on body consciousness, while the other two were psychological techniques (“Virtual Three Good Things” and “Best Possible Self”).

The obtained data showed a decrease in anxiety and stress and an improvement in personal resources. Data also showed greater effectiveness of the VR-based protocol compared to similar interventions conducted without VR. Qualitative observation is relevant as it shows a great emotional impact of the VR-based protocol, as well as a high perception of efficacy.

The limitations of the study are primarily related to the number of participants: further restrictions due to a regional worsening of the pandemic made an intermission necessary. Agreements are already in place with the parent company to encourage more applications.

The objectives and the protocol can be a useful contribution to support employees in managing stress. VR technology can greatly help psychologists to be effective in organizations.

Keywords: *Virtual reality, recovery, stress management, personal resources, organizational well-being.*

1. Introduction

Since December 2019, the world has been facing a new contagious disease, COVID-19. It has created an unprecedented global crisis, requiring drastic changes to living conditions, social life, personal freedom, and economic activity.

Recent studies showed that the impact of the pandemic has been more severe for employees most exposed to the disease and for employees who work in close quarters with other colleagues, while the effects have been significantly less severe for employees who can work remotely (Lee, 2020).

An increase in the level of anxiety associated with COVID-19 as well as general somatic symptoms, in particular gastrointestinal conditions and fatigue, were reported (Beland et al., 2020).

Work and organizational psychology has a long history in private and public companies. Its ultimate goal is to improve the well-being, health, and performance of employees, both individually and as a group. Considering the data provided by the World Health Organization - WHO, which highlight anxiety and stress as an important risk factor for the well-being of employees and the company in general,

it is essential that preventive, training, and intervention measures are adopted at the work process management level (Dal Corso et al., 2020).

Several studies have investigated the negative effects of work-related stress. The results showed that it is a strong predictor of illness, accidents at work, absenteeism, poor performance, high turnover, interpersonal conflicts and, above all, mental disorders, particularly mood disorders. Typical work-related stressors include role ambiguity, workload, and a low level of autonomy. Work-related stress is also reported to be associated with possible biomarkers of stress (Falco et al., 2018).

2. Virtual reality

The new technologies play a growing and central role in our society and are also promising ways of working and caring for employees in the psychological field. A special category is virtual reality (VR).

It consists of a human-computer interface that allows the person to interact dynamically with the virtual environment, making live immersive and interactive experiences in a three-dimensional context.

Between 1992 and 1999 a series of studies was conducted on the use of VR for the treatment of psychological disorders related to phobias and, more generally, to anxiety (Botella et al., 2004). Other studies investigated chemotherapy-derived stress (Schneider et al., 2011), pain reduction (Espinoza et al., 2012), post-traumatic stress disorder (Beidel et al., 2019).

Likewise, in the organizational context, ample scientific evidence demonstrated that new technologies play an important role in achieving individual and collective well-being.

Several studies show that VR can be a valid tool for developing team working and entrepreneurial skills useful within a work team (Kiss et al., 2016) as well as an aid for relaxation techniques (Anderson et al., 2017). VR can improve various activities related to work and organizational psychology. Its effectiveness can be observed in primary (i.e. organizational), secondary (training/educational) and tertiary (individual and clinical support) interventions. The literature highlights that new technologies can be effective tools to reduce anxiety and work-related stress also through relaxation techniques (Anderson et al., 2017). These techniques can influence positive affectivity leading to an increase in positive emotions and a reduction in negative ones (Banõs et al., 2013).

The main theories used to create the protocols are the Effort-Recovery Model (E-R) (Meijman & Mulder, 1998) and the Conservation of Resources Theory (COR) (Hobfoll, 1998). The former focuses mainly on the consequences of workload: high work demands and excessive workload lead to fatigue, a high level of irritability, and a lack of motivation to put forth new efforts. The concepts of energy and fatigue are predominant in the model.

The concept of recovery mainly refers to the reduction or elimination of the symptoms of fatigue and the restoration of optimal energy levels. Restoring ideal energy levels allows to accept new work demands while, if the energy level is not restored, irreversible consequences related to the psychophysical health of the person may follow.

The basic principle of COR, on the other hand, is based on the assumption that people struggle to obtain, preserve, and protect their resources, which can be external, such as economic goals or rewards, or internal, such as their own energies or personal characteristics.

On these solid scientific foundations, an innovative project was designed involving psychologists and psychotherapists in the creation of a path of VR-based psychological support. The goal of the resulting protocol is to provide employees and managers with techniques to reduce the levels of work discomfort, anxiety, and work-related stress, as well as to enhance psychological capital. The protocol was applied right after validation to doctors and nurses working at the COVID-19 Hospital in Schiavonia (near Padua) during the first lockdown in response to the pandemic (April 2020). The results exceeded expectations: the VR-based protocol proved to be efficient in terms of costs and time with just four effective and cutting-edge sessions.

3. The study

Four VR-based sessions were created. The first focused on the practice of diaphragmatic breathing, a type of deep breathing in which the diaphragm is involved. In the first part of the session, a semi-structured interview is conducted and the participant's working environment is investigated. Then, the different aspects related to stress management are explored; finally, diaphragmatic breathing is taught.

The second session took into consideration past successes and achievements. After a brief review of the diaphragmatic breathing technique, the training is devoted to the "Virtual Three Good Things" exercise: the participant is asked to describe a past success while being (virtually) present where it happened. The power of VR helps to relive a moment of success. Remembering positive elements of one's experience helps to tune in to the positive dimension of life. This exercise is useful because it can change one's approach to events: an event is stressful if it is perceived as such.

The third session focused again on the physical aspects of stress and taught a technique called Body Focus, based on mindfulness. This technique allows to regulate emotions and reduce stress; VR helps the participant focus on the present moment, by helping to clear the mind of intrusive thoughts.

Finally, the fourth session focused on future positive thinking. Through the technique called the “Best Possible Self” the participant will be guided along three different virtual environments to stimulate different reflections on the best possible self. The participant will reflect on the goals and the skills needed to achieve them. This will help to put into practice concrete actions to build new skills to achieve goals and results (De Carlo et al., 2020).

The aim of the four training sessions is to achieve the following objectives:

- increasing and improving health and performance in the workplace by teaching and learning specific techniques and strategies that can be used independently by participants even outside the workplace;
- reducing the levels of work-related stress, anxiety, and work discomfort thanks to the use of specific intervention protocols;
- monitoring pre- and post-intervention anxiety levels through VR;
- enhancing individual resources such as resilience, stress management, and self-efficacy, or the individual’s awareness of possessing the skills needed to achieve specific goals and work results.

4. Method

A total of 14 participants took part in the present study, all employees at a small private company. Three intervention groups were identified: five participants were exposed to the anxiety and stress management protocol; five participants received training in the same techniques in non -VR- relevant environments, and the last four participants learned the same techniques without the use of VR. After giving informed consent, participants were administered three self-report questionnaires (STAI-Y1, STAI-Y2, users’ satisfaction questionnaire, and virtual environment perception questionnaire) to investigate anxiety levels and satisfaction in the workplace. Subsequently, the VR-based training began. It consisted of four different sessions, each on a separate day aimed to teach cognitive and behavioral techniques useful to reduce and manage anxiety and stress.

The sessions lasted 50-60 minutes. At the end of each, an explanation of the exercise was given together with instructions for practicing it at home. A form was also provided for monitoring the exercise in order to be able to discuss it in the next session, also addressing the emergence of any problems.

The following overall self-report psychological questionnaires were employed: STAI-Y1 (state anxiety) before and after each session and STAI-Y2 (trait anxiety) before the first session and after the last one. These questionnaires were administered to assess the level of anxiety participants experienced. Both questionnaires comprise 20 items investigating either the level of anxiety experienced by the respondents at the moment of answering (STAY-Y1) or their general level of anxiety (STAY-Y2). A users’ satisfaction questionnaire was administered ad-hoc to investigate the satisfaction of participants after watching the VR video. Finally, a virtual environment perception questionnaire was administered to investigate the participant’s perception of “presence”, defined as the sensation of being in a place — in the case of an immersive VR environment the sensation of being in the virtual world — “you are there” (De Carlo et al., 2020).

5. Data analyses, interpretation, and results

Our finding shows an overall reduction in the level of anxiety measured after the exposure to VR compared to the levels assessed before the experience. In all groups and in all four sessions there was a reduction in scores related to state anxiety. This improvement was greater after exposure to VR than in the control condition (without VR).

Table 1. Pre and post 1st session results – state anxiety.

| Group | Pre | Post |
|------------|------|------|
| VR | 1.58 | 1.18 |
| VR neutral | 1.93 | 1.26 |
| No VR | 1.75 | 1.53 |

Table 2. Pre and post 2nd session results – state anxiety.

| Group | Pre | Post |
|------------|------|------|
| VR | 1.54 | 1.27 |
| VR neutral | 2.07 | 1.68 |
| No VR | 1.87 | 1.65 |

Table 3. Pre and post 3rd session results – state anxiety.

| Group | Pre | Post |
|------------|------|------|
| VR | 1.86 | 1.41 |
| VR neutral | 1.83 | 1.31 |
| No VR | 2.11 | 1.78 |

Table 4. Pre and post 4th session results – state anxiety.

| Group | Pre | Post |
|------------|------|------|
| VR | 1.45 | 1.22 |
| VR neutral | 1.78 | 1.61 |
| No VR | 2.40 | 1.60 |

The results referring to the reduction of trait anxiety are also relevant. Tables 5 and 6 show a variation: our intervention led to a variation of the psychological strain and of trait anxiety.

Table 5. Pre- and post-training results – trait anxiety.

| Group | Pre-training anxiety | Post-training anxiety |
|-------|----------------------|-----------------------|
| VR | 2.48 | 2.31 |

Table 6. Pre- and post-training results – psychological strain.

| Group | Pre-training strain | Post-training strain |
|-------|---------------------|----------------------|
| VR | 1.88 | 1.29 |

Participants' satisfaction scores were high. In VR conditions the level of satisfaction increased in the course of the intervention, with the average score of 9.20 recorded half-way through reaching 9.60 out of 10-point scale at the end of the intervention. Average satisfaction score without VR was 7.70.

As mentioned above, the sense of presence was investigated and the average value reported was 4.50 on a 5-point scale. This data indicates that the participants perceived the virtual environment as real, believing they were part of it and having the sensation of touching the objects and perceiving the stimuli present in the virtual world.

The sense of presence experienced allows the participant to quickly and effectively learn the techniques taught during the four training sessions.

The qualitative data are also interesting. In all four sessions the compliance level is high and constant for the group treated with VR. 100% of the participants implemented one or more techniques learned during the training sessions. Only 13% of the participants in the non-VR group practiced these techniques.

The participants' comments about their experience were significant. They reported benefits related to the treatment, such as a greater sense of relaxation, quietness, well-being, as well as a greater ability to manage tough situations:

"I feel relieved, I felt benefits, I feel relaxed"

"I feel relaxed, almost asleep, very calm. VR is beautiful"

"I feel good, more relaxed, and free-minded"

"It's really good, everyone should do it"

"I really like the feeling: it gets all of the bad thoughts out of my head, they leave together with the blue smoke coming out...nice experience!"

"I felt calmer, I felt like I was doing something nice for my well-being"

As anticipated, all the participants exposed to VR practiced the techniques learned during the training in their daily life and to counteract stressful events. Below are some of their comments:

"I did the breathing at least 4/5 times when I was anxious and it helped!"

"I practiced breathing daily and autonomously in times of anxiety"

"I practiced breathing daily, even on Sunday in the pool"

"I practiced breathing sometimes in the morning, other times in the evening, sometimes even outside the daily exercises"

"It was nice, I feel relaxed. I thought it would make me tense and instead it was nice"

"I feel good, calmer, and free-minded"

"At the beginning of the exercise (body focus) I felt a stone on one foot, a sense of heaviness. In the end, however, I felt like I was in a stream: clear, light and free"

"At the beginning I thought I was relaxed, but at the end of the exercise I discovered a sense of relaxation that I had never felt before"

"I used to feel heavy, but now I feel like I am inside a sphere of water, I feel a sensation of warmth and protection"

As can be seen from the participants' comments, satisfaction was very high and what emerged most is the effectiveness of diaphragmatic breathing, that people reported using daily when feeling anxious. They claimed benefiting from it and feeling lighter and freer. VR was perceived as beautiful and captivating. The training was also perceived by the participants as a good deed toward themselves. One of the advantages of VR is the immersion, in fact the participants were able to live very intense experiences, as if they were inside the virtual environment, which greatly enhanced the beneficial effect of the training.

6. Conclusions

Thanks to VR tools it has been possible to support employees in managing work-related stress, but also the lockdown period which in recent months has drastically changed the way of working. The positive responses received after the four training sessions highlight how important it is to focus on the employees' well-being, which leads to an improvement in both the climate within the organization and performance.

Training led to the enhancement of employees' personal resources, such as resilience, optimism, self-efficacy, which VR does more effectively and faster than traditional methods.

The consistent results obtained proved that the set objectives can be reached and that this VR-based training can help employees to assume new points of view to manage anxiety and stress as well as enhancing individual resources and creating a positive atmosphere in the work environment.

Given the limited number of employees who participated in the study, mainly because of the COVID-19-related restrictions, this work is still an ongoing experience. Nevertheless, the results already obtained suggest that this area of intervention and this protocol have a potential that should be further investigated and replicated in broader contexts.

References

- Anderson, A. P., Mayer, M. D., Fellows, A. M., Cowan, D. R., Hegel, M. T., & Buckey, J. C. (2017). Relaxation with immersive natural scenes presented using virtual reality. *Aerospace medicine and human performance*, 88(6), 520-526.
- Baños, R. M., Espinoza, M., García-Palacios, A., Cervera, J. M., Esquerdo, G., Barrajón, E., & Botella, C. (2013). A positive psychological intervention using virtual reality for patients with advanced cancer in a hospital setting: A pilot study to assess feasibility. *Supportive Care in Cancer*, 21(1), 263-270.
- Beidel, D. C., Frueh, B. C., Neer, S. M., Bowers, C. A., Trachik, B., Uhde, T. W., & Grubaugh, A. (2019). Trauma management therapy with virtual-reality augmented exposure therapy for combat-related PTSD: A randomized controlled trial. *Journal of anxiety disorders*, 61, 64-74.
- Beland, L. P., Brodeur, A., Mikola, D., & Wright, T. (2020). The short-term economic consequences of Covid-19: Occupation tasks and mental health in Canada. *IZA Discussion Papers*, Article 13254.
- Botella, C., Hofmann, S. G., & Moscovitch, D. A. (2004). A self-applied, Internet-based intervention for fear of public speaking. *Journal of clinical psychology*, 60(8), 821-830.
- Dal Corso, L., De Carlo, A., Carluccio, F., Colledani, D., & Falco, A. (2020). Employee burnout and positive dimensions of well-being: A latent workplace spirituality profile analysis. *PloS One*, 15(11), article e0242267. doi:<https://doi.org/10.1371/journal.pone.0242267>
- De Carlo, A., Carluccio, F., Rapisarda, S., Mora, D., & Ometto, I. (2020). Three uses of virtual reality in work and organizational psychology interventions. a dialogue between virtual reality and organizational well-being: relaxation techniques, personal resources, and anxiety/depression treatments. *TPM - Testing, Psychometrics, Methodology in Applied Psychology*, 27(1), 129-143. doi: 10.4473/TPM27.1.8
- De Carlo, A., Rapisarda, S., Mora, D., & Benevene, P. (2020, April). *Your best virtual self-improvement. The use of virtual reality in stress management training* [Paper presentation]. International Psychological Applications Conference and Trends - InPACT 2020.
- Espinoza, M., Baños, R. M., García-Palacios, A., Cervera, J. M., Esquerdo, G., Barrajón, E., & Botella, C. (2012). Promotion of emotional wellbeing in oncology inpatients using VR. *Annual Review of Cybertherapy and Telemedicine*, 53-57.
- Falco, A., Dal Corso, L., Girardi, D., De Carlo, A., & Comar, M. (2018). The moderating role of job resources in the relationship between job demands and Interleukin-6 in an Italian healthcare organization. *Research in Nursing & Health*, 41, 39-48. doi:10.1002/nur.21844
- Hobfoll, S. E. (1998). *Stress, culture, and community: The psychology and physiology of stress*. New York: Plenum Press.
- Kiss, L., Hámornik, B. P., Köles, M., Baranyi, P., Galambos, P., & Persa, G. (2015, October). Training of business skills in virtual reality. In 2015 6th IEEE International Conference on Cognitive Infocommunications (CogInfoCom) (pp. 215-216). IEEE.
- Lee, S. A. (2020). Coronavirus Anxiety Scale: A brief mental health screener for COVID-19 related anxiety. *Death studies*, 44(7), 393-401.
- Meijman, T. F., & Mulder, G. (1998). Psychological aspects of workload. In P. J. D. Drenth, & H. Thierry (a cura di), *Handbook of work and organizational psychology* (Vol. 2: Work psychology, pp. 5-33). Hove, England: Psychology Press.
- Schneider, S. M., Kisby, C. K., & Flint, E. P. (2011). Effect of virtual reality on time perception in patients receiving chemotherapy. *19(4)*, 555-564.

SMART WORKING AND ONLINE PSYCHOLOGICAL SUPPORT DURING THE COVID-19 PANDEMIC: WORK-FAMILY BALANCE, WELL-BEING, AND PERFORMANCE

Sebastiano Rapisarda¹, Elena Ghersetti², Damiano Girardi³, Nicola Alberto De Carlo^{1,3}, & Laura Dal Corso³

¹LUMSA University of Rome (Italy)

²PSIOP, Institute of Psychotherapy and Intervention on Organizational Disease of Padua (Italy)

³University of Padua (Italy)

Abstract

During lockdown and the severe restrictions aimed to combat the COVID-19 pandemic, in Italy great consideration has been given to “smart working” (SW). This term refers to a form of work characterized by the absence of time or space restrictions and an organization by phases, cycles, and objectives. The requirements for SW are: work must be carried out electronically; the tools must be adequate; performance must be measurable and focused on objectives; employees must have a suitable place to get their work done. These requirements ensure that the essential objectives of SW are attained: replacing the logic of performing tasks with that of achieving objectives; allowing everyone to manage work actively and autonomously; stimulating more decisive accountability in work, and better performance.

Since the COVID-19 outbreak, action-research interventions have been conducted by private and public organizations. The private sector has endeavored to meet the requirements described above. This has not always been the case in the public sector, where largely widespread and indiscriminate use of SW has been made, not always complying with the protocols. However, even within the “emergency” limits of these experiences, SW has generally been accepted. The main advantages reported by employees are time and money saved on travel and food, in addition to improved family life. However, some problems have also emerged. These include the perception of social isolation; difficulty in disconnecting from technology; inadequacy of the tools; inadequate communication with managers. We also found that the health conditions of some “smart workers” have worsened in terms of anxiety, sleep disorders, and emotional symptoms.

The data clearly show the complexity of analyses and interventions in relation to the SW phenomenon. The protection of employees’ health, especially in terms of recovery and work-family balance, appears to be particularly complex. In this context, the authors’ experience shows that online psychology has become more significant because it allows to support employees at any time. The literature highlights the growing use of online psychological support also through smartphone apps that provide effective interventions anywhere.

Therefore, if, on the one hand, the requirements, objectives, and good practices of SW are to be pursued to limit the critical issues that have arisen, on the other, organizations should provide psychological support to employees even at a distance and by using appropriate technologies.

Keywords: *Smart working, online psychological support, work-family balance, well-being, performance.*

1. Introduction

Since its initial emergence in the city of Wuhan in late 2019, the COVID-19 disease has drastically altered social structures around the world. At the end of March 2021, according to a recent situation report by the World Health Organization, the number of global COVID-19 cases has grown to nearly 127 million, with over 2.5 million deaths. In Italy the confirmed cases are around 3.5 million, with nearly 105.000 deaths (World Health Organization, 2021). A fast surge of contagions was testified in Italy already at the beginning of March 2020, a few weeks after the first case of COVID-19. Italy has rapidly become the country hit second hardest by the coronavirus in the world. The first line of defense against this pandemic has been reducing physical interaction. The Italian government established a national lockdown that allowed people to leave their houses only for proven work, health, or extreme necessities. This has forced most companies, public and private, to make use of smart working.

1.1. Smart working

Smart working – SW – is a label used to describe a new attitude to work and the workplace. This is a mode of subordinate employment relationship characterized by the absence of time or spatial restrictions and an organization by phases, cycles, and objectives, established by an agreement between employee and employer; a mode that helps the employee to reconcile life and work and, at the same time, favors the growth of productivity. The definition of SW, contained in Law nr. 81/2017, emphasizes organizational flexibility, the voluntary nature of the individual agreement signed by the parties, and the use of tools that allow employees to work remotely.

SW is not a new form of corporate welfare, nor can it be confused with the simple practice of working from home once a week. It is a multidisciplinary approach centered on four necessary and fundamental requirements (De Carlo & Maccani, 2021).

1. *Nature of the work*: carried out by computer and online.
2. *Technology*: PC and good remote connection to the management network and organization data sets.
3. *Relationship structure*: no longer time-based but achievement-based performance – measurable and accountable.
4. *Logistics*: a suitable place to carry out one's work.

They relate to the essential objectives of SW:

- supporting and replacing the logic of performing tasks with that of achieving the goals set by the organization and shared with the employee. This is achieved through experiments to be carried out on staff quotas that increase over time, to enhance the efficiency/effectiveness of the services provided;
- allowing everyone, according to their skills and abilities, to manage content and work situations more actively, performing functions characterized by increasing working autonomy. As it is shown in the specialist literature, one of the main components of job satisfaction is autonomy in operations, feeling fully involved in the results achieved. Autonomy is also manifested in the employee being able to operate at the preferred time and in the preferred environment, thus obtaining a more reasonable work-family balance;
- SW, according to Law nr. 81/2017, was conceived as an important impulse to more decisive accountability in the work activity, with better results expected by organizations in terms of individual and collective productivity, and therefore higher performance. It must protect employee's health, while increasing organizational well-being. These two dimensions are essential constituents of good work, satisfaction, and the consequent increase in the quality of products/services provided.

During lockdown and while restrictions were “intermittently” in place in the time of Covid-19, considerable relevance has been given to SW, with the common and decisive objective of protecting employees' health.

1.2. Online psychology

Computer-based technologies play a growing and central role in our society and are promising ways to work and care in the psychological field. In the organizational context, much scientific evidence demonstrates how new technologies play an important role in achieving individual and collective well-being. The COVID-19 pandemic has further changed the working methods, the way of communicating and socializing, causing fast significant changes for the entire community, with daily online work being the norm for many people (Li et al., 2020).

The psychologist also takes part in this change, by providing psychological services directly online. When referring to psychological performance, we mean a “*professional action which, through the relationship, is aimed to produce an evaluation or to promote a change/improvement based on the needs, expectations, questions expressed by the client*” (Bozzaotra et al., 2017, p. 41). When this is made available online, the web and new communication technologies play an auxiliary role: as the tool through which the psychologist and the user interface.

In Italy, the number of services linked to online psychological interventions is increasing. The use of these intervention methods presents several advantages, first of all, the removal of barriers: architectural, for people with disabilities; linked to stigmas, in terms of the prejudices that often hinder access to psychological interventions. Furthermore, they allow a continuity of relationship with traditional in vivo interventions: professionals can remain in contact with their clients even when not sharing the same territory. Finally, from the point of view of research, these methodologies play a fundamental role, appearing as an interesting sector of innovation (Richardson & Simpson, 2015).

2. New labor codes

Rationality must be constantly pursued, both in the concrete aspects, for example, with regard to SW, considering the presence of the four requirements described above, and in terms of the reference framework, i.e., harmonization and integration of SW with the essential objectives that must characterize it. This takes place in a framework of good practices, to be shared with employees.

2.1. Organizational well-being and work-related stress

As already mentioned, organizational well-being plays an important role in the productivity of the company and is one side of the coin while the prevention of work-related stress is the other. Constant and adequate management of stress factors is needed by both the organization and individuals, to allow employees to respond appropriately to the challenges of the work environment. Likewise, individual resources, such as a sense of self-efficacy, resilience, and optimism, as well as effective coping strategies including time management, the use of cognitive skills and logic, the ability to regenerate one's physical and emotional energies, are important (Dal Corso et al, 2020; De Carlo et al., 2013; Di Sipio et al., 2012).

2.2. Positive management

The organizational interventions outlined above are placed in the perspective of positive management. This is achieved through managerial behavior aimed to enhance people and their energies. Therefore, organizations need adequate training and involvement with their management. Some of the main dimensions on which each manager is called to reflect and operate are outlined below (De Carlo et al., 2020; Dimitrova, 2019; Donaldson-Feilder et al, 2011).

- *Management of emotions, personal equity, and integrity*: behaving coherently and respectfully toward the staff, without harboring excesses and unstable, contradictory attitudes; being attentive, empathetic, and caring with collaborators.
- *Realistic planning and management of work*: clearly expressing and disseminating objectives, organizing and distributing everyone's commitments in a balanced way; implementing, also through group meetings and personal interviews, adequate monitoring of workloads, alignment with priorities, and ongoing activities.
- *Management of difficult situations and conflicts*: acting as mediators, with patience, in a perspective of transformational leadership, aimed to enhance and change principles and values, as well as working behavior; consulting the collaborators to prevent any further difficulties.
- *Management of the individual collaborator*: having constructive relationships with each person, through meetings, individualized interviews, friendly and cordial relationships, socialization events.

2.3. Work-family balance

The construct of conflict between work and family has its origins in role theory and is defined as a form of inter-role conflict in which the pressures from the domain of work and that of the family are mutually incompatible. This is a two-way construct: there can be interference from work to the family and vice versa. The role of organizations in supporting reconciliation between work and family life is significant. Work-family support is defined as discretionary and formal organizational policies, services, and benefits aimed to reduce employees' work-family conflict and/or support their family roles outside of the workplace (Masterson et al., 2020). In this regard, organizations can implement a work-family culture, characterized by shared assumptions relating to the organization's tendency to support integration between work and family life. The presence of a supportive culture seems to be necessary for the policies supporting reconciliation to be positively accepted by employees (Argentero & Cortese, 2021; De Carlo et al., 2019).

3. Action research methodology and empirical experiences

Action research is a "participatory democratic" process to increase theoretical and practical knowledge as well as to respond to requests for greater participation from all stakeholders. It is a research approach through which we try to build, together with all the staff of the organization, action and reflection, theory and practice, to find concrete solutions to critical issues and actively change and improve processes within the organization itself (Kaneklin et al., 2010; Lewin, 1946; Reason & Bradbury, 2001).

In the last year, we collected qualitative judgments on the opportunities and limits of SW in time of Covid-19. These judgments collected by psychologists operating in the organizational field for public and private companies of the health and education sectors, based on their direct knowledge, through observation and interviews, of what the employees experienced. It was found that in the private sector SW was used if the requirements previously indicated at points 1 and 2 were present. Instead, in the public sector, no reference was made to the aforementioned requirements and there was a generalized and indiscriminate use of SW, which in many cases coincided with the drastic reduction or even the closure of most of the activities. Moreover, due to the emergency the country was facing, both sectors could not always take into account the main objectives of SW, as summarized above. In general, the complete set of requirements and objectives of SW, which must be closely integrated, is not yet part of the common experience.

The advantages that emerged from the interviews are listed below as reported by the employees:

- “lower expense for gasoline and parking”*
- “presence of the family - more time at home with the family”*
- “reduction of working time due to the home-workplace commute”*

As can be noted, the advantages include saving time and money for travel, parking, and food, as well as the expansion of the sphere of family life given that most people have carried out their work activities from home. However, a number of critical issues also emerged that led to the need to offer employees greater support for the future. Among these issues, some are listed below as reported by the employees:

- “lack of social relations with colleagues”*
- “lack of adequate technologies”*
- “difficulties in communicating with colleagues to discuss work, or missing information”*

Based on the comments reported, many employees perceived experiences of social isolation and loneliness, difficulty in disconnecting from technology which led to insufficient free time, inadequacy of the tools which affected the SW experience, inadequate communication with managers which led to feelings of distrust. All this led the employees to express the need for future structured and well-organized SW, providing adequate tools, evaluating performance on the basis of objectives, implementing a clear communication of information.

Furthermore, health conditions during SW throughout the Covid-19 pandemic significantly worsened compared to the previous period, especially with regard to anxiety, sleep, and emotional symptoms, for specific and broad segments of the working population.

4. Discussion

The data clearly show the complexity of analyses and interventions in relation to the SW phenomenon. The protection of employees' health, especially in terms of recovery and work-family balance appears to be particularly complex. The problems raised by the research must be answered on various levels, in terms of defining new labor codes and good practices. Such responses will make the difference between good work done in SW and simply carrying out tasks from remote locations. The dimensions, principles, and behaviors constituting the new labor codes are therefore important. Some of them are the consistency of objectives and action procedures, organizational efficiency and effectiveness, organizational well-being and work-related stress, appreciation of employees, and work ethics for the person and the organization. The dimensions indicated above are complemented by various models of good practice, such as the substantial and widespread fairness of the evaluations, the adequate management of relations with colleagues and superiors, the prevention of absenteeism as well as presenteeism, the effective circulation of information, and monitoring and timely process adjustments.

Additionally, to support smart workers, online psychological intervention has become more significant. The development of tools and protocols for psychological support to employees through technology, specifically online and virtual reality services, allows to intervene in the conditions that have arisen in the world of work following the COVID-19 emergency. Online psychology allows to listen to and support employees anytime anywhere. No barrier prevents the organization from supporting employees in SW, protecting their psychophysical health in real time. Through these protocols, the organization can offer listening, professional support, and assistance to employees, helping them cope with potentially problematic and stressful situations, as well as collaborating in resolving any disputes and conflicts.

Today, psychology and technology are at the forefront of overcoming the crisis, providing companies with powerful listening, support, and recovery techniques for everyday critical situations.

References

- Argentero, P., & Cortese, C. G. (2021). *Psicologia delle risorse umane. Nuova edizione* [Psychology of human resources. New edition]. Milano: RaffaelloCortina Editore.
- Bozzaotra, A., Cicconi, U., Di Giuseppe, L., Di Iullo, T., & Manzo, S. (2017). *Commissione atti tipici, osservatorio e tutela della professione. Digitalizzazione della professione e dell'intervento psicologico mediato dal web* [Commission of typical acts, observatory and protection of the profession. Digitization of the profession and psychological intervention mediated by the web]. Roma: Tipografia Ostiense
- Dal Corso, L., De Carlo, A., Carluccio, F., Colledani, D., & Falco, A. (2020). Employee burnout and positive dimensions of well-being: A latent workplace spirituality profile analysis. *PLoS ONE*, *15*(11), Article e0242267
- De Carlo, A., Dal Corso, L., Carluccio, F., Colledani, D., & Falco, A. (2020). Positive Supervisor Behaviors and Employee Performance: The Serial Mediation of Workplace Spirituality and Work Engagement. *Frontiers in Psychology*, *11*, Article 1834
- De Carlo, A., Girardi, D., Falco, A., Dal Corso, L., & Di Sipio, A. (2019). When does work interfere with teachers' private life? An application of the job demands-resources model. *Frontiers in Psychology*, *10*, Article 1121
- De Carlo, N. A., & Maccani, I. (2021). *Codice Smart Working* [Smart Working code]. Trento: SEAC.
- De Carlo, N. A., Falco, A., & Capozza, D. (2013) (a cura di). *Stress, benessere organizzativo e performance. Valutazione & intervento per l'azienda positiva* [Stress, organizational well-being, and performance. Assessment & intervention for the positive organization]. Milano: FrancoAngeli.
- Di Sipio, A., Falco, A., Kravina, L., & De Carlo, N. A. (2012). Positive personal resources and organizational well-being: resilience, hope, optimism, and self-efficacy in an Italian health care setting. *TPM – Testing, Psychometrics, Methodology in Applied Psychology*, *19*(2), 81-95. doi:10.4473/TPM19.2.2
- Dimitrova, V. E. (2019, March). *The impact of coaching on the emotional intelligence of managers in the organization* [Paper presentation]. International Conference on Creative Business for Smart and Sustainable Growth – CreBUS 2019, Article 8840019
- Donaldson-Feilder, E., Yarker, J., & Lewis, R. (2011). *Preventing Stress in Organizations: How to Develop Positive Managers*. John Wiley and Sons Ltd.
- Kaneklin, C., Piccardo, C., & Scaratti, G. (2010). *La ricerca-azione. Cambiare per conoscere nei contesti organizzativi* [Action research. Change to know in organizational contexts]. Milano: RaffaelloCortina Editore.
- Legge 22 maggio 2017, n. 81. *Misure per la tutela del lavoro autonomo non imprenditoriale e misure volte a favorire l'articolazione flessibile nei tempi e nei luoghi del lavoro subordinato* [Measures for the protection of non-entrepreneurial self-employment and measures aimed at favoring flexible articulation in the times and places of subordinate work].
- Lewin, K. (1946). Action research and minority problems. *Journal of Social Issues*, *2*, 34-46.
- Li, J., Ghosh, R., & Nachmias, S. (2020). In a time of COVID-19 pandemic, stay healthy, connected, productive, and learning: words from the editorial team of HRDI. *Human Resource Development International*, *23*(3), 199-207. <https://doi.org/10.1080/13678868.2020.1752493>
- Masterson, C., Sugiyama, K., & Ladge, J. (2020). The value of 21st century work–family supports: Review and cross-level path forward. *Journal of Organizational Behavior*, *42*(2), 118-138. doi: 10.1002/job.2442
- O'Boyle, E. H., Humphrey, R. H., Pollack, J. M., Hawver, T. H., & Story, P. A. (2010). The relation between emotional intelligence and job performance: A meta-analysis. *Journal of Organizational Behavior*, *32*(5), 788.
- Reason, P. & Bradbury, H. (2001). *Handbook of Action Research*. London: Sage
- Richardson, L.K., & Simpson, S. (2015). The Future of Telemental Health and Psychology in Australia: Restoring the Psychologically “Clever Country”? *Australian Psychologist*, *50*, 307-310.
- World Health Organization (2021). Coronavirus (COVID-19). <https://covid19.who.int/>

THE MEDIATING EFFECT OF EMOTIONAL INTELLIGENCE ON THE BIG FIVE PERSONALITY TRAITS AND THE BIG SIX VOCATIONAL INTERESTS

Mayiana Mitevska, & Paulina Tsvetkova

*University of Library Studies and Information Technologies, 119 "Tsarigradsko shose" blvd., Sofia,
Plovdiv University "Paisii Hilendarski", 24 "Tsar Asen" str.. Plovdiv 4000 (Bulgaria)*

Abstract

A central theme in the present study is the assumption that the influence on the human behavior is mediated by different internal processes in the career choice. Emotional intelligence is defined as a variable which is a cause for the relationship between personality traits and the choice of a certain career. Three causal paths to the dependent variable were tracked – a path to the direct impact of the emotional intelligence on the career choice, a path to the influence of personality traits on the emotional intelligence as well as a path to the impact of personality traits on the career choice via the emotional intelligence. The aim of the study is to show the mediating role of emotional intelligence in the relationship between personality traits and career choice. A total of 100 Bulgarian secondary and university students (42 males and 58 females), aged 17-40 years, were included in the research. The following measures were used for the purpose of the study - Trait Emotional Intelligence Questionnaire – Short Form (TEIQue-SF), The Big five questionnaire and the Big six method for career choices. The Bulgarian version of the emotional intelligence questionnaire was translated and adapted for Bulgarian sociocultural context by Antonina Kardasheva (Kardasheva, 2012). The Big five questionnaire and the Big six method for career choices were adapted for Bulgarian conditions by S. Karabelyova (Karabelyova, 2015). The results showed that there was a direct positive impact of the emotional intelligence on the relationship between the enterprising type and conscientiousness, the artistic type and neuroticism and a negative impact on the relationship between the conventional type and extraversion. The conclusions derived from the study could be used for further psychological research in the field, as well as for enhancing the knowledge of one's personality.

Keywords: *Emotional intelligence, personality traits, career choices, secondary students, university students.*

1. Introduction

Nowadays there is a significant interest in the impact of individual variables, such as personality traits, regarding career choices. Originally, the question of personality match with career choice has been examined by J.Holland who suggested that vocational interests reflect individuals' personality and skills, and decisions about career choices are influenced by personality characteristics (Holland, 1959). In addition, the career development literature has increasingly focused on the role played by emotions in the career decision-making processes (Emmerling & Cherniss, 2003). Cooper (1997) reported that those who trust their own feelings seem to have more successful career paths. Within the framework of these studies, a reference can be made to emotional intelligence which has drawn great attention in the scientific field for the last two decades. Interest in the emotional intelligence originated from the fact that, while personality characteristics are considered essentially stable, it can be increased through specific training (Bar-On, 1997, 2002; Mayer & Salovey, 1997). The objectives of the study are to determine the mediating effect of the emotional intelligence on the big five personality traits and the big six vocational interests and to show the extent to which the factors of the emotional intelligence impact them. It is hypothesized that there is a significant influence of the emotional intelligence on the relationship between the personality traits and the career preferences. For the purpose of the study a mediation analysis has been used and the emotional intelligence is the mediator variable in it.

2. Methods

2.1. Procedure

Questionnaires were distributed in several schools and universities both online and paper versions. Participants were informed that this study was confidential and voluntary. The study was conducted between October and December 2020.

2.2. Participants

The sample consisted of 100 adolescents and adults in early adulthood (42% males, 58% females). 56 % of them are from 17 to 19 years and 44 % of the participants are from 20 to 40 years. Respondents' mean age is 19 years.

2.3. Measures

The first questionnaire - The Big Five questionnaire - is a 20-item short form of the 50-item International Personality Item Pool—Five-Factor Model measure (Goldberg, L. R., 1999) and was developed by Donnellan and colleagues (Donnellan et al., 2006). The questionnaire measures five traits- extraversion, agreeableness, conscientiousness, neuroticism, openness. The Bulgarian version was made by S. Karabelyova (Karabeliova, 2015). The second questionnaire was created by Ch.Nybakken, G. Siegel and K. Ferlazzo (Nybakken, Siegel, Ferlazzo, 2003). It is a method for career choices and is based on the theoretical model of John Holland for the Big Six Vocational Interests (Holland, J., 1959) The six career preferences are realistic, investigative, artistic, social, enterprising and conventional. It was adapted for Bulgarian sociocultural context by S. Karabeliova (Karabeliova, 2015). The third questionnaire - Trait Emotional Intelligence Questionnaire – Short Form (TEIQue-SF) - was used for the purpose of the study. Its author is Petrides (Petrides, K. V., 2009). The factors of the questionnaire are well-being, self-control, emotionality and sociability. The questionnaire was translated into Bulgarian by Antonina Kardasheva (Kardasheva, 2012).

3. Mediation analysis and results

The results from the current study are shown in the following tables. Some personal variables have been studied in the role of predictors, the factors of emotional intelligence - in the role of mediators and the vocational interests have been studied as criterial variables.

The coefficient in the area of the numerator shows the strength of the relationship between the independent and the dependent variables. The coefficients in the area of the denominator show the strength of the relationship between the independent and the dependent variables under the control of the respective mediator variable.

Table 1. Mediator influences of the factor well-being of the Emotional Intelligence on the Big Five Traits and the Big Six Vocational Interests.

| BIG5 | Extraversion | Agreeableness | Conscientiousness | Neuroticism | Openness |
|---------------|------------------------------|------------------------------|-----------------------------|----------------------------|-----------------------------|
| BIG 6 | | | | | |
| Realistic | <u>-0.03</u> -0.06 | <u>-0.06</u> -0.09 | <u>.35**</u> 0.35 | <u>-0.03</u> 0 | <u>0.17</u> 0.15 |
| Investigative | <u>-0.09</u> -0.16 | <u>0.19</u> 0.15 | <u>0.16</u> 0.11 | <u>0.02</u> 0.1 | <u>.29**</u> 0.26 |
| Artistic | <u>0.02</u> -0.06 | <u>.42**</u> 0.39 | <u>0.12</u> 0.04 | <u>0.15</u> 0.26 | <u>.46**</u> 0.43 |
| Social | <u>0.14</u> 0.04 | <u>.57**</u> 0.54 | <u>0.07</u> -0.05 | <u>.23*</u> 0.4 | <u>.40**</u> 0.35 |
| Enterprising | <u>.49**</u> 0.42 | <u>0.1</u> 0 | <u>.21*</u> 0.07 | <u>0</u> 0.18 | <u>0.14</u> 0.05 |
| Conventional | <u>-0.16</u> -0.27 | <u>0.05</u> -0.02 | <u>.39**</u> 0.33 | <u>0.01</u> 0.14 | <u>0.04</u> -0.02 |

Note: In the denominator is the the correlation coefficient under the control of well-being as a factor of Emotional Intelligence

Table 2. Mediator influences of the factor sociability of the Emotional Intelligence on the Big Five Traits and the Big Six Vocational Interests.

| BIG5 \ BIG 6 | Extroversion | Agreeableness | Conscientiousness | Neuroticism | Openness |
|---------------|------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| Realistic | <u>-0.03</u> -0.06 | <u>-0.06</u> -0.07 | <u>.35**</u> 0.35 | <u>-0.03</u> -0.02 | <u>0.17</u> 0.16 |
| Investigative | <u>-0.09</u> -0.18 | <u>0.19</u> 0.17 | <u>0.16</u> 0.14 | <u>0.02</u> 0.04 | <u>.29**</u> 0.28 |
| Artistic | <u>0.02</u> -0.12 | <u>.42**</u> 0.4 | <u>0.12</u> 0.07 | <u>0.15</u> 0.2 | <u>.46**</u> 0.44 |
| Social | <u>0.14</u> 0.1 | <u>.57**</u> 0.56 | <u>0.07</u> 0.05 | <u>.23*</u> 0.26 | <u>.40**</u> 0.39 |
| Enterprising | <u>.49**</u> 0.29 | <u>0.1</u> 0.04 | <u>.21*</u> 0.11 | <u>0</u> 0.12 | <u>0.14</u> 0.08 |
| Conventional | <u>-0.16</u> 0.29 | <u>0.05</u> 0.04 | <u>.39**</u> 0.11 | <u>0.01</u> 0.12 | <u>0.04</u> 0.08 |

Note: In the denominator is the the correlation coefficient under the control of **sociability** as a factor of Emotional Intelligence

Table 3. Mediator influences of the factor emotionality of the Emotional Intelligence on the Big Five Traits and the Big Six Vocational Interests.

| BIG5 \ BIG 6 | Extroversion | Agreeableness | Conscientiousness | Neuroticism | Openness |
|---------------|------------------------------|-----------------------------|-----------------------------|------------------------------|-----------------------------|
| Realistic | <u>-0.03</u> -0.04 | <u>-0.06</u> -0.1 | <u>.35**</u> 0.35 | <u>-0.03</u> -0.03 | <u>0.17</u> 0.16 |
| Investigative | <u>-0.09</u> -0.12 | <u>0.19</u> 0.15 | <u>0.16</u> 0.14 | <u>0.02</u> 0.04 | <u>.29**</u> 0.27 |
| Artistic | <u>0.02</u> -0.05 | <u>.42**</u> 0.31 | <u>0.12</u> 0.02 | <u>0.15</u> 0.21 | <u>.46**</u> 0.41 |
| Social | <u>0.14</u> 0.07 | <u>.57**</u> 0.47 | <u>0.07</u> -0.05 | <u>.23*</u> 0.31 | <u>.40**</u> 0.33 |
| Enterprising | <u>.49**</u> 0.49 | <u>0.1</u> 0.06 | <u>.21*</u> 0.19 | <u>0</u> 0.01 | <u>0.14</u> 0.12 |
| Conventional | <u>-0.16</u> -0.2 | <u>0.05</u> -0.05 | <u>.39**</u> 0.36 | <u>0.01</u> 0.04 | <u>0.04</u> -0.01 |

Note: In the denominator is the the correlation coefficient under the control of **emotionality** as a factor of Emotional Intelligence

Table 4. Mediator influences of the factor self-control of the Emotional Intelligence on the Big Five Traits and the Big Six Vocational Interests.

| BIG5 | Extroversion | Agreeableness | Conscientiousness | Neuroticism | Openness |
|---------------|------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|
| BIG 6 | | | | | |
| Realistic | <u>-0.03</u> -0.08 | <u>-0.06</u> -0.11 | <u>.35**</u> 0.32 | <u>-0.03</u> 0.03 | <u>0.17</u> 0.14 |
| Investigative | <u>-0.09</u> -0.18 | <u>0.19</u> 0.13 | <u>0.16</u> 0.07 | <u>0.02</u> 0.13 | <u>.29**</u> 0.25 |
| Artistic | <u>0.02</u> -0.09 | <u>.47**</u> 0.36 | <u>0.12</u> -0.02 | <u>0.15</u> 0.31 | <u>.46**</u> 0.41 |
| Social | <u>0.14</u> 0.05 | <u>.57**</u> 0.53 | <u>0.07</u> -0.07 | <u>.23*</u> 0.4 | <u>.40**</u> 0.35 |
| Enterprising | <u>.49**</u> 0.42 | <u>0.1</u> -0.01 | <u>.21*</u> 0.05 | <u>0</u> 0.17 | <u>0.14</u> 0.05 |
| Conventional | <u>-0.16</u> -0.25 | <u>0.05</u> -0.02 | <u>.39**</u> 0.33 | <u>0.01</u> 0.12 | <u>0.04</u> -0.02 |

Note: In the denominator is the correlation coefficient under the control of **self-control** as a factor of Emotional Intelligence

A direct significant relationship is established, as shown in Table 1, between conscientiousness and the realistic and the conventional types; between agreeableness and the artistic and the social types; between neuroticism and the social type as well as between openness and the investigative, artistic and social types. The data show that the personality participates actively and consistently in the regulation of one's behavior and it can be assumed that some of the changes in most of the aspects of emotional intelligence are due to it. This is especially true for the innate, biologically determined traits, such as extraversion, but in fact it is the most manifested in openness, conscientiousness, and agreeableness as personality traits.

The social type is influenced by each of the personality traits under the control of well-being as an element of emotional intelligence. The effect of well-being and self-control on the enterprising type is strong, followed by the conventional and the artistic types. The presence of opportunities for friendly and supportive relationships stimulates extroverts into choosing the enterprising type under the control of each of the factors of emotional intelligence. It can be argued that the result is logical, as the personality traits are relatively independent constructs. However, only well-being and self-control as elements of emotional intelligence have an effect on extraversion and aspects of job satisfaction, interpersonal communication and support of colleagues. The influence of emotional intelligence in the interaction between neuroticism with the career types is positive. Conscientiousness is negatively related to the social type under the control of well-being and to the artistic type under the self-control.

In terms of the mediators – the aspects of emotional intelligence - it has been found that "well-being" has a direct positive effect on the realistic, artistic and enterprising types and a negative effect on the conventional type. The high level of job satisfaction is generally influenced by collectivist practices and contributes to cooperation, purposefulness and openness and is a reasonable ground for developing good work relationships and building trust with colleagues.

Taking into account the above-mentioned data, it can be suggested that assessments of the work environment and the competence significantly increase the emotional intelligence as a whole, if they have ego-relevant elements. They are alternative ways for people to support their professional self-esteem. The pleasure of one's competence probably contributes more directly to the maintenance of a positive self-image because self-expression is viewed as a prerequisite for achieving personal goals, which has been confirmed by other empirical data (Radoslavova, 2001). There is an opportunity for self-expression in every aspect of personality, except for neuroticism.

Emotional intelligence as a whole outlines significant mediating effects in the interaction between conscientiousness and openness with the career choices. The most direct positive effects on the independent variables - personality traits and mediators – are related to the career preferences.

Regarding the data for the career interests, the respondents have a coherent and coordinated system depending on personal characteristics - agreeableness, conscientiousness and openness.

In this sense, the assumption of the direct and indirect effects of the Big Five Traits on the career choices mediated by well-being and self-control was confirmed. The study proved the assumption that the factors of emotional intelligence are integrated into the behavior of individuals in terms of career preferences.

4. Discussion

The aims of the study were to determine the mediating effect of emotional intelligence on the big five personality traits and the big six vocational interests. The results validated our hypothesis. Checks for the mediating function, i.e. for the role of the third variable as a mediator for other variables included in the study, were made. They only confirm the claim that every single social phenomenon, as it was emphasized, is multifactorial. Some of the factors, however, manifest themselves in the role of the third variable, which mediates the relationship between the predictor and the output variable, and in this way it increases or decreases its influence on it.

The current research paper has some limitations. Firstly, it was conducted on a small sample. We recommend repeating the study with a larger sample. Secondly, it is necessary to examine test-retest correlations over a longer period of time to further clarify if the participants work in a field relevant to their personality traits and emotional intelligence. Despite this, the authors believe that the provided work has important implications for further research in the field of personality and organizational psychology. There will also be a subsequent analysis of gender, divided into three groups, and its influence will be traced.

References

- Bar-On, R. (1997). *The emotional intelligence inventory (EQ-I): Technical manual*. Toronto: Multi Health Systems.
- Bar-On, R. (2002). *Bar-On emotional quotient inventory: Short technical manual*. Toronto: Multi-Health Systems.
- Cooper, R. K. (1997). *Applying emotional intelligence in the work place. Training and Development*, 51(12), 31–38.
- Donnellan, M. B., Oswald, F. L., Baird, B. M., & Lucas, R. E. (2006). *The Mini-IPIP scales: Tiny-yet-effective measures of the Big Five factors of personality. Psychological Assessment*, 18, 192-203.
- Emmerling, R. J., & Cherniss, C. (2003). Emotional intelligence and career choice process. *Journal of Career Assessment*, 11(2), 153–167.
- Goldberg, L. R. (1999). *A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models*. In I. Mervielde, I. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality Psychology in Europe*, Vol. 7, 7-28. Tilburg, The Netherlands: Tilburg University Press.
- Holland, J. L., (1959). A theory of vocational choice. *Journal of Counseling Psychology*, 6, 35-45.
- Karabeliova, S. (2015). *Career choice. Intercultural and intracultural comparisons*. Klasika i stil. Sofia
- Kardasheva, A. (2012). *Emotional intelligence and individual differences of Bulgarians*. Sofia: Kovachev (in Bulgarian).
- Mayer, J. D., & Salovey, P. (1997). *What is emotional intelligence? In P. Salovey & D. Sluyter (Eds.), Emotional development and emotional intelligence*. 3–31. New York: Basic Books.
- Nybakken, Ch., Siegel, G., & Ferlazzo, C. (2003). *Merging Two Worlds. Transition/Career Planning*. Arizona: Arizona Department of Education.
- Petrides, K. V. (2009). Psychometric properties of the Trait Emotional Intelligence Questionnaire. In C. Stough, D. H. Saklofske, and J. D. Parker. *Advances in the assessment of emotional intelligence*. New York: Springer. DOI: 10.1007/978-0-387-88370-0_5
- Radoslavova, M. (2011). *Satisfaction with labour. Psychic mechanisms of occurrence and functions*. Sofia, Paradigm, 2001, 45-58.

RISK OF COVID-19 INFECTION AT WORK AND PSYCHO-PHYSICAL STRAIN: THE MODERATING ROLE OF NEGATIVE AFFECTIVITY

**Damiano Girardi¹, Alessandro De Carlo², Laura Dal Corso¹, Annamaria Di Sipio¹,
& Alessandra Falco¹**

¹FISPPA Section of Applied Psychology, University of Padua, Padua (Italy)

²Preventive Medicine and Hygiene, Department of Cardiac, Thoracic, Vascular Sciences and Public Health, University of Padua, Padua (Italy)

Abstract

The ongoing outbreak of COVID-19 is severely affecting many areas of everyday life, including family, education, and work. Hence, safety at work – both physical and psychological – plays a central role for organizations, which need to be productive while, at the same time, preserving employees' health and well-being. Building on the job demands-resources (JD-R) model applied to safety at work, in this study we proposed that the perceived risk of being infected with COVID-19 at work can be conceptualized as a job demand (i.e., a risk factor for work-related stress). We also proposed that negative affectivity (i.e., a dispositional dimension that reflects pervasive individual differences in negative emotionality and self-concept; NA) may be conceived as a personal demand, that is, an individual characteristic that hinders employees' abilities to effectively cope with their work environment. Hence, according to the health impairment process of the JD-R, in this study we hypothesized that the perceived risk of being infected at work (PRIW) is positively associated with psycho-physical strain (i.e., stress-related psycho-physical symptoms), which, in its turn, is negatively associated with employees' job performance. We also hypothesized that NA affects the association between PRIW and psycho-physical strain, which is expected to be stronger for high-NA individuals. The study was carried out on a sample of 353 workers who completed a self-report questionnaire aimed at determining PRIW, NA, psycho-physical strain, and job performance. Data were analyzed using path analysis. Results showed that PRIW was positively associated with psycho-physical strain, which, in its turn, was negatively associated with job performance. The association between PRIW and job performance was not significant. Interestingly, NA moderated the association between PRIW and psycho-physical strain, which was stronger for high-NA individuals, and not significant for low-NA individuals. Overall, this study suggests that the JD-R can be successfully applied to safety at work during the ongoing outbreak of COVID-19. In line with the JD-R, PRIW (a job demand) was negatively associated with workers' health and job performance, although indirectly in the latter case. Moreover, NA (a personal demand) exacerbated the association between PRIW and psycho-physical strain. From a practical standpoint, this study suggests that organizations should provide workers with adequate job resources to manage the risk of infection and achieve their objectives safely (i.e., primary prevention). Furthermore, in terms of secondary prevention, interventions could help high-NA employees to develop skills to cope effectively with the risk of infection at work.

Keywords: *COVID-19, perceived risk, negative affectivity, psycho-physical strain, job performance.*

1. Introduction

To date, the COVID-19 pandemic has afflicted tens of millions of people worldwide, with serious health, social, and economic consequences. With respect to the work context, employees from several occupational sectors are now facing the risk of being infected with COVID-19 at work. Indeed, workplaces and work activities have some characteristics that may facilitate the spread of SARS-CoV-2 (e.g., physical proximity, frequent social interactions). Hence, safety at work plays a key role for organizations, which strive to be productive while, at the same time, preserving employees' health and well-being. Interestingly, recent research suggests that physical and psychosocial safety need to be considered jointly (Yaris, Ditchburn, Curtis, & Brook, 2020). With respect to the COVID-19 outbreak, this implies that work-related factors that may lead to both physical and psychological outcomes related to COVID-19 (e.g., contracting COVID-19 and work-related stress/job burnout, respectively) need to be

thoroughly considered. Building on the job demands-resources model (JD-R; Bakker & Demerouti, 2017) applied to safety at work (Nahrgang, Morgeson, & Hofmann, 2011), in this study we propose that the perceived risk of being infected with COVID-19 at work (PRIW) can be conceptualized as a job demand, that is, a risk factor for work-related stress. We also propose that negative affectivity (NA; Watson & Clark, 1984) can be conceived as a personal demand that moderates the association between PRIW and work-related stress, which is expected to be stronger when NA was high.

1.1. The perceived risk of being infected at work and the JD-R model

The JD-R is a flexible theoretical model that has been applied to several work-related areas, including occupational stress and well-being (Schaufeli & Bakker, 2004), work-home interference (De Carlo, Girardi, Falco, Dal Corso, & Di Sipio, 2019), and also safety at work (Nahrgang et al., 2011). According to the JD-R model, job demands are those aspects of the job that require sustained effort (i.e., physical and/or psychological), and are therefore associated with certain costs (i.e., physiological and/or psychological; Bakker & Demerouti, 2017). In line with the health impairment process of the JD-R, high levels of job demands require efforts and exhaust employees' mental and physical energies. Over time, this may lead to health problems, for example in terms of psycho-physical strain (i.e., stress-related psycho-physical symptoms), and negative organizational outcomes, including reduced job performance.

With respect to workplace safety, job demands may include risks and hazards or physical demands, whereas consequences encompass psycho-physical symptoms and safety outcomes (e.g., safety-related work behaviors, accidents, and injuries; Nahrgang et al., 2011; Yaris et al., 2020). In line with the transactional models of stress applied to the JD-R (Crawford, LePine, & Rich, 2010), which emphasize the central role of individual appraisals in the stress process, in this study we conceptualized the perceived risk of infection at work as a job demand. Risk perception has been defined as "subjective assessment of the probability of a specified type of accident happening and how concerned we are with such an event" (Marek, Tangernes, & Hellesøy, 1985, p.152). Accordingly, a cognitive and an emotional dimension of risk perception have been identified in the literature (Rundmo & Iversen, 2004). In line with the definition of job demands and the health impairment process of the JD-R, PRIW requires effort expenditure at work (e.g., to manage risks), thus depleting workers' mental and physical resources (e.g., time and energies). Over time, this may lead to the onset of psychological and physical symptoms (i.e., psycho-physical strain). Hence, we hypothesized PRIW to be positively associated with psycho-physical strain.

Hypothesis 1 (H1): PRIW is positively associated with psycho-physical strain.

Furthermore, in line with the JD-R, workers with high levels of health complaints do not have adequate levels of resources (e.g., cognitive or energetic) to reach their goals at work (Bakker & Demerouti, 2017). Accordingly, we hypothesized that psycho-physical strain is negatively associated with employees' job performance.

Hypothesis 2 (H2): Psycho-physical strain is negatively associated with employees' job performance.

1.2. The moderating role of negative affectivity

In the context of the JD-R model, personal demands have been recently defined as those characteristics of the self that compel individuals to invest exaggerated effort in their work and/or prevent them to cope successfully with their work environment, thus being associated with psychological and/or physical costs (Zeijen, Brenninkmeijer, Peeters, & Mastenbroek, 2021). In this study, we propose that negative affectivity (NA; Watson & Clark, 1984) may be conceived as a personal demand. NA is defined as a dispositional dimension that reflects pervasive individual differences in negative emotionality and self-concept (Watson & Clark, 1984). Previous empirical research has shown that NA may affect both the choice as well as the effectiveness of coping strategies, with NA being associated with less beneficial coping styles (Eaton & Bradley, 2008; Bolger & Zuckerman, 1995). Hence, we hypothesized NA to moderate the association between PRIW and psycho-physical strain, with this association being stronger when NA was high.

Hypothesis 3 (H3): NA moderates the association between PRIW and psycho-physical strain.

Overall, based on the JD-R and the aforementioned arguments, we hypothesized that PRIW has a negative indirect effect on job performance through psycho-physical strain, with this indirect effect being moderated by NA (i.e., conditional indirect effect; Preacher, Rucker, & Hayes, 2007). More specifically, we expected this negative indirect effect to be stronger when NA was high.

Hypothesis 4 (H4): The indirect effect of PRIW on job performance is moderated by NA.

2. Methods

The study was conducted among workers from different organizations in Italy ($N = 353$). The sample consisted of 180 women and 172 men (one missing values), with a mean age of 36.4 years ($SD = 12.3$). Participants completed an online, self-report questionnaire aimed at determining job performance, psycho-physical strain, PRIW, and NA. The questionnaire was administered anonymously, and participants took part in the study voluntarily.

2.1. Measures

The following self-report measures were administered.

Participants were asked to rate their job performance using an item taken from the Q_u -Bo test, an instrument standardized for the Italian context (De Carlo, Falco, & Capozza, 2008). The response scale ranged from 1 (*very poor*) to 10 (*excellent*).

Psycho-physical strain was assessed using a scale taken from the Q_u -Bo test (De Carlo et al., 2008). Respondents were asked to indicate how often, over the past two months, stress-related psychological and physical symptoms had appeared or exacerbated. Examples of scale items were “feeling tense and nervous” and “heartburn or pain in the stomach” for psychological and physical symptoms, respectively. The response scale ranged from 1 (*never*) to 6 (*everyday*). Cronbach’s alpha for the overall scale was .92.

PRIW was measured using an adaptation of the COVID-19 Perceived Risk Scale (CPRS; Yıldırım & Güler, 2020) to the work context, that is, the CPRS-W (Falco, Girardi, Dal Corso, Yıldırım, & Converso, 2021). As the original form of CPRS, the CPRS-W includes a cognitive dimension (e.g., “What is the likelihood that you would acquire the COVID-19 in your work organization?”) and an emotional dimension (e.g., “How worried are you about a member of your work team contracting the COVID-19 in your work organization?”) of personal risk. The five-point response scale ranged from 1 (*negligible*) to 5 (*very large*). In this study, the overall score of the CPRS-W was used as a measure of perceived risk related to COVID-19. Cronbach’s alpha for the overall scale was .90.

Negative affectivity was assessed using the Italian adaptation (Terracciano, McCrae, & Costa, 2003) of the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The scale is composed of ten items that describe different feelings and emotions (e.g., “irritable”). The response scale ranged from 1 (*very slightly or not at all*) to 5 (*extremely*). Cronbach’s alpha for the overall scale was .88.

2.2. Data analysis

The hypothesized relationships were tested using path analysis. In the estimated model, PRIW was the independent variable, psycho-physical strain was the mediator, and job performance was the dependent variable. Furthermore, NA moderated the relationship between PRIW and psycho-physical strain. If a significant interaction was found, then a simple slope analysis was conducted, to determine whether PRIW was associated with psycho-physical strain at high ($+1SD$) and low ($-1SD$) levels of NA (Preacher et al., 2007). The significance of the indirect effect at different levels of NA was then tested using the distribution of product method (Tofighi & MacKinnon, 2011). To evaluate the goodness-of-fit of the models tested, the χ^2 test was considered, as well as three additional fit indices, namely RMSEA, CFI, and SRMR. Values close to or smaller than .08 for RMSEA and SRMR, as well as values close to or greater than .90 for CFI, indicate an acceptable fit (Brown, 2015). The analyses were conducted using the lavaan package (Rosseel, 2012) for software R (R Core Team, 2020).

3. Results

The model showed a good fit to data: $\chi^2(4) = 7.82, p = .10$; RMSEA = .052, CFI = .981, SRMR = .034. Both PRIW ($\beta = .22, p < .001$) and NA ($\beta = .78, p < .001$) were positively associated with psychophysical strain, which, in its turn, was negatively associated with job performance ($\beta = -.21, p < .01$). H1 and H2 were supported. The association between PRIW and job performance was not significant. Furthermore, NA moderated the association between PRIW and psycho-physical strain ($\beta = .14, p < .05$). The association between PRIW and psycho-physical strain was positive and significant when NA was high ($\beta = .32, p < .001$), but not significant when NA was low ($\beta = .11, ns$). H3 was supported. Finally, the indirect effect of PRIW on job performance through psycho-physical strain was negative and significant when NA was high ($\beta = -.07, 95\% CI -.13, -.02$), but not significant when NA was low ($\beta = -.02, 95\% CI -.06, .01$). H4 was supported.

4. Discussion

In line with the JD-R model, we proposed in this study that PRIW and NA can be conceptualized as a job and a personal demand, respectively. Accordingly, we hypothesized that PRIW is positively associated with psycho-physical strain, which, in its turn, is negatively associated with job performance. We also hypothesized that NA moderates the association between PRIW and psycho-physical strain, with this association being stronger when NA was high. Finally, we also hypothesized that the indirect effect of PRIW on job performance is moderated by NA.

The results of this study supported our predictions. PRIW was positively associated with psycho-physical strain and negatively associated with job performance, although indirectly in the latter case. Furthermore, NA exacerbated the positive association between PRIW and psycho-physical strain. Similarly, the indirect effect of PRIW on job performance was negative and significant when NA was high, but not significant when NA was low.

From a theoretical point of view, this study suggests that the JD-R can be successfully applied to safety at work during the ongoing outbreak of COVID-19. In this perspective, PRIW should be considered as a supplementary job demand for workers, who have to perform additional tasks to handle risky situations at work and to achieve their objectives safely (Leiter, 2005). In line with the health impairment process of the JD-R, this may have a negative impact on employees' health and job performance. Furthermore, this study suggests that high-NA employees may react more negatively to the perceived risk of infection at work, probably because NA is related to reduced coping abilities (Hofmann & Kohlmann, 2019). Hence, individuals with high levels of NA may have an increased strain response to job demands, including PRIW (Spector, Zapf, Chen, & Frese, 2000). Overall, at a more general level, the results of this study are consistent with transactional models of stress, which emphasize the interaction between situational and individual factors in the stress process (Ganster & Rosen, 2013).

From a practical standpoint, this study suggests that organizations should provide workers with high levels of job resources to manage the risk of infection and achieve their work goals safely (i.e., primary prevention). Examples of resources are a good-quality communication about COVID-19 risks and rapid decision-making processes that prioritize safety at work (Falco et al., 2021). Furthermore, in terms of secondary prevention, interventions could help high-NA employees to develop skills to cope effectively with the risk of infection at work (e.g., problem- and meaning-focused coping strategies; Krok & Zarzycka, 2020). Similarly, interventions could be aimed at fostering positive personal resources (e.g., self-efficacy and optimism).

5. Conclusions

Our study highlighted the importance of psychological safety at work during the ongoing outbreak of COVID-19. In a perspective of prevention and health promotion, it is important to consider those aspects of the job and the work environment that may negatively affect employees' well-being and performance, such as the perceived risk of being infected at work. Furthermore, by showing an interaction between job and personal demands, this study suggests that interventions should be tailored to the needs of individuals with different personality dispositions.

References

- Bakker, A. B., & Demerouti, E. (2017). Job demands–resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology, 22*, 273–285
- Bolger, N., & Zuckerman, A. (1995). A framework for studying personality in the stress process. *Journal of Personality and Social Psychology, 69*, 890–902.
- Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2nd ed.). New York: Guilford Press.
- Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology, 95*, 834–848.
- De Carlo, A., Girardi, D., Falco, A., Dal Corso, L., & Di Sipio, A. (2019). When does work interfere with teachers' private life? An application of the Job Demands-Resources model. *Frontiers in Psychology, 10*, 1121.

- De Carlo, N. A., Falco, A., & Capozza, D. (2008). *Test di valutazione del rischio stress lavoro-correlato nella prospettiva del benessere organizzativo, Qu-Bo* [Test for the assessment of work-related stress risk in the organizational well-being perspective, Qu-Bo]. Milano, Italy: FrancoAngeli.
- Eaton, R. J., & Bradley, G. (2008). The role of gender and negative affectivity in stressor appraisal and coping selection. *International Journal of Stress Management, 15*, 94–115
- Falco, A., Girardi, D., Dal Corso, L., Yıldırım, M., & Converso, D. (2021). The perceived risk of being infected at work: An application of the job demands–resources model to workplace safety during the COVID-19 outbreak. Manuscript submitted for publication.
- Ganster, D. C., & Rosen, C. C. (2013). Work stress and employee health: A multidisciplinary review. *Journal of Management, 39*, 1085–1122.
- Hofmann, H., & Kohlmann, C.-W. (2019). The role of positive and negative affectivity in healthy and unhealthy work-related behavior and experiences. *European Journal of Health Psychology, 26*, 56–67.
- Krok, D., & Zarzycka, B. (2020). Risk perception of COVID-19, meaning-based resources and psychological well-being amongst healthcare personnel: The mediating role of coping. *Journal of Clinical Medicine, 9*, 3225
- Leiter, M. P. (2005). Perception of risk: An organizational model of occupational risk, burnout, and physical symptoms. *Anxiety, Stress, & Coping, 18*, 131–144.
- Marek, J., Tangernes, B., & Hellesøy, O. H. (1985). Experience of risk and safety. In O. H. Hellesøy (Ed.), *Work environment Statford field*. Oslo: Universitetsforlaget.
- Nahrgang, J. D., Morgeson, F. P., & Hofmann, D. A. (2011). Safety at work: A meta-analytic investigation of the link between job demands, job resources, burnout, engagement, and safety outcomes. *Journal of Applied Psychology, 96*, 71–94.
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research, 42*, 185–227
- R Core Team. (2020). *R: A Language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing.
- Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software, 48*, 1–36
- Rundmo, T., & Iversen, H. (2004). Risk perception and driving behaviour among adolescents in two Norwegian counties before and after a traffic safety campaign. *Safety Science, 42*, 1–21.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior, 25*, 293–315.
- Spector, P. E., Zapf, D., Chen, P. Y., & Frese, M. (2000). Why negative affectivity should not be controlled in job stress research: Don't throw out the baby with the bath water. *Journal of Organizational Behavior, 21*, 79–95
- Terracciano, A., McCrae, R. R., & Costa, P. T. (2003). Factorial and construct validity of the Italian Positive and Negative Affect Schedule (PANAS). *European Journal of Psychological Assessment, 19*, 131–141.
- Tofighi, D., & MacKinnon, D. P. (2011). RMediation: An R package for mediation analysis confidence intervals. *Behavior Research Methods, 43*, 692–700.
- Watson, D., & Clark, L. A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin, 96*, 465–490.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063–1070.
- Yaris, C., Ditchburn, G., Curtis, G. J., & Brook, L. (2020). Combining physical and psychosocial safety: A comprehensive workplace safety model. *Safety Science, 132*, 104949.
- Yıldırım, M., Güler, A. (2020). Factor analysis of the COVID-19 Perceived Risk Scale: A preliminary study. *Death Studies*. Advance online publication.
- Zeijen, M. E. L., Brenninkmeijer, V., Peeters, M. C. W., & Mastenbroek, N. J. J. M. (2021). Exploring the role of personal demands in the health-impairment process of the job demands-resources model: A study among master students. *International Journal of Environmental Research and Public Health, 18*, 632.

INCLUSIVE EMPLOYMENT FOR PEOPLE WITH DISABILITY: A REVIEW

Marcos Gómez-Puerta¹, Esther Chiner², & María-Cristina Cardona-Moltó²

¹*Department of Developmental Psychology and Teaching, University of Alicante (Spain)*

²*Department of Health Psychology, University of Alicante (Spain)*

Abstract

Various organizations and institutions have supported in recent years the importance of achieving an improvement in the participation in society of people with disabilities through their access to employment. Despite the development of international conventions and specific action plans, people with disabilities continue to encounter barriers to their labour inclusion. The present study aimed to examine scientific production in the field of inclusive employment of people with disabilities from a bibliometric perspective. The sample of 127 documents on this subject was obtained from the core collection of Web of Science (WoS). Data analysis was performed using the bibliometric analysis tools available in WoS. The results indicate a progressive increase in the number of publications. However, the studies are still insufficient in order to be able to include an exhaustive knowledge of the conditions that make it difficult for these people to access employment, due to the wide range of types of disability and the variability of the characteristics of the people who present it. This being a preliminary study, it is advisable to continue with the bibliometric analysis of the data in order to achieve a better perspective of what has been published so far.

Keywords: *Disability, employment, inclusive workplace, bibliometrics, barriers.*

1. Introduction

The social model of disability (Oliver, 1983) considers that disability is a consequence of existing barriers in the subject's environment. These are manifested in access barriers, attitudes and behaviours that favour the discrimination of people whose capacities do not allow them to overcome such barriers. This approach is still in force today (Oliver, 2013), highlighting the need to identify and intervene in the barriers that limit the full participation in society of people with disabilities.

Based on the review by Khayat-zadeh-Mahani et al. (2019), the barriers that limit access to employment, especially in the case of people with intellectual and developmental disabilities, are attributable to both individual factors and environmental factors. Barriers related to the characteristics of the subject include relationship and social skills difficulties, verbal and non-verbal language disorders, and difficulties in accepting changes in routines. Environmental barriers usually derive from the characteristics of the company (e.g. type of business, company size, location), policy and making insufficient or inappropriate job adjustments, attitudes and prejudices of the business community, perceived costs of hiring of a person with a disability, or low family expectations. Beyond social barriers, the systematic review conducted by Cheng et al. (2018) has shown that the majority of research related to the labour inclusion of people with disabilities has focused on individual-level strategies to provide employment support. Therefore, at present, there are still very few studies focused on determining the contextual factors that can improve the labour insertion of people with disabilities (Rey Pérez and Mateo Sanz, 2018). The reviews carried out so far on this topic have consisted of narrative reviews of the literature (Ruhindwa, Randall, and Cartmel, 2016; Shore, Cleveland, and Sanchez, 2018) but a general bibliometric analysis has not been shown, a deficiency that this study tries to compensate.

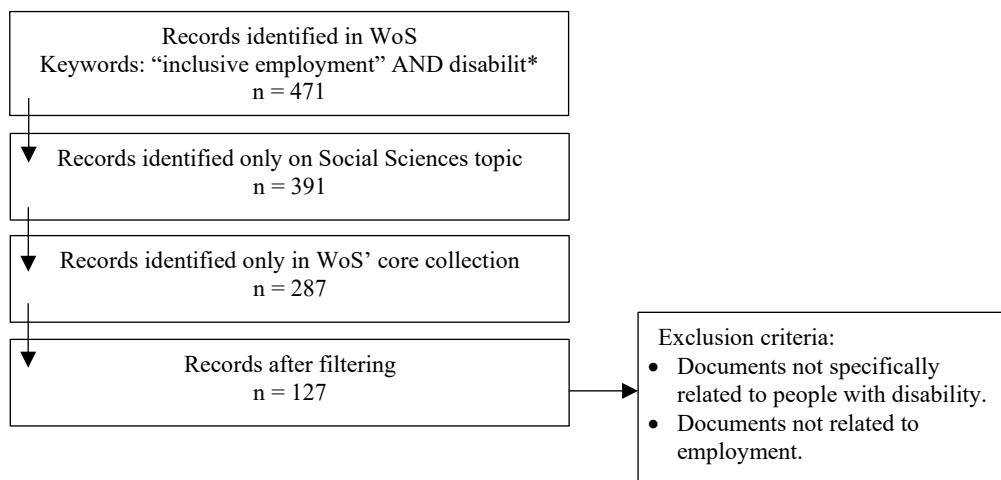
2. Methods

The purpose of this study was to examine the academic production on inclusive employment for people with disabilities in order to establish a preliminary overview of this area of study. This was done using a bibliometric methodology and a quantitative approach analysis to describe the evolution of research production, and productivity according to sources, authors, countries and affiliations.

2.1. Data collection

To obtain a report on the scientific production of inclusive work environments, one of the most academically relevant databases was accessed on March 12, 2021: the core collection of the Web of Science (WoS). The key terms used for the search were “inclusive employment” and “disabilit*”. The asterisk used in the term *disabilit** served to give valid forms of the word in singular (disability) and plural (disabilities). The Boolean AND connector was used to select those documents that included both terms (inclusive employment AND disability / ies). The search allowed locating these terms both in the title, the keywords and abstract of the document. There were no restrictions on time period or language. In order to refine the data, a series of criteria were applied. In the first place, only documents belonging to the field of Social Sciences were chosen. Second, only the publications belonging to the WoS core collection were selected. Finally, those records that did not specifically refer to people with disabilities or that did not specifically address the field of inclusive employment were eliminated, as reflected in the following flow diagram.

Figure 1. Data collection and filtering flow diagram.



2.2. Data analysis

Once the data was compiled, these were analysed using the bibliometric analysis tools available in WoS. Consistent with the objectives of the study, production was described by year, by source, by author, and impact by country, institution, source, author, and document. The 127 documents corresponded to 101 articles (79.5%), 13 reviews (10.2%), 7 conference papers (5.5%) and 5 books (4%) and other sources (0.8%). Most of the documents were written in English ($n = 118 / 92.9\%$).

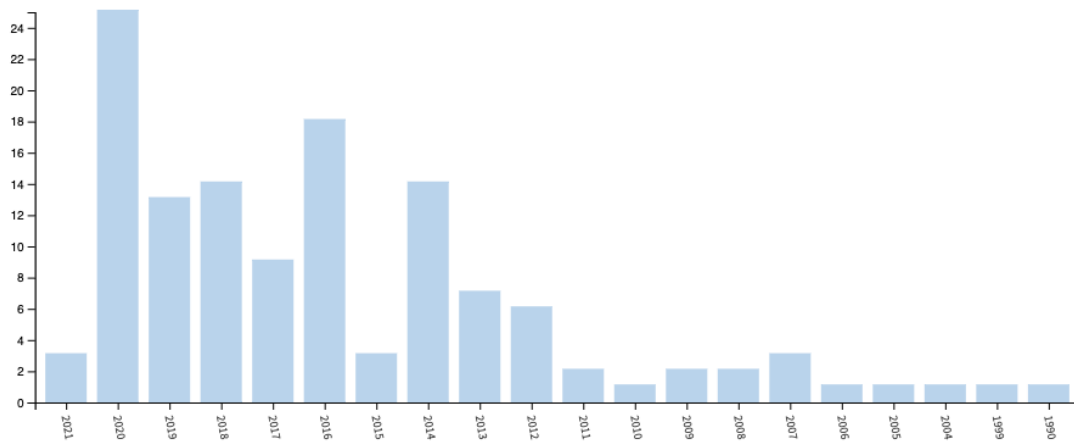
3. Results

The results are presented in subsections according to the order of planned research objectives: scientific production, production by sources, production by the authors, and production by country and affiliation.

3.1. Evolution of the scientific production by year

The production ranges from 1990 to the present, 2021, as can be seen in the data reflected in figure 2. However, the publications have not had regularity over the years. For example, from 1991 to 1998 or from 2000 to 2003 there were no publications on the matter. Despite this, production has progressively increased, reaching the zenith so far in 2020 with 25 articles (19.6% of the total in a single year).

Figure 2. Annual scientific production on inclusive employment.



3.2. Sources' productivity

The most relevant sources in terms of the number of publications on the subject analysed are Disability & Society ($n = 11$) and Work: A Journal of Prevention Assessment Rehabilitation ($n = 7$), as reflected in Table 1.

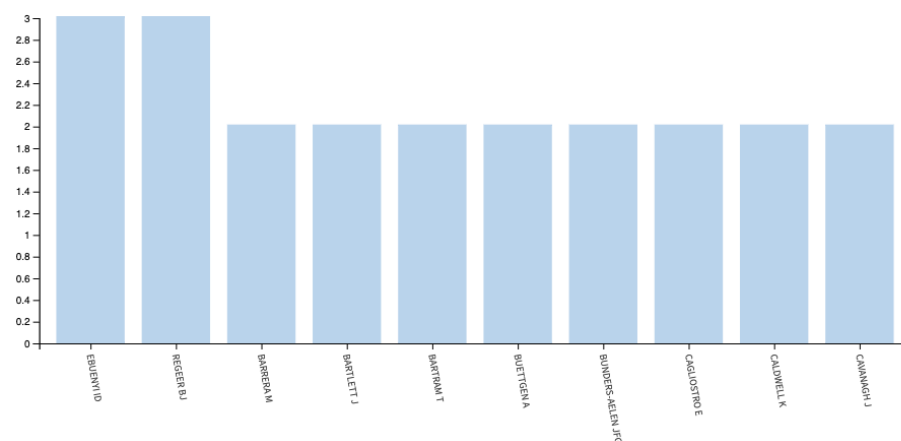
Table 1. Main Source Productivity.

| Sources | Documents |
|---|-----------|
| Disability & Society | 11 |
| Work: A Journal of Prevention Assessment Rehabilitation | 7 |
| Disability and Rehabilitation | 5 |
| International Journal of Environmental Research and Public Health | 4 |
| International Journal of Human Resource Management | 3 |
| Journal of Intellectual Developmental Disability | 3 |
| Journal of Occupational Rehabilitation | 3 |
| Personnel Review | 3 |
| Canadian Journal of Nonprofit and Social Economy Research | 2 |
| Equality, Diversity and Inclusion | 2 |

3.3. Authors' scientific production

Regarding the production by authors, Ebuenyi and Reggeer are the most prolific in this field, having published three articles each. The rest of the authors among the 10 most productive have only published 2 articles (Figure 2).

Figure 2. Most relevant authors.



The 10 most relevant articles by the number of citations they have received since they were published are reflected in table 2.

Table 2. Most cited documents.

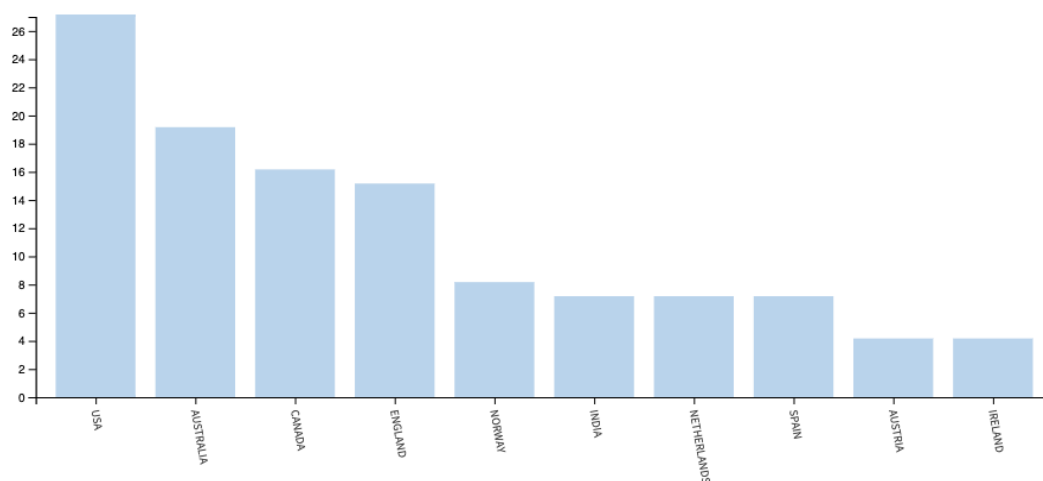
| Paper | TC | TC per year |
|---|----|-------------|
| Certo, N. J. et al. (2008). Seamless Transition and Long-Term Support for Individuals With Severe Intellectual Disabilities. <i>Research and Practice for Persons with Severe Disabilities</i> , 22(3), 85-95. | 46 | 3,29 |
| Adamou, M. et al. (2013). Occupational issues of adults with ADHD. <i>BMC Psychiatry</i> , 13. | 36 | 4 |
| Lysaght, R., Cobigo, V. and Hamilton, K. (2012). Inclusion as a focus of employment-related research in intellectual disability from 2000 to 2010: a scoping review- <i>Disability and Rehabilitation</i> , 34(16), 1339-1350. | 36 | 3,4 |
| Lindsay, S., Cagliostro, E., Albarico, M., Mortaji, N., & Karon, L. (2018). A Systematic Review of the Benefits of Hiring People with Disabilities. <i>Journal of Occupational Rehabilitation</i> , 28(4), 634–655. | 35 | 8,75 |
| Kocman, A., Fischer, L., & Weber, G. (2018). The Employers' perspective on barriers and facilitators to employment of people with intellectual disability: A differential mixed-method approach. <i>Journal of Applied Research in Intellectual Disabilities</i> , 31(1), 120–131. | 25 | 6,25 |
| Martins, A. (2015). Using the International Classification of Functioning, Disability and Health (ICF) to address facilitators and barriers to participation at work. <i>Work</i> , 50(4), 585–593. | 25 | 3,57 |
| Mirenda, P. (2014). Revisiting the Mosaic of Supports Required for Including People with Severe Intellectual or Developmental Disabilities in their Communities. <i>Augmentative and Alternative Communication</i> , 30(1), 19–27. | 24 | 3 |
| Etherington, D., & Ingold, J. (2012). Welfare to work and the inclusive labour market: a comparative study of activation policies for disability and long-term sickness benefit claimants in the UK and Denmark. <i>Journal of European Social Policy</i> , 22(1), 30–44. | 24 | 2,40 |
| Mank, D., Cioffi, A., & Yovanoff, P. (1999). Impact of coworker involvement with supported employees on wage and integration outcomes. <i>Mental retardation</i> , 37(5), 383–394. | 21 | 0,91 |
| Chan, W., Smith, L. E., Hong, J., Greenberg, J. S., Lounds Taylor, J., & Mailick, M. R. (2018). Factors associated with sustained community employment among adults with autism and co-occurring intellectual disability. <i>Autism: the international journal of research and practice</i> , 22(7), 794–803. | 18 | 4,50 |

TC: Total citations

3.4. Country and affiliation productivity

The most productive countries in terms of scientific publications are the United States of America with 27 documents (21.2%), Australia with 19 (14.9%), Canada with 16 (12.5%) and the United Kingdom with 15 (11.8%).

Figure 3. Scientific production by countries.



The institutions that have published the most academic papers in the WoS core collection are, coherently with productivity by country, Anglosphere universities. In particular, the most productive are McMaster University (Canada), Griffith University and La Trobe University (Australia).

Table 3. Most relevant affiliations according to their academic productivity.

| Affiliation | Documents |
|--|-----------|
| McMaster University | 6 |
| Griffith University | 4 |
| La Trobe University | 4 |
| Monash University | 4 |
| University of Sydney | 4 |
| University of Toronto | 4 |
| Maastricht University | 3 |
| McGill University | 3 |
| Norwegian University of Science Technology | 3 |
| University of Barcelona | 3 |

4. Discussion and conclusions

The results show a growing interest in developing inclusive work environments for people with disabilities. Evidence of this is that only in 2020 almost 20% of the total articles on this subject were published and that in the last 5 years at least 5 articles were published annually. The production by author seems to indicate that the lines of research have not developed in a sustained manner over time since, for example, Ebuenyi as the most prolific author has only published 3 articles. Similarly, the most relevant publications in terms of the number of citations show that they are scarcely cited documents ($n = 46$ in the best case), which could indicate that there are few research groups actively studying this question or that their productivity is scarce in terms of articles available in the WoS. The Anglo-Saxon countries such as the USA, Australia, Canada or the United Kingdom are being the most productive to date. In this sense, the production of the most productive European countries ranked among the 10 most relevant barely reaches the number of publications achieved by the USA. Therefore, research in this field should be expanded in Europe. The recommendation to expand and diversify studies on people with disabilities and employment had already been previously advised by other authors (Rey Pérez and Mateo Sanz, 2018; Ruhindwa et al., 2016; Shore et al., 2018), especially regarding research on how to develop inclusive work environments (Khayatzadeh-Mahani et al., 2019).

This study has a series of limitations that must be taken into account when interpreting its results. First, there may be relevant publications not included in the WoS core collection and that, therefore, have not been included in this analysis. Second, only papers belonging to the Social Sciences have been analyzed. Finally, the use of a limited number of terms in the search could have omitted certain articles that used other concepts. Future bibliometric investigations could try to compensate for these limitations by carrying out such analyses.

Acknowledgements

Cátedra Aguas de Alicante de Inclusión Social (University of Alicante, Spain).

References

- Khayatzadeh-Mahani, A., Wittevrongel, K., Nicholas, D. B., and Zwicker, J. D. (2019). Prioritizing barriers and solutions to improve employment for persons with developmental disabilities. *Disability and Rehabilitation*, 42(19), 2696–2706. <https://doi.org/10.1080/09638288.2019.1570356>
- Oliver, M. (1983). *Social Work with Disabled People. Social Work with Disabled People*. Macmillan Education UK. <https://doi.org/10.1007/978-1-349-86058-6>
- Oliver, M. (2013). The social model of disability: thirty years on. *Disability & Society*, 28(7), 1024–1026. <https://doi.org/10.1080/09687599.2013.818773>
- Rey Pérez, J. L., and Mateo Sanz, L. (2018). *El empleo de las personas con discapacidad: oportunidades y desafíos*. Madrid: Dykinson.
- Ruhindwa, A., Randall, C., and Cartmel, J. (2016). Exploring the challenges experienced by people with disabilities in the employment sector in Australia: Advocating for inclusive practice-a review of literature. *Journal of Social Inclusion*, 7(1), 4–19. <https://doi.org/10.36251/josi.99>
- Shore, L. M., Cleveland, J. N., and Sanchez, D. (2018). Inclusive workplaces: A review and model. *Human Resource Management Review*, 28(2), 176–189. <https://doi.org/10.1016/j.hrmr.2017.07.003>

TRANSFORMATION OF COPING IN THE SOCIAL SITUATION OF TRANSITIVITY: CROSS-CULTURAL ASPECT

Vasilisa Orestova¹, Dmitry Khoroshilov¹, & Elena Belinskaya²

¹Russian State University for the Humanities (Russia)

² Russian State University for the Humanities, Moscow State Lomonosov University (Russia)

Abstract

In the modern world, when the situation of social transitivity is, in fact, a complex difficult situation, it is relevant to turn to the study of coping methods that are characteristic and specific to this situation. A special role in the study of coping in a transitive society can be played by turning to cross-cultural studies that allow us to trace the transformations of coping in the context of modernization society.

The article presents the results of a thematic analysis of narratives and free-form interviews of respondents from Russia and Uzbekistan, which allow us to conclude that the transformation of coping strategies in the process of modernizing traditional culture goes along the path of individualization, which is expressed as the need to take individual responsibility for solving difficult situations, and in the formation of a flexible repertoire of coping strategies that correspond to an individualistic, rather than a receding traditional collectivist culture. The study allows not only to understand individual strategies of perception, categorization and affective assessment of difficult life situations by representatives of different cultures, but also makes it possible to interpret them in the broader context of studying coping processes in a situation of social uncertainty and variability.

Keywords: *Transitivity, modernization, coping, culture.*

1. Introduction

Today, when the transitivity of the socio-cultural space, characterized by uncertainty and variability of its parameters, is, in fact, a kind of difficult life situation for a person (Martsinkovskaya, 2015), the study of coping methods characteristic of this situation becomes particularly relevant. The socialization of a modern person takes place in an information space characterized by uncertainty, multiplicity, and variability of its parameters, and to some extent, this is typical even for people living in fairly traditional culture. In an ever-changing world, there is an expansion of the range of problematic situations and the absence of effective ways to overcome them formed in the traditional culture, which requires a review of the old and the development of new coping strategies. The appeal to qualitative cultural and cross-cultural studies (Swartz, Rohleder, 2017) allows us to reveal the question of how the transformation of coping strategies occurs in the process of modernization of traditional culture, which is inevitable in a situation of socio-cultural transitivity in post-soviet states (Kivinen, Humphreys, 2021).

Coping behavior is a function of the person in the environment. The concept of the interaction of personality and situation goes back to the classical ideas of K. Lewin and is today, perhaps, one of the most popular approaches in both personality psychology and social psychology (Lewin, 2017). It is assumed that in the context of the study of coping, a similar model can be used, where coping behavior is considered as a function of the subjective interpretation of the situation and is modified by its real requirements. Various cognitive, motivational, and emotional factors that determine coping behavior can be correlated with a person's categorization of the psychological meaning of the situation.

The theoretical and empirical analysis of the problem of coping from the standpoint of the situational approach requires taking into account a variety of contextual variables, among which the cultural environment of a person is the most important one. A separate direction is related to the study of coping behavior in traditional cultures as a function of the rituals of transition and initiation, which is the disciplinary heritage of anthropology and ethnography. The main difficulty of the situational approach lies in the fact that the tools available to psychologists are not able to record the dynamic change in the personality – situation relationship. The qualitative analysis of coping strategies with the dynamic cultural changes in modern societies can partially solve this problem.

In psychology, quantitative methods are used to study the cultural determination of coping behavior; the relevant tools are clearly developed and validated, and the rich empirical is the subject of the meta-analysis and interdisciplinary interpretation (Belinskaya, 2009; Carver, Connor-Smith, 2010). In recent years the Russian psychologists use projective methods and qualitative content analysis of respondents' self-reports for the study of coping behavior (Bityutskaya, Kartseva 2013).

2. Research design and methods

The objective of cross-cultural qualitative research was to study the experience of difficult life situations and coping strategies in Russia and Uzbekistan. The purposive sample included the students (n=60) of universities in Tashkent (n=30) and Moscow (n=30) aged 18 to 21. Respondents shared their experience of difficult life situations in unstructured narrative interviews. The original question was what they consider as a difficult life situation, what examples from the everyday life they can remember, and finally how they tried to cope with it. All materials were analyzed with the method of thematic analysis. The main strategies of thematic analysis are as follows: 1. familiarizing yourself with your data; 2. generating initial codes; 3. searching for themes; 4. reviewing themes; 5. defining and naming themes; 6. producing the report (Braun, Clarke, 2006).

3. Results and discussion

Thematic analysis of narratives reveals similar perceptions by respondents from Moscow and Tashkent of problematic or difficult situations in everyday life. These include illness and death of the old relatives and young friends, interpersonal conflicts, making life-changing decisions, learning difficulties. Although the listed topics are invariant for the two purposive samples, there is a cross-cultural difference in their interpretation, which concerns the degree of individualization of coping strategies and the dynamics of the Self – Other relationship in conflict situations of interpersonal communication.

It became obvious at the stage of data collection that respondents from Tashkent are franker in describing personal and sometimes traumatic experiences than respondents from Moscow.

The narratives of respondents from Tashkent about the experience of the loss of close relatives are distinguished by genuine drama (the death of a grandfather as an elder of the family or the death of a parent of the opposite sex is often mentioned). The respondents are focused on supporting a significant Other than on independent internal “working through” the traumatic experience. The psychological work of grief and melancholy are projected onto the suitable authority figures of parents who, contrary to their expectations, confine themselves to formal and traditional prescriptions, as reflected in the following passage: *“Several years ago, when I lost my grandfather, I could not stop crying, all the while thinking about what I had not done with him. He often repeated the date of his possible death, and then I blamed myself for not believing his words. It was just a storm of despair. Mom said: because I cry, it is not easier for him, my tears, according to Islam, keep him in this world. I decided to look after his grave and pray for him. I collected in the form of a photo album all the moments when we were together. She thanked him for the love for me, which she could not make up for him, but simply did not have time”*.

The second theme with a characteristic heightened emotional resonance in the narratives of the respondents from Tashkent is acute interpersonal conflicts, in which personal and intergroup boundaries are often violated between different generations, family clans, and social classes. The most common plot is associated with parental interference in romantic relationships (*“My parents read my correspondence with my boyfriend without my knowledge”*; *“I loved the young man, and he reciprocated until he met his mother, who rejected me because of the finances of my family and my appearance, and he abandoned me”*). Parents also participate in interpersonal conflicts of their children (*“Betrayal of a friend: she set me up, she talked to the guys on social networks, and told her mother that it was me. Her mother called my mother and said that I was ill-mannered. My illusions about our friendship scattered”*). A friend can be replaced by an animal, which only increases the emotional tension of the encounter with his loss (*“I had a dog, my parents gave it away without my knowledge after 3 years of life. There was such an insult and emptiness, I sat in the room for three days, did not talk to anyone, watched films about dogs and cried even more”*). The topic of relationships with parents appears in these narratives as relationships mainly with a parent of the same sex, who acts both as a source of normative prescriptions regarding models of social behavior, and as an object of negative feelings (resentment, anger).

Nothing of the kind was found in the narratives of respondents from Moscow: their various spheres of life and relationships are quite clearly differentiated, and interpersonal conflicts were resolved constructively or were forgotten and displaced. In other words, they demonstrated a versatile and flexible repertoire of coping strategies in various situations, more focused on reflection and analysis than on immersion in long-term worries about the difficulties that have arisen.

The two designated themes are related to each other: the real loss of a significant Other becomes a symbolic indication of the lack of cultural and psychological resources for independent coping with difficult situations concerning tangled interpersonal (and intergenerational) relationships. Because of this circumstance, the respondents from Tashkent have to “invent” coping strategies in everyday life (because the hopes for support and care of the family circle are dashed against the traditional social prescriptions of its members). Here are several illustrations: “*Nobody knew the reasons, I read, listened to music*”, “*I grieved, watched TV shows and drank sleeping pills*”, “*I told myself in my mind: I am a psychologist, and I can make everything so good.*” It is characteristic that indications of consistently pronouncing for themselves the chosen coping strategies (regardless of the sphere of life where they arose) are found only in the Tashkent sample.

4. Conclusions

The narrative experience of coping in post-soviet societies can be interpreted as a psychological reflection of the modernization of the traditional culture and the transformation of its collectivist attitudes into individualistic ones. According to K. Girtz, modernization transforms a traditional form of life, stable and closed, into a risky form of life, adapting and constantly changing (Geertz, 1995). A significant expansion of the range of problematic and difficult situations in a transitive societies requires taking individual responsibility for their decisions and the formation of a flexible repertoire of coping strategies that correspond to individualistic rather than traditional collectivist culture (what becomes evident in the cross-cultural perspective).

Acknowledgments

This work was supported by the Russian Science Foundation, project 19-18-00516 “Transitive and virtual spaces - commonality and differences”.

References

- Belinskaya, E.P. (2009), “Coping as social-cultural problem”. *Psikhologicheskie Issledovaniya*, 1 (3), [In Russian, abstract in English] Retrieved from <http://psystudy.ru> (Accessed 9 Dec 2020).
- Bityutskaya, E.V. & Kartseva, E.V. (2013). ““My difficult life situation” drawing technique as a diagnostic tool of perception of a difficult situation”. *Journal of Practical Psychologist*, no. 4, pp. 102–132.
- Braun V.& Clarke V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, Vol. 3, p. 77–101.
- Carver, C.S. & Connor-Smith, J. (2010), “Personality and coping”. *Annual Review of Psychology*, vol. 61, pp. 679–704.
- Geertz C. (1995). *After the Fact: Two Countries, Four Decades, One Anthropologist*. Cambridge, Mass.: Harvard University Press.
- Kivinen M. & Humphreys B. (Eds.). (2021). *Russian Modernization: A New Paradigm*. L.: Routledge.
- Lewin K. A (2017) *Field theory in social sciences*. M.: Akademicheskij proekt
- Martsinkovskaya, T.D. (2015). Modern psychology - challenges of transitivity. *Psikhologicheskie Issledovaniya*, 8(42), 1. [In Russian, abstract in English] Retrieved from <http://psystudy.ru/index.php/num/2015v8n42/1168-martsinkovskaya42.html>
- Swartz L. & Rohleder P. (2017) Cultural Psychology. Ed. by C. Willig & W. Stainton-Rogers. *The Sage handbook of qualitative research in psychology* (P. 561–571). L.: Sage.

SUPPORTED EMPLOYMENT AS A STRATEGY FOR ACCESS TO INCLUSIVE EMPLOYMENT FOR PEOPLE WITH DISABILITIES: A REVIEW

Esther Chiner¹, Marcos Gómez-Puerta², María-Cristina Cardona-Moltó¹

¹*Department of Health Psychology, University of Alicante (Spain)*

²*Department of Developmental Psychology and Teaching, University of Alicante (Spain)*

Abstract

Unlike other training models, supported employment promotes training and adjustment to the job in the workplace itself. Supported employment is considered one of the most appropriate strategies to promote labour inclusion in ordinary companies, especially in the case of people with intellectual disabilities. Likewise, it favours the supply of supports of varying degrees of intensity in a longitudinal manner, as well as the establishment of natural supports among other co-workers. The objective of this study was to examine the scientific production on supported employment of people with disabilities through a bibliometric analysis. The sample of 717 documents on this subject was obtained from the core collection of the Web of Science (WoS). Data analysis was performed using the bibliometric tools available at the WoS website. The results indicate a great interest on this subject in the last decades, being reflected in a great scientific production. However, this seems to have partially slowed down since the economic crisis of 2008. This being a preliminary study, it is advisable to continue with the bibliometric analysis of the data in order to achieve a better perspective of what has been published so far.

Keywords: *Disability, supported employment, inclusive workplace, bibliometrics, barriers.*

1. Introduction

The 2030 Agenda for Sustainable Development (United Nations, 2015) establishes in target 10.2 of Sustainable Development Goal 4 (Quality education for all) the purpose of empowering and promoting the social, economic and political inclusion of all people regardless of their age, sex, disability, race, ethnicity, origin, religion or economic situation or other condition. As a consequence of the initiatives aimed at fighting their discrimination, in recent decades there has been progressively greater sensitivity in the workplace towards people with disabilities and other disadvantaged groups (Fisac, Moreno, Mataix, and Palacios, 2011). Despite the various political initiatives enacted, there is multiple evidence that people with disabilities are one of the groups most discriminated against by society, and this discrimination may manifest itself in various ways such as direct or indirect discrimination, failure to make reasonable adjustments in the environment, harassment or victimization (Equality and Human Rights Commission, 2018). Khayatzadeh-Mahani et al. (2019) have identified that there are barriers both in the person and in the environment that can limit access and participation in employment for people with disabilities. Supported employment has shown its effectiveness in terms of the results of, on the one hand, the access to and maintenance of the job and, on the other, the improvement of the person's quality of life (Frederick and VanderWeele, 2019). Furthermore, there is evidence that hiring people with disabilities brings specific benefits to companies (e.g. profits and cost-effectiveness, turnover and retention, reliability and punctuality, employee loyalty, company image) (Lindsay, Cagliostro, Albarico, Mortaji, and Karon, 2018). Until now, reviews of the literature on supported employment have focused on measuring its effectiveness (Cheng et al., 2018; Frederick and VanderWeele, 2019) or the impact on people with certain types of disability (Cheng et al., 2018; Khayatzadeh-Mahani et al., 2019). Nevertheless, a general bibliometric analysis has not been shown, a deficiency that this study tries to compensate.

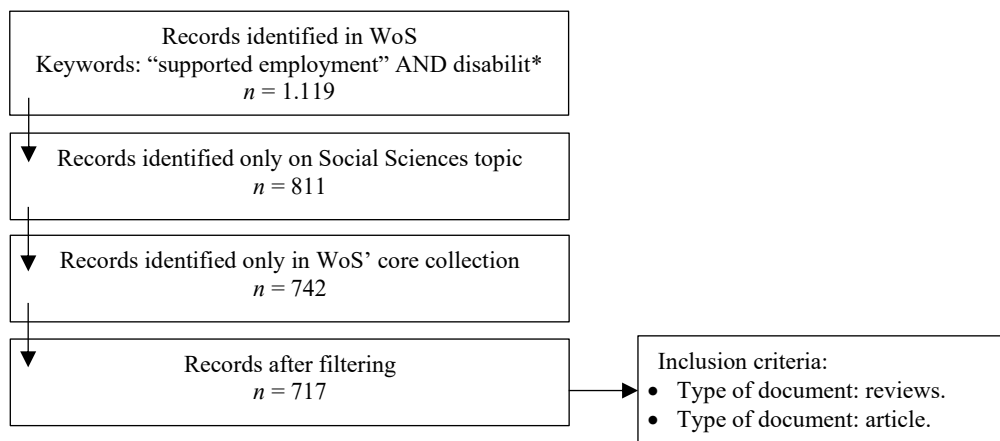
2. Methods

The purpose of this study was to examine the academic production on supported employment for people with disabilities in order to establish a preliminary overview of this area of study. This was done using a bibliometric methodology and a quantitative approach analysis to describe the evolution of research production, and productivity according to sources, authors, countries and affiliations.

2.1. Data collection

To obtain a report on the scientific production of inclusive work environments, one of the most academically relevant databases was accessed on March 11, 2021: the core collection of the Web of Science (WoS). The key terms used for the search were “supported employment” and “disabilit*”. The asterisk used in the term disabilit * served to give valid forms of the word in singular (disability) and plural (disabilities). The Boolean AND connector was used to select those documents that included both terms (inclusive employment AND disability/ies). The search allowed locating these terms in the title, the keywords and abstract of the document. There were no restrictions on time period or language. In order to refine the data, a series of criteria were applied. In the first place, only documents belonging to the field of Social Sciences were chosen. Second, only the publications belonging to the WoS core collection were selected. Finally, we chose only articles and reviews as valid documents for this study, as reflected in the following flow diagram.

Figure 1. Data collection and filtering flow diagram.



2.2. Data analysis

Once the data was compiled, these were analysed using the bibliometric analysis tools available in WoS. Consistent with the objectives of the study, production was described by year, by source, by author, and impact by country, institution, source, author, and document. The 717 documents corresponded to 592 articles (82.56%) and 125 reviews (14.44%). Most of the documents were written in English ($n = 692 / 96.5\%$).

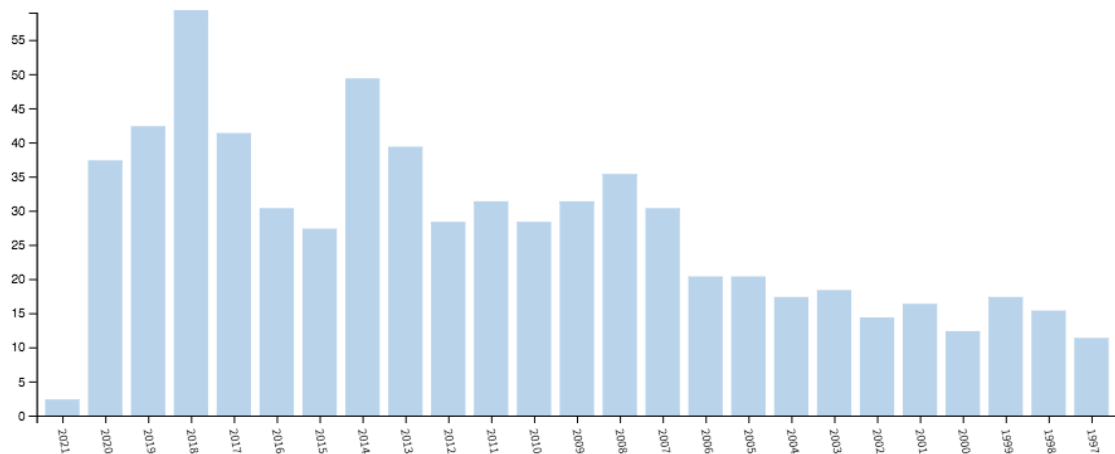
3. Results

The results are presented in subsections according to the order of planned research objectives: scientific production, production by sources, production by the authors, and production by country and affiliation.

3.1. Evolution of the scientific production by year

The production ranges from 1988 to the present, 2021, as can be seen in the data reflected in figure 2. Publications are registered every year since the beginning in 1988. In addition, the data reflect a progressive increase in papers on this subject, reaching production limits in 2018 ($n = 59 / 8.2\%$) and 2014 ($n = 49 / 6.8\%$). Despite this general increase trend in production, striking productivity valleys can be observed from 2015 to 2017 and from 2019 to the present. Likewise, a productive plateau can be observed between 2008 and 2012, probably the worst years of the global financial crisis.

Figure 2. Annual scientific production on inclusive employment.



3.2. Sources' productivity

The most relevant sources in terms of the number of publications on the subject analysed are Psychiatric Rehabilitation Journal ($n = 56$), Psychiatric Services ($n = 36$) and Psychiatric Services Washington D C ($n = 36$), as reflected in Table 1.

Table 1. Main Source Productivity.

| Sources | Documents |
|---|-----------|
| Psychiatric Rehabilitation Journal | 56 |
| Psychiatric Services | 36 |
| Psychiatric Services Washington D C | 36 |
| Work A Journal Of Prevention Assessment Rehabilitation | 33 |
| Work Reading Mass | 33 |
| Journal Of Applied Research In Intellectual Disabilities | 26 |
| Mental Retardation | 22 |
| Education And Training In Mental Retardation And Developmental Disabilities | 18 |
| Disability And Rehabilitation | 17 |
| Journal Of Occupational Rehabilitation | 15 |

3.3. Authors' scientific production

Regarding the production by authors, R. E. Drake and G. R. Bond are the most prolific in this field, having published 111 and 85 articles, respectively. The rest of the authors among the 10 most productive have published in a range of 10 to 38 articles (Table 2).

Table 2. Most relevant authors.

| Authors | Documents |
|---------------|-----------|
| Drake, R. E. | 111 |
| Bond, G. R. | 85 |
| Becker, D. R. | 38 |
| Mueser, K. T. | 37 |
| Rogers, E. S. | 30 |
| Waghorn, G. | 28 |
| Cook, J. A. | 22 |
| Wehman, P. | 21 |
| Beyer, S. | 10 |
| Cimera, R. E. | 10 |

The 10 most relevant articles by the number of citations they have received since they were published are reflected in table 3.

Table 3. Most cited documents.

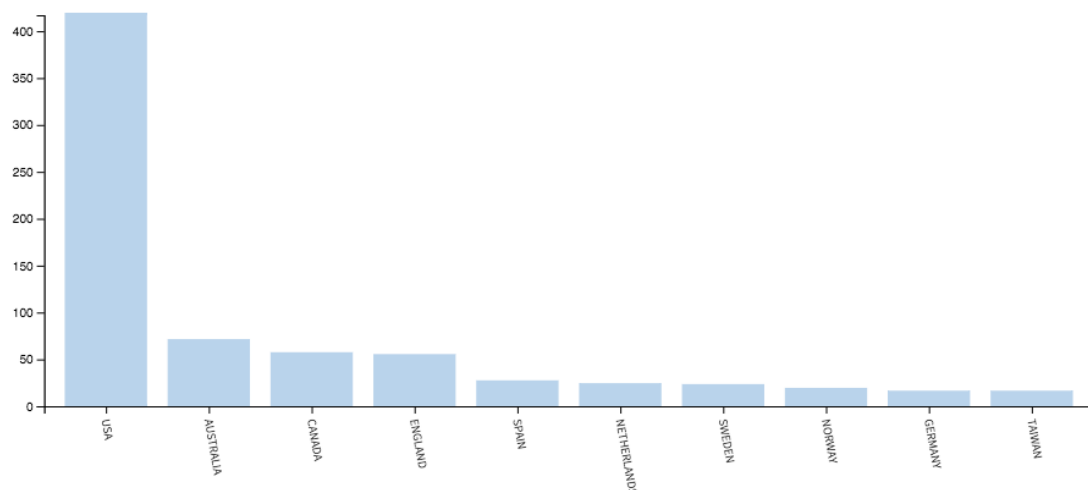
| Paper | TC | TC per year |
|--|-----|-------------|
| Mueser, K. T. & McGurk, S. R. (2004). Schizophrenia. <i>Lancet</i> , 363(9426), 2063-2072. | 610 | 33.89 |
| Lehman, A., et al. (2004). The Schizophrenia Patient Outcomes Research Team (PORT): Updated Treatment Recommendations 2003. <i>Schizophrenia Bulletin</i> , 30(2), 193–217. https://doi.org/10.1093/oxfordjournals.schbul.a007071 | 393 | 21.83 |
| Rosenheck, R., L et al. (2006). Barriers to employment for people with schizophrenia. <i>The American journal of psychiatry</i> , 163(3), 411–417. https://doi.org/10.1176/appi.ajp.163.3.411 | 298 | 18.63 |
| Bond, G. R., Drake, R. E., Mueser, K. T., & Becker, D. R. (1997). An update on supported employment for people with severe mental illness. <i>Psychiatric services (Washington, D.C.)</i> , 48(3), 335–346. https://doi.org/10.1176/ps.48.3.335 | 248 | 9.92 |
| Krause, N., Dasinger, L., & Neuhauser, F. (1998). Modified Work and Return to Work: A Review of the Literature. <i>Journal of Occupational Rehabilitation</i> , 8(2), 113–139. https://doi.org/10.1023/A:1023015622987 | 221 | 9.21 |
| Cook, J. A., et al. (2005). Results of a multisite randomized trial of supported employment interventions for individuals with severe mental illness. <i>Archives of general psychiatry</i> , 62(5), 505–512. https://doi.org/10.1001/archpsyc.62.5.505 | 197 | 11.59 |
| Stuart H. (2006). Mental illness and employment discrimination. <i>Current opinion in psychiatry</i> , 19(5), 522–526. https://doi.org/10.1097/01.yco.0000238482.27270.5d | 166 | 10.38 |
| Dunn, E. C., Wewiorski, N. J., & Rogers, E. S. (2008). The meaning and importance of employment to people in recovery from serious mental illness: results of a qualitative study. <i>Psychiatric rehabilitation journal</i> , 32(1), 59–62. https://doi.org/10.2975/32.1.2008.59.62 | 161 | 11.50 |
| Harvey, P. D., Velligan, D. I., & Bellack, A. S. (2007). Performance-based measures of functional skills: usefulness in clinical treatment studies. <i>Schizophrenia bulletin</i> , 33(5), 1138–1148. https://doi.org/10.1093/schbul/sbm040 | 161 | 10.73 |
| Mueser, K. T., et al. (2004). The Hartford study of supported employment for persons with severe mental illness. <i>Journal of consulting and clinical psychology</i> , 72(3), 479–490. https://doi.org/10.1037/0022-006X.72.3.479 | 161 | 8.94 |

TC: Total citations

3.4. Country and affiliation productivity

The most productive countries in terms of scientific publications are the United States of America with 417 documents (58.15%), Australia with 69 (9.6%), Canada with 55 (7.6%) and the United Kingdom with 53 (7.4%).

Figure 3. Scientific production by countries.



The affiliations that have published more academic papers in the WoS core collection are, coherently with productivity by country, institutions from the United States of America. In particular, the most productive are Boston University, Dartmouth College and the US Department of Veterans Affairs.

Table 4. Most relevant affiliations according to their academic productivity.

| Affiliation | Documents |
|-----------------------------------|-----------|
| Boston University | 74 |
| Dartmouth College | 55 |
| US Department of Veterans Affairs | 43 |
| Veterans Health Administration | 40 |
| University of Illinois System | 35 |
| Indiana University System | 29 |
| Virginia Commonwealth University | 29 |
| University System of Maryland | 27 |
| Yale University | 27 |
| University of California System | 24 |
| University of Illinois | 23 |

4. Discussion and conclusions

The data obtained on the WoS academic productivity show that there is a broad and sustained interest from the scientific community about supported employment as a strategy for accessing and maintaining the job. This interest seems to be especially prominent in the case of people with intellectual disabilities or mental illness, groups that are especially discriminated against in hiring (World Health Organization, 2011). One evidence of this is that the three most cited articles address specific supports for people with schizophrenia. Likewise, the high productivity of the United States of America and their institutions, and of R. E. Drake and G. R. Bond as authors stands out. On the other hand, the analysis of the number of annual publications seems to indicate the sensitivity of this topic to financial crises. In conclusion, this study has shown that supported employment has captured the interest of researchers in the last 30 years, especially in Anglo-Sphere countries. However, the number of studies should be expanded in the European Union.

This study has a series of limitations that must be taken into account when interpreting its results. First, there may be relevant publications not included in the WoS core collection and that, therefore, have not been included in this analysis. Second, only papers belonging to the Social Sciences have been analysed. Finally, the use of a limited number of terms in the search could have omitted certain articles that used other concepts. Future bibliometric investigations could try to compensate for these limitations by carrying out such analyses.

Acknowledgments

Cátedra Aguas de Alicante de Inclusión Social (University of Alicante, Spain).

References

- Cheng, C., Oakman, J., Bigby, C., Fossey, E., Cavanagh, J., Meacham, H., and Bartram, T. (2018). What constitutes effective support in obtaining and maintaining employment for individuals with intellectual disability? A scoping review. *Journal of Intellectual and Developmental Disability*. Routledge. <https://doi.org/10.3109/13668250.2017.1327040>
- Equality and Human Rights Commission. (2018). *Disability discrimination*. Retrieved 8 January 2019, from <https://www.equalityhumanrights.com/en/advice-and-guidance/disability-discrimination>
- Fisac, R., Moreno, A., Mataix, C., and Palacios, M. (2011). La empresa social: revisión de conceptos y modelo para el análisis organizativo. *Revista Española Del Tercer Sector*, 17, 41–66.
- Frederick, D. E., and VanderWeele, T. J. (2019). Supported employment: Meta-analysis and review of randomized controlled trials of individual placement and support. *PLoS ONE*, 14(2). <https://doi.org/10.1371/journal.pone.0212208>
- Khayatzadeh-Mahani, A., Wittevrongel, K., Nicholas, D. B., and Zwicker, J. D. (2019). Prioritizing barriers and solutions to improve employment for persons with developmental disabilities. *Disability and Rehabilitation*, 42(19), 2696–2706. <https://doi.org/10.1080/09638288.2019.1570356>
- Lindsay, S., Cagliostro, E., Albarico, M., Mortaji, N., and Karon, L. (2018). A Systematic Review of the Benefits of Hiring People with Disabilities. *Journal of Occupational Rehabilitation*. Springer New York LLC. <https://doi.org/10.1007/s10926-018-9756-z>
- United Nations. Transforming our world: the 2030 Agenda for Sustainable Development, Pub. L. No. A/RES/70/1, 1 (2015). General Assembly.
- World Health Organization. (2011). *World Report on Disability*. Geneva: World health Organization.

THE PSYCHOANALYTIC THOUGHT OF HÉLIO PELLEGRINO (1924-1988): INITIAL REFLECTIONS

Larissa Leão de Castro, & Terezinha de Camargo Viana

Postgraduate program in Clinical Psychology and Culture, University of Brasília (Brazil)¹

Abstract

This theoretical study is part of a doctoral thesis and aims to investigate how the psychoanalytic thinking of Hélio Pellegrino - the Brazilian psychoanalyst, poet and writer - is structured and its ethical and political implications in the formation of psychoanalysis. We note the importance of thematic research, since there is no scientific publication that has as its object of study a systematic analysis of the author's psychoanalytic production. Furthermore, investigations of this kind contribute to the establishment of a reference bibliography on psychoanalysis in Brazil. That said, this research was developed and completed through a study of a large part of his psychoanalytic production, which is under the custody of the personal archives of the Museum of Brazilian Literature, at the Casa Rui Barbosa Foundation (FCRB). In this work, we outline some elements of the analysis found in his work, whose focus is on reflecting on the epistemological, conceptual and practical foundations of psychoanalytic theory. It has, as a constant concern, the analysis of the problems that structure Brazilian society, observed through his own reading of the Oedipus complex, the constitution of subjectivity and the social pact, in general, and in Brazil, in particular. As such, he discusses the explicit commitment of psychoanalysis in transforming the serious social problems faced by Brazil, which are related to the serious structural problems of international capitalism, and which are also reflected in the problems of the development of psychoanalytic institutions around the world.

Keywords: *Hélio Pellegrino, Oedipus complex, social pact, Brazil, subjectivation.*

1. Introduction

This research is grounded within a political conjuncture of renewed authoritarianism and the advancement of a global ultra-right political project. These tendencies are represented, for example, by the US imperialism of the Trump administration and the barbarism of the Bolsonaro government here in Brazil. Both attempted to use the covid-19 pandemic as a pretext to permit genocide, seeking to destroy not only the elements that constitute a humanizing civilizing process, but also putting the continuity and respect for life and civilization at risk. In this social crisis, the study of researches and theorists who posit a civilizing process and the elements that structure these social symptoms is even more important, in view of the need to overcome this humanitarian catastrophe.

One of the fundamental authors in this regard is Hélio Pellegrino, a psychoanalyst, poet, and Brazilian writer. He should be considered an indispensable theoretician for anyone concerned with the theories of the civilizing process. Furthermore, his thought is indispensable around the theories he developed of the Oedipus complex in psychoanalysis, about the subjective and objective conditions that structure or break with a humanizing civilizing process and about the elements of articulation and solidarity between the social pact and the oedipal pact at a social and intrapsychic level.

It is worth mentioning that there has been a recognition of authors from different countries about the scope and depth of psychoanalytic production in Brazil and Argentina. However, this recognition is only an academic formality and there are few studies on the subject (Rivera, 2017, p.2). We note the importance of thematic research, since there is no scientific publication that has as its object of study a systematic analysis of the author's psychoanalytic production. In addition, research of this order contributes to the establishment of a reference bibliography on psychoanalysis in Brazil, as well as with

¹ The author of this article is grateful for the financial aid for doctoral research, of which this work was part, by the National Council for Scientific and Technological Development (CNPq), a federal public agency that contributes to the dedication of researchers in the country to research aimed at the interest of Brazilian society and for publicizing the results achieved. I also thank Ciaran Leonard, for translating this text into English.

Correspondence concerning this article should be addressed to Larissa Leão. E-mail: larissa.leao.castro@gmail.com

the consideration of the advances of psychoanalysis as critical thinking and on the theoretical repressions present in the revisionism observed within psychoanalytic institutions.

In order to complete the thesis of which this work is part, I spent some time at the Museum of Brazilian Literature, situated in the Casa Rui Barbosa Foundation (FCRB), in Rio de Janeiro, for a period of research into the author's personal files. I note how, in different works, Pellegrino looks at how an amnesia has developed around the most original elements in Freudian theory, its fundamental concepts, as well as contributing an analysis of the theme of revolutions that are found in culture - and which are present in the myths of Totem and Tabu and in other Freudian discoveries. This is in addition to developing a critical analysis of the fundamentals and basic concepts of psychoanalysis.

2. The naturalization of violence by the alienating bad faith of apolitical psychoanalysis

Here are some initial reflections that are part of this doctoral thesis about the psychoanalytic thinking of Hélio Pellegrino, and which encompass his theoretical, ethical and political contribution to psychoanalysis. It also treats of his defense of the relationship between psychoanalysis and the democratic rule of law, his struggle against the dictatorship (1964-1985) and against torture - which led to his arrest by agents of the country's military dictatorship.

Similarly, during the military regime, he was expelled from the Psychoanalytic Society of Rio de Janeiro (SPRJ) for defending the relationship between psychoanalysis and democracy. This expulsion was based on the activities he reflected upon, which involved reinforcing the need to read Freud in psychoanalytic institutions and thinking about why Freud was not read in most of them. They also included debates about didactic training practices, debates about the need for democratization in psychoanalytic institution, whose practice is marked by elitism and privilege. He further argued that they functioned practically as multinationals, enjoying the maintenance of elitist privileges while restricting themselves to serving this portion of the population - which does not have any foundation in psychoanalytic theory, but is an ideological use of it. This expulsion culminated in his request for this society to investigate and take a stand against the testimonies that it maintained, in silence, a torturer as a candidate for the role of psychoanalytical practitioner - which became known as the Amílcar Lobo case; and whose expulsion from the board of the society was only overturned by court order (Pellegrino, n.d., pair.36)

Obviously, for the author, the complicity of psychoanalytic institutions with the dictatorial government refers to the interests of the country's elite, which has nothing to do with the essence of psychoanalysis or its foundation, par excellence, but it has to do with class interests and the maintenance of privileges. Likewise, the elitist structure, which sought shelter in supposed neutrality, was considered by Hélio Pellegrino not only according to its expression in Brazil, but with an elitist, authoritarian and subservient form of structuring various psychoanalytic institutions around the world, which needs to be rethought, according to the principles of democracy, open to free, critical thinking.

Faced, for example, with the Amílcar Lobo case, Hélio Pellegrino repeatedly requested a position from the International Psychoanalytic Association (IPA), which only took a stand on the case very late, after he had been expelled and reinstated by court order. Likewise, from Stephen Frosh's (2017) reading, we perceive this case as a particular expression among others in the development of international psychoanalytic institutions. He takes up the examples of the German Psychoanalytic Society (DPG), which responded to the demands of the Nazi regime by removing Jewish analysts from its staff to remove them from the "Goring Institute". This is in addition to the lack of positioning and the collusion of institutions recognized by the IPA in the face of inequality and political repression in a country; raised in a cult of neutrality, with an adaptive and conformist perspective that has nothing to do with the commitment to the social practice of psychoanalysis. This is despite its liberating, historical, democratic and subversive character; and which empties the essence of the radical elements of psychoanalytic thought.

In this regard, Hélio Pellegrino is an important reference for psychoanalysis, not only for the expression of the defense of the relationship between psychoanalysis and democracy in his own practice or as a figure who broke the silence and the adherence to authoritarianism in different institutions, from the critical basis of a psychoanalytic perspective. His importance is largely because of the central focuses of his contribution to psychoanalysis is his critical reflection on the epistemological, conceptual and practical foundations of psychoanalytic theory.

The author addressed social problems, the crisis in the fundamentals of science in the 19th century and the crisis of the principles of psychoanalysis, in most of his writings. For this reason, the epistemological contributions of his writings to the science of psychoanalysis certainly form a collection that is a real source of research for writing.

To further this, I reviewed some elements of the analysis found in his work. The focus is on a reflection on the epistemological foundations of psychoanalytic theory. It is accompanied by a central analysis of the theory of the Oedipus complex, as well as a continuous concern with analyzing the problems that structure Brazilian society, and which contributes to the construction of his reading of the

Oedipus Complex, the constitution of subjectivity and the social pact, both generally, and in Brazil specifically. As such, his work discusses the explicit commitment of psychoanalysis in transforming the serious social problems faced by Brazil, which are related to the serious structural problems of international capitalism, and which are reflected in the problems of the development of psychoanalytic institutions around the world.

An historical analysis, based on Marxist theory and psychoanalysis leads him to criticize mechanical Marxism and a conformist, apolitical and neutral psychoanalysis that developed in different types and schools of psychoanalytic institutions during Brazil's dictatorial period. His analysis attributes to this tendency, for example, an elitist appropriation of the theory of the Oedipus complex and the conservative view of the function of the law in the sense of maintaining privileges, legitimizing injustice and oppression, disregarding the fact that privilege is prior to the oedipal and social pacts. It builds arguments in order to defend that this appropriation is ideological. It can be interpreted as reinforcing the conservation of the privileges of the ruling class, legitimizing its structural violence, and removes the power of demystification that is part of the essence of the method of psychoanalysis. This is the essence of the radical discovery of the concept of the unconscious, as well as in the conception of the Oedipus complex and of the law as a generator of equality and alterity. In this sense, it develops an analysis of the fundamentals of psychoanalysis and defends the thesis that they structure an ethics of otherness in psychoanalysis, which is incompatible with the defense of neutrality, authoritarianism and arbitrary power.

From this analysis, Pellegrino seeks to think about differences that are definitive for the differentiation between what constitutes an oedipal pact and a humanizing social pact, how the law is structured and what constitutes a pact for perverse power, which is a fundamental differentiation for understanding its historical intra-psychic and social effects. In this context, Pellegrino defends the thesis that psychoanalysis is necessary mode of thinking at the service of equality and justice and that its apolitical position removes its demystifying, liberating and revolutionary character.

The consequences and richness of his interpretation were recognized at a congress in Chile at which the author presented these questions in 1962. However, despite his contribution and the topicality of the questions he had raised, I researched the conclusions found in his work and found that there is not even a study of the author's psychoanalytic writings. In this sense, writing a critique of the silence which surrounds Pellegrino's contribution to and critique of psychoanalysis - within the area of psychoanalytic research, of psychoanalytic criticism, by the psychoanalytic institutions and by Brazilian psychoanalysts - leads to raising the questioning of what is silenced, by silencing his contribution. To take this further, I work with the hypothesis that this runs right through the thematic silence around the burning social problems and its capitalist mode of production. This in turn affects even the ideological amnesia of not addressing them from the point of view of psychoanalytic theory, as well as failing to read Freud and his most original discoveries in renowned psychoanalytic institutions. This is in addition to the apparent amnesia of failing to critically discuss the epistemology of psychoanalysis found in academic conservative thinking.

Pellegrino's analysis focuses on why psychoanalytic institutions do not address all of these theoretical, ethical and political issues, going so far as to domesticate psychoanalysis, in a revisionism of abstract universals, transforming it into an ideological and mechanical instrument for the maintenance of privileges and impoverishing its constitutive essence as a mode of critical thinking. For this reason, the author views the task of reflecting on the fundamentals of psychoanalysis as central, since active and passive apoliticism have consequences in the theoretical plane. These consequences include the conceptualization and theorization of psychoanalysis, going so far as to distort its libertarian essence; repressing discoveries, concepts and theorists that structure the core of the psychoanalytic project, with a view to reinforcing revisionism.

3. Panorama of psychoanalytic production housed at the Casa de Rui Barbosa Foundation

A brief overview of the author's psychoanalytic production is presented here, including issues, which are presented in my thesis that will be defended by the end of 2021. This presentation is part of it. I spent some time at the Museum of Brazilian Literature, situated in the Casa Rui Barbosa Foundation (FCRB), in Rio de Janeiro, for a period of research into the author's personal files. And the purpose of this study-visit was to analyze the documents that make up the collection of the author's psychoanalytic production. It contains a formidable set of handwritten documents of theoretical, epistemological, practical, cultural, social and political value on psychoanalytic theory foundations and on psychoanalytic institutions.

They allow us to reconstruct and reflect on theoretical discussions within a range of different psychoanalytic institutions during the military dictatorship in Brazil, as well as on some theoretical omissions. This is in addition to being a testament to the tireless work to ensure democracy within these institutions. However, it is a strange fact that 30 years after his death, there is no study on the author's

body of work in psychoanalysis, contained in this museum, which begs the question of what is silenced by silencing his contribution?

It was a real discovery to see the wealth of this collection and discover the complex web of psychoanalytic writings contained therein. Without intending to exhaust all the possibilities of surveying and analyzing the author's entire archive which deals with various themes in psychoanalysis in an exercise of synthesis, it is possible to demonstrate to the reader the complex web and the richness of psychoanalytic content that is catalogued in different folders in the FCRB's museum of Brazilian literature. The author's files are grouped in folders denominated by: personal correspondence (PC), family correspondence (FC), personal documents (PD), intellectual production (IP), third party production (TP), miscellaneous (VD), Cs and CT.

The miscellaneous documents folder contains statutes and regulations, and the rules of the Rio de Janeiro Psychoanalytical Society (SPRJ) from 1978 to 1983. Other items included: official curriculum (1983); regulations and minutes of the discussions and approval of the Statute of this institution (1983); regulations of the International Psychoanalytic Association (IPA) - according to the decisions of the institution's XXX Congress (1977); a project for the Curriculum Reform Commission of the SPRJ Psychoanalysis Teaching Institute (1983); and a draft proposal to regulate the admission of psychoanalysts to the Social Clinic of Psychoanalysis (n.d.)².

In the personal documents folder there is a complaint from the Public Prosecutor's Office forwarded to Hélio Pelegrino, for inciting the subversion of the political-social order, referring to the year 1969, was also found. In the document, it states that Hélio Pellegrino needed medical care due to threats to his physical integrity and that of his family, as well as certificates on coronary insufficiency and a fracture to his hand, referring to the period from December 1968 to March 1977.

In the archive identified by the acronym CS, there is a vast set of documents of historical, cultural, social and political value about psychoanalytic institutions.³ There are documents referring to the letters between Hélio Pellegrino and the Psychoanalytical Society of Rio de Janeiro, concerning the period from 1972 to 1981. Among them, there is Hélio Pellegrino's request to the psychoanalyst Serge Lebovici for a response regarding the complaints made about Amílcar Lobo and his connection with SPRJ (1981); as well as correspondence in which Lebovici says that Edward D. Joseph will answer him (1981). Calls for SPRJ meetings, proposing that Pellegrino explain complaints about Amílcar Lobo's role as a member of the Brazilian Armed Forces clandestine torture team. There is also a proposal that Hélio Pellegrino and Eduardo Mascarenhas resign before the SPRJ expelled them, rejected by both who justify the incompatibility between psychoanalysis and authoritarianism; Pellegrino's request for the inclusion of the story that led to the exclusion of the institution's scientific calendar, denied by Vítor Andrade. There are letters between the psychoanalyst and the later SPRJ president, Vítor Manuel de Andrade. There is also a reference to the tribunal for witness questioning in the case of Inês Etiene Romeu against Amílcar Lobo (1981).

There are several documents referring to the crisis in the Psychoanalytic Society of Rio de Janeiro, during the period of the military dictatorship. Among them, those who refer to training in psychoanalysis and its stages in SPRJ (1980), those who elaborate and justify the need to reform the institution's Statutes and Regulations (1981); requests to convene an Extraordinary General Meeting; a response to requests for clarification of the reasons for the non-summoning of the assembly by Jacob David Azulay - in which people tortured by the military dictatorship would participate (1986).

There is also a whole set of documents referring to the exclusion of Hélio Pellegrino and Eduardo Mascarenhas from SPRJ's membership; as well as letters co-signed by both. In addition, we find documents written by Pellegrino, which explain this expulsion as linked to the Amílcar Lobo case and its relationship with the SPRJ. In addition to these, we find several SPRJ documents: minutes, internal circulation information, regulations, SPRJ Teaching Commission Resolutions, testimonies by Amílcar Lobo (1981), a list of documents contained in his portfolio, an article on the charges against him, a petition on his connection with the SPRJ and on other matters and their reasons, among other issues.

There is also the civil appeal of the psychoanalyst to the Court of Justice of the State of Rio de Janeiro, whose respondent is the SPRJ; an IPA syndication committee visit confirmation document sent to SPRJ, among other documents related to the period from 1981 to 1982.

Added to these documents are others that express arguments about the incompatibility between authoritarianism and psychoanalysis; correspondences to the director of the Institute of Teaching of Psychoanalysis (IEP) of SPRJ (1981); letters about the difficulties faced by the members of the Debate Forum. A letter signed by Vítor Manuel Andrade, informing the suspension of Ernesto La Porta's membership rights for having signed a letter published in *Jornal do Brasil*, in 1981. There were some articles on the accusations against Amílcar Lobo, on the apoliticalism of psychoanalytic institutions, on the resistance to Freud, and on currents of psychoanalytic thought in Latin America. And there is a

² Documents no date (n.d.)

³ They would allow us to reconstruct and reflect on the relationship between psychoanalytic institutions and authoritarianism during the period of the military dictatorship and on part of the history of the psychoanalytic movement in Brazil. They also form a testimony of tireless work for democracy in psychoanalytic institutions.

document that outlines Leo Cabernite's questions about the psychoanalyst, intended for the SPRJ Ethics Committee. This is in addition to letters from him requesting measures from the same commission in the face of criticism by Hélio Pellegrino (1986).

There is a copy of the process by Werner Walter Kemper with comments (1983); a petition on the Amílcar Lobo case; documents signed by Vítor Manuel Andrade - at the time, president of SPRJ; Pellegrino's appeals against his SPRJ exclusion. Here we also have a statement justifying his non-acceptance due to the invitation to teach seminars at the institution (1981), a request that it stop ignoring the existence of the Debate Forum and recognize it as an organ of the institution (1981). There is also a request to that president, made by the Debates Forum, about an anonymous letter that labeled Hélio Pellegrino as communist (1981); copies of the Forum Debates bulletins from 1981 to 1983; a letter to the SPRJ Ethics Committee, signed by Hélio Pellegrino; a request made to him, by SPRJ. Letters co-signed by Eduardo Mascarenhas from 1981 to 1982. We also found a retraction request document from the International Psychoanalytical Association (IPA), after the confirmation of Amílcar Lobo's participation in a torture team. The document (1986) expresses apologies from the IPA for not accepting the complaint of the psychoanalyst Helena Besserman Viana in 1973 about the Amílcar case, communications about the suspension of Ernesto La Porta's rights and criticisms of the participants in the Debate Forum.

Finally, we find in this folder the following articles by Pellegrino (n.d.), referring to the theme: The current SPRJ crisis, consequence and crowning of other struggles (n.d.); The accusations that weigh on Dr. Amílcar Lobo Moreira da Silva (n.d.); Admiral without a helm (n.d.); Against Closed Doors (n.d.); The institutional crisis of SPRJ (n.d.); Documents and History (n.d.); The Disease of the Psychoanalytic Institutions: SPRJ (n.d.); Dr. Amílcar Lobo made clarifying statements to the Folha de São Paulo on 8/2/1981; Dr. Vítor Andrade's circular distributed to colleagues; At a round table at PUC, I denounced the apoliticalism of psychoanalytic institutions (n.d.); at which he spoke of Melanie Klein, of Abraham, of Ferenczi, of Bion (n.d.); The institution is a necessary evil (n.d.); Contribution to an Institutional Analysis of SPRJ: a case study (1981); Truth and Lapse (1987); and (Productive conversation: 8/21/75 - co-signed by Carlos Barreto, Wilson Chebabi, Fábio Lacombe and Jeremiads Lima (1975).

In the folder entitled third-party production, there are clinical case reports, conferences, speeches, essays, dissertations and theses dedicated to Hélio. Lastly, there is the folder catalogued by the archivists as Intellectual Production. It contains 520 pieces of text, most of which are articles and essays; in addition to several other types of writing. The centrality of the analysis runs through different themes. In this folder, 180 items expressly address psychoanalysis as a central theme.⁴

In view of the above, it is considered that the Archives of the Museum of Brazilian Literature are home to a large part of the author's psychoanalytic production. Thus, it is necessary to emphasize the importance of letters and documents for the reconstruction of the biography and part of the history of the psychoanalytic movement in the country. However, in addition to the breadth and depth of this archive, the focus of the thesis study, to which this text is part, was the author's psychoanalytic production, selecting, as an object of study, the subset of the 180 writings that expressly deal with the psychoanalytic theme, which is the folder catalogued and referred to as intellectual production. At the same time, in the face of this complex web of documents, handwritten and typewritten writings by the author, we note the importance of further research on his psychoanalytic production, which is yet to come.

Given the above, far from lamenting a crisis in the foundations of science or psychoanalysis; thinking about it from the perspective of a critical psychoanalytic perspective is essential because it is based on a wide spectrum from foundations of most libertarian psychoanalytic practices to the most conservative and violent ones. Therefore, the author's study opens relevant perspectives because it deals with fundamental issues and problems that are very current but have not yet been overcome.

References

- Frosh, Stephen (2017). "Like Kings in Their Kingdoms": Conservatism in Brazilian Psychoanalysis During the Dictatorship. *Revista Political Psychology* 38 (4), 591-604
- Pellegrino, H. (nd). *O tema da nossa mesa-redonda é sexualidade e poder*. Hélio Pellegrino Arquivo Hélio Pellegrino. Museu de Literatura Brasileira. Fundação Casa de Rui Barbosa.
- Rivera, T. (2017). Desejo de ensaio. In *Psicanálise* (pp. 11:23 Rio de Janeiro: FUNARTE).

⁴ They address different thematic sections, for example: the constitution of the subject by otherness, the relationship between psychoanalysis and politics, the apoliticalism of psychoanalytic institutions; psychoanalysis, democracy and social transformation; economic-social-political-cultural structuring of Brazil; violence; crime; public figures in the history of the psychoanalytic movement; political personalities; religion; historical phenomena of capitalism; torture; the relationship between oedipal pact and social pact; re-reading treatises on the Freudian Oedipus Complex from a thorough analysis of Sophocles' work - including Oedipus the King, Oedipus in Colono and Antigone; ethics of psychoanalysis; among others.

THE EFFECTIVENESS OF SOCIAL ADS TARGETING DRUNK DRIVING

**Dainora Šakinytė, Rasa Markšaitytė, Laura Šeibokaitė, Auksė Endriulaitienė,
& Justina Slavinskienė**

Vytautas Magnus University, Jonavos 66-328, Kaunas (Lithuania)

Abstract

Social advertisements with threat appeals are widely used to reduce drunk driving. However, research on the effectiveness of such advertising is limited. This study aimed to evaluate, what emotions cause threat appeal ads targeting drunk driving and whether these ads change risky driving attitudes. 41 students (17.1 percent males; mean age 20.9 years; 53.7 percent had a driving license) voluntarily participated in the experimental study. Every participant was randomly assigned to one of three groups: two experimental (watched one of two TV ads with threat appeals) or control group (watched car wash ad with no threatening stimuli). After watching one of three ads, all participants were asked to evaluate seven emotions and to fill in Driving Attitude Questionnaire (DAQ). Results revealed that both road safety threat appeal ads targeting drunk driving did not arouse any stronger fear emotions or differences in driving attitudes compared to control group. Both experimental groups didn't differ in emotions or attitudes as well. No difference in emotions and attitudes was found when comparing the reaction of participants who have seen the specific ad before the experiment and those who haven't. The fact of being a licensed driver was also not related to the level of reported emotions or attitude differences in both experimental groups. The study results reveal that the possible effectiveness of threat appeal ads from ongoing social marketing campaigns on reducing drunk driving is questionable and further studies are needed.

Keywords: *Threat appeal, road safety ad, drunk driving, emotions, attitude towards risky driving.*

1. Introduction

Drunk driving can cause traffic accidents, injuries, mortality and is called social, financial and one of the biggest problems of the 21st century (Carey & Sarma, 2016; Sibley & Harre, 2009; Skorupa, 2014; Sweeney, 2012). According to statistics of the State Enterprise Lithuanian Road Administration, drunk driving led to 308 injuries, 57 death in 2018 and even 351 injuries, 25 death in 2019 on the country's roads. Moreover, traffic accidents due to drunk driving account for about 9 – 13 percent of all injuries or deaths on the road in Lithuania (Helmig & Thaler, 2010) and are named as one of the leading causes of death worldwide (Statistics of traffic accidents in Lithuania; Skorupa, 2014; Sweeney, 2012; Weber, Dillow, & Rocca, 2011). Concerning sufficiently large and growing numbers of accidents due to drunk driving, it is important to take this problem into account.

Based on research, several measures are most commonly used to reduce drunk driving and its negative outcomes in Lithuania and other countries. One of them is legislation restricting driving under the influence of alcohol and providing strict penalties for offenders (such as loss of one's driving license, license suspension, fines, or jail time) (Zhang, 2014). Social marketing with threat appeals is another commonly used measure and, according to some researchers, more effective in comparison with legislation (Ditsuwan, Veerman, Bertram, & Vos, 2013; Lewis, Watson, & White, 2010; Sweeney, 2012; Wakefield, Loken, & Hornik, 2010). Social ads with threat appeal usually include thought – provoking phrases, emotional music, shocking images (such as wrecked vehicles, blood, victims, injured or dead bodies, etc.) to attract viewers' attention and arouse fear. Road safety literature suggest that fear, aroused by social ad, can encourage reflection about one's driving behavior, influence attitudes towards risky driving, and reduce chances of drunk driving in the future (Helmig & Thaler, 2010; Lennon & Rentfro, 2010). Threat appeals were proven to be especially effective for young adults, who have the highest risk to drive under the influence (Janstrup, 2017; McKay - Nesbitt, Manchanda, Smith, & Huhmann, 2011). However, some studies highlight that not all ads with threat appeals are perceived as threatening and can cause fear, even if it is expected to. According to researchers, ads with threatening stimuli are only

effective in changing drivers' attitudes and reducing drunk driving behavior when fear is actually aroused, therefore it is important to ensure it (Helmig & Thaler, 2010; Lennon & Rentfro, 2010; Phillips, Ulleberg, & Vaa, 2011; Rhodes, 2017; Weber et. al., 2011).

Four main types of negative consequences are usually shown in social advertisements in order to cause fear emotions: physical consequences such like disease or disability, social consequences such as social exclusion, psychological consequences like failure or loss of self – esteem, and financial consequences such like loss of income or loss of job (Skorupa, 2014; Zhang, 2014). Moreover, depending on the type of negative consequences that are shown in social ad, different levels of fear can be aroused: low, medium or strong. Based on previous research, ads with named possible negative consequences of drunk driving and without any pictures of physically injured people, could be considered as less fearful. Meanwhile those ads, in which injured or dead bodies are shown usually are considered as more threatening (De Pelsmacker, Cauberghe, & Dens, 2011; Nielsen & Shapiro, 2009; Sweeney, 2012). De Pelsmacker and colleagues (2011) showed that ads with a strong graphic threat (when a seriously injured traffic victim is shown) can encourage safer driving behavior. Chocking images were found to be effective not only in arousing fear but also in encouraging safer attitudes towards drunk driving and in making drunk driving behavior less likely in the future (Carey & Sarma, 2016; Lennon & Rentfro, 2010). Still, the opposite “boomerang effect” stating that threat appeals increase risky behaviour or intentions to involve in risky driving was found too (Carey & Sarma, 2016). However, it is important to note, that previous studies also had some limitations: used ads that were designed specifically for research or was performed in different countries, which could have affected results. Also, there is still a lack of studies specifically evaluating the level of fear, which is caused by ads shown on national TV channels, and its impact on attitudes towards drunk driving. Additionally, some studies reveal that even when negative consequences, related to drunk driving, are presented, fear emotions do not necessarily arouse (Sibley, Harre, 2009). According to Lennon and Rentfro (2010), such results could be related to ignorance or rejection of social advertisement, when the advertisement's content is perceived as irrelevant by the viewer. For example, when a person doesn't have driving experience or believes that these negative consequences could not happen to him or her (Lewis et. al., 2010; Phillips et. al., 2011) or when a social ad is perceived as boring, not shocking enough or has been seen in the past (Sweeney, 2012; Wakefield et. al., 2010). Thus, even there are some knowledge regarding messages with threat appeals, the results of threat appeal effectiveness remain contradictory.

Despite advertisements with threat appeals are widely used in Lithuania to address drunk driving, no studies of its effectiveness were found. Thus, this study aimed to evaluate, what emotions cause threat appeal ads targeting drunk driving and whether these ads change risky driving attitudes. Based on literature review, it was expected that drunk driving ads with threatening stimuli cause stronger fear and driving attitudes change in comparison with control group, where no threatening stimuli was presented. Likewise, an advertisement, in which physical injuries were presented, was expected to cause stronger fear and greater risky driving attitudes change in comparison with ad, in which no physical injuries were shown. It was also hypothesized that stronger fear can be caused for those participants, who have driving experience and haven't seen the advertisement before the study.

2. Method

Participants. Forty-one students participated in the study. 17.1 percent (7) of participants were males and 82.9 percent (34) were females. Participants' age varied from 19 to 25 years (Mean = 20.9; SD = 1.7). 22 (53.7 percent) participants had a driving license and reported driving at least once per week. 18 study participants (19.5 percent) reported having experience of driving under the influence of alcohol and 23 (56.1 percent) participants had have driven with a drunk driver.

Research procedure. Students aged 18 – 25 years from one Lithuanian university were invited to participate in the experimental study on voluntary basis. A concrete age group was selected because of provided evidence that young drivers (aged 18 – 25 years) have the highest risk to drive under the influence of alcohol in comparison with older drivers (Carey & Sarma, 2016; Sweeney, 2012; Weber et. al. 2011; Zhang, 2014). The study was approved by the Ethics Committee of Psychology at the Department of Psychology at Vytautas Magnus University. All participants signed the informed consent to participate in the experimental study and were randomly assigned to one of three groups: two experimental and one control group. There were no significant differences for participants' age ($\chi^2 = 13.142$, $p = .359$), gender ($\chi^2 = 1.010$, $p = .603$) or driving experience ($\chi^2 = 5.212$, $p = .266$) between all three conditions. The posttest-only control group design, applicable in similar research, was used for the experiment (Becheur & Das, 2018; Rait, 2019). Participants received no incentive for participation in the study.

Stimuli. The independent variable was social ads that apt to reduce or stop drunk driving that differed in terms of threat appeal. Both socials ads targeting drunk driving were created by the Lithuanian Road Administration and used in the study with permission. Participants in the first experimental group watched the road safety ad “*Don’t drive after drinking – don’t become a killer*”, which shows a schoolboy passing through a pedestrian crossing to his mother, being hit by a drunk driver (expected to arouse the strongest fear). Participants in the second experimental group were presented with the road safety ad “*When driving after drinking, death breathes in your back*”, which shows two young drunk men driving a car, skylarking with loud music on, and a ghost, sitting on the back seat of the car, who is like death breathing to their backs (expected to arouse medium fear). Control group participants saw a car wash advertisement, where only a driving lady was presented with no threatening stimuli (expected to arouse the lowest or no fear). Each video advertisement was approximately 30 seconds long.

Instruments. After watching one of three ads, participants were asked to fill in the anonymous self-reported questionnaire. Participants’ fear was measured by seven emotions: fearful, tense, nervous, scared, reassured, relaxed, comforted, which participants had to evaluate on a scale from 1 to 7 (Cronbach’s alpha .868) (Maheswaran & Meyers-Levy, 1990). The level of fear was determined by calculating the sum of ratings (when three positive emotions were reversed). Higher score of the scale indicated higher degree of fear in reaction to the stimuli. Attitudes towards risky driving were assessed with Driving Attitudes Questionnaire (DAQ) (Cronbach’s alpha .812) (Starkey, Isler, 2016). DAQ consists of 20 items which participants had to evaluate on a scale from 1 to 5 when higher scores indicated safer attitudes towards risky driving.

The questionnaire also included demographic questions regarding participant’s age, gender, driving experience and frequency, accident involvement, and questions about the social ad they watched.

4. Results and discussion

First of all, aroused fear and attitudes towards risky driving between experimental and control groups was compared. Descriptive characteristics of fear emotions and attitudes towards risky driving in two experimental and control groups are presented in Table 1. Contrary to expectations, the results of the study showed that both Lithuanian social ads targeting drunk driving did not cause any significant sense of fear compared to control group (accordingly, Mann Whitney $U_{\text{experimental}} = 81.00$, $p = .485$ and Mann Whitney $U_{2\text{experimental}} = 74.50$, $p = .849$). Participants’ fear after watching a TV ad didn’t differ between both experimental groups as well (Man Whitney $U = 93.00$, $p = .629$).

Table 1. Descriptive characteristics of fear emotions and attitudes towards risky driving in experimental and control groups.

| Factors | 1 st experimental group (N = 16) | | 2 nd experimental group (N = 13) | | Control group (N = 12) | |
|---------------------------------|--|------|--|------|---------------------------|-----|
| | M | SD | M | SD | M | SD |
| Fear emotions | 30.56 | 8.1 | 29.00 | 11.1 | 28.5 | 7.9 |
| Attitudes towards risky driving | 71.00 | 10.8 | 71.31 | 9.6 | 73.17 | 9.0 |

The similar results were obtained when comparing attitudes towards risky driving between both experimental groups and control group (Mann Whitney $U_{\text{experimental}} = 78.00$, $p = .558$ and Mann Whitney $U_{2\text{experimental}} = 67.00$, $p = .549$). No significant differences in attitudes were found between first and second experimental groups as well (Mann Whitney $U = 97.00$, $p = .982$). Thus, it can be concluded, that threatening appeals targeting drunk driving did not arouse any fear or threat as well was not effective in changing attitudes towards risky driving. Based on these results, perhaps more shocking, threatening images (such as images of blood, injured bodies of victims or real scenes from car accidents, related to drunk driving) are needed in order to arouse fear emotions and reach significant changes in attitudes towards risky driving in young people (Carey & Sarma, 2016; Lennon & Rentfro, 2010; Zhang, 2014). It could be that young adults are used to be too often presented with threatening stimuli through computer games, newsletters or films, so no significant fear emotions were aroused (Lennon & Rentfro, 2010). However, more frightening drunk driving ads could encourage some cognitive changes by drawing their attention to negative consequences related to such behavior and change attitudes towards drunk driving to safer ones (Carey & Sarma, 2016).

Further, the reactions of participants who saw the specific ad during the experiment for the first time was compared to those who had seen it before in both experimental groups (the comparison is presented in Table 2). Given that there was found no significant differences in emotions and attitudes between both experimental groups, further calculations were performed by combining these groups together.

Table 2. The comparison of emotions and attitudes, depending on familiarity with advertisements.

| Factors | Have seen (N = 14) | | Haven't seen (N = 11) | | U | p |
|---------------------------------|--------------------|------|-----------------------|------|-------|------|
| | M | SD | M | SD | | |
| Fear emotions | 29.29 | 8.0 | 29.00 | 11.1 | 75.00 | .913 |
| Attitudes towards risky driving | 70.00 | 12.0 | 73.91 | 7.5 | 54.50 | .324 |

Results also revealed no differences in emotions or attitudes between those participants who have and those who have not seen the ad before the experiment ($p > .05$). According to Sweeney, those advertisements that are perceived as threatening and arouse fear remain effective independently how many times it was seen (Starkey & Isler, 2016). Meanwhile, other authors reveal that messages with threat appeals, seen several and more times, can become boring and no longer arouse fear or encourage attitude changes (Lewis, Watson, White, & Tay, 2007). Thus, it remains unclear, whether familiarity in advertisements could significantly affect the results and reduce its effectiveness.

Table 3. Differences between drivers and non-driver's emotions and attitudes in two experimental and control groups.

| Factors | 1 st experimental group | | 2 nd experimental group | | Control group | |
|---------------------------------|------------------------------------|-------------------------------|------------------------------------|-------------------------------|-----------------|-------------------------------|
| | Mean Rank | | Mean Rank | | Mean Rank | |
| | Drivers (N = 7) | No driving experience (N = 6) | Drivers (N = 8) | No driving experience (N = 5) | Drivers (N = 7) | No driving experience (N = 5) |
| Fear emotions | 6.43 | 7.67 | 7.06 | 6.90 | 8.21 | 4.10 |
| Attitudes towards risky driving | 4.50 | 9.30 | 6.50 | 7.80 | 5.93 | 7.30 |

Finally, the impact of being a driver was evaluated (see Table 3). Based on these results, the driving experience was not related to the level of reported emotions (Mann Whitney $U_{1\text{experimental}} = 17.00$, $p = .566$; Mann Whitney $U_{2\text{experimental}} = 19.50$, $p = .942$; Mann Whitney $U_{\text{control}} = 5.50$, $p = .051$). There were also no significant differences between drivers and non-drivers attitudes in second or control groups (Mann Whitney $U_{2\text{experimental}} = 16.00$, $p = .942$; Mann Whitney $U_{\text{control}} = 13.50$, $p = .514$). However, those participants who had a driving license reported safer attitudes towards risky driving after watching the advertisement with the strongest threatening stimuli compared to those who had no driving license (Mann Whitney $U_{1\text{experimental}} = 3.50$, $p = .018$). Having in mind that many researchers stated that attitude changes are led by emotions (Carey & Sarma, 2016; McKay – Nesbitt et. al., 2011; Nielsen & Shapiro, 2009; Rhodes, 2017) it could be that participants subjectively did not realize or capture the change of their emotions, even if they were aroused. Findings also highlight that calm and relaxation are natural reactions after threatening stimuli, which could lead to results that ads were not effective causing fear (Algie & Rossiter, 2010). Thus, it is important to have in mind, that more threatening drunk driving ads could cause stronger fear and encourage bigger attitude changes (Becheur & Das, 2018; Janstrup, 2017; Wali, Ahmed, Iqbal, & Hussain, 2017).

5. Conclusions

Single watching of specific threat appeal targeting drunk driving could not cause any significant emotional or attitudinal change. Thus, the possible effectiveness of Lithuanian threat appeal ads on reducing drunk driving is questionable and further studies are needed.

References

- Algie, J., & Rossiter, J. R. (2010). Fear patterns: A new approach to designing road safety advertisements. *Journal of Prevention and Intervention in the Community*, 38(4), 264-279.
- Becheur, I., & Das, A. (2018). From Elicitation to Persuasion: Assessing the Structure and Effectiveness of Differential Emotions in Anti-Drunk-Driving Campaigns. *Journal of Promotion Management*, 24(1), 83-102.

- Carey, R. N., & Sarma, K. M. (2016). Threat appeals in health communication: messages that elicit fear and enhance perceived efficacy positively impact on young male drivers. *BMC Public Health, 16*(1), 645.
- De Pelsmacker, P., Cauberghe, V., & Dens, N. (2011). Fear appeal effectiveness for familiar and unfamiliar issues. *Journal of Social Marketing, 1*(3), 171-191.
- Ditsuwan, V., Veerman, J. L., Bertram, M., & Vos, T. (2013). Cost-effectiveness of interventions for reducing road traffic injuries related to driving under the influence of alcohol. *Value in Health, 16*(1), 23-30.
- Helmig, B., & Thaler, J. (2010). On the effectiveness of social marketing - What do we really know?. *Journal of Nonprofit and Public Sector Marketing, 22*(4), 264-287.
- Janstrup, K.H. (2017). *Road Safety Annual Report 2017*. Technical University of Denmark.
- Lennon, R., & Rentfro, R. (2010). Are young adults fear appeal effectiveness ratings explained by fear arousal, perceived threat and perceived efficacy. *Innovative Marketing, 6*(1), 58-65.
- Lewis, I. M., Watson, B., & White, K. M. (2010). Response efficacy: The key to minimizing rejection and maximizing acceptance of emotion-based anti-speeding messages. *Accident Analysis and Prevention, 42*(2), 459-467.
- Lewis, I. M., Watson, B., White, K. M., & Tay, R. (2007). Promoting public health messages: Should we move beyond fear-evoking appeals in road safety?. *Qualitative Health Research, 17*(1), 61-74.
- Maheswaran, D., & Meyers-Levy, J. (1990). The influence of message framing and issue involvement. *Journal of Marketing research, 27*(3), 361-367.
- McKay - Nesbitt, J., Manchanda, R. V., Smith, M. C., & Huhmann, B. A. (2011). Effects of age, need for cognition, and affective intensity on advertising effectiveness. *Journal of Business Research, 64*(1), 12-17.
- Nielsen, J., & Shapiro, S. (2009). Coping with fear through suppression and avoidance of threatening information. *Journal of Experimental Psychology: Applied, 15*(3), 258.
- Phillips, R. O., Ulleberg, P., & Vaa, T. (2011). Meta - analysis of the effect of road safety campaigns on accidents. *Accident Analysis and Prevention, 43*(3), 1204-1218.
- Rait, E. (2019). No text is worth dying for: The role of emotion regulation in a distracted driving campaign. *Journal of European Psychology Students, 10*(2), 1-11.
- Rhodes, N. (2017). Fear - appeal messages: Message processing and affective attitudes. *Communication research, 44*(7), 952-975.
- Sibley, C. G., & Harre, N. (2009). The impact of different styles of traffic safety advertisement on young drivers' explicit and implicit self-enhancement biases. *Transportation Research Part F: Traffic Psychology and Behaviour, 12*(2), 159-167.
- Skorupa, P. (2014). Shocking contents in social and commercial advertising. *Creativity Studies, 7*(2), 69-81.
- Starkey, N. J., & Isler, R. B. (2016). The role of executive function, personality and attitudes to risks in explaining self-reported driving behaviour in adolescent and adult male drivers. *Transportation Research Part F: Traffic Psychology and Behaviour, 38*, 127-136.
- Statistics of traffic accidents in Lithuania – Eismo įvykių Lietuvoje statistika (in Lithuanian). Retrieved 12 07, 2020, from: <https://lkpt.policija.lrv.lt/lt/statistika/eismo-ivykiu-lietuvoje-statistika>
- Sweeney, K. (2012). *A study of the Road Safety Authorities use of fear appeals to communicate a public health message*. Letterkenny Institute of Technology.
- Wakefield, M. A., Loken, B., & Hornik, R. C. (2010). Use of mass media campaigns to change health behaviour. *The Lancet, 376*(9748), 1261-1271.
- Wali, B., Ahmed, A., Iqbal, S., & Hussain, A. (2017). Effectiveness of enforcement levels of speed limit and drink driving laws and associated factors—Exploratory empirical analysis using a bivariate ordered probit model. *Journal of Traffic and Transportation Engineering, 4*(3), 272-279.
- Weber, K., Dillow, M. R., & Rocca, K. A. (2011). Developing and testing the anti-drinking and driving PSA. *Communication quarterly, 59*(4), 415-427.
- Zhang, X. 2014. The influence of fear and authority on psychological reactance: A study of the effectiveness of public service announcement campaigns on drunk driving prevention among college students. Doctoral dissertation. Iowa: Iowa State University, 62 p.

HUMAN-AUTOMATION INTERACTION IN LAW: MAPPING LEGAL DECISIONS, COGNITIVE PROCESSES, AND AUTOMATION LEVELS

Dovilė Petkevičiūtė-Barysienė

Institute of Psychology, Vilnius University (Lithuania)

Abstract

Legal technologies not only create new ways for accessing and providing legal services, but also transform the roles of legal practitioners. Major area of the application of legal technologies are courts. Some courts, e.g., in Austria, are already using legal technologies, Germany, Brazil, France, Netherlands, Russia and others are developing legal technologies. Both lawyers and users of legal services expect automated solutions to outperform people with efficiency, objectivity and impartiality. Although perception of various characteristics of legal technologies is crucial to their implementation and use, research on the perceived characteristics of the automated processes in legal contexts have just begun. One of the major obstacles to this research is lack of comprehensive understanding what legal actions could be or already are meaningfully automated, and to what extent. The aim of this study is to map decision making stages, and automation levels, and information processing features of legal activities related to (pre)trial processes.

Major legal decisions and judgments related to trial processes are identified during the consultations with legal practitioners (e.g., prosecutor, judge). Next, legal activities were described and arranged according to four-stage decision making process: information acquisition, information analysis, decision selection and decision implementation. A taxonomy of levels of automation (LOA) was customized to fit legal decision making and applied to describe each major legal activity. Lastly, dual-process model of information processing was used to delineate possible roles of intuitive and rational information processing taking place during (pre)trial decision making as they could be related to human-automation interaction.

Automation level analysis provides systematic approach to interaction between humans and algorithms, along with some groundwork for the research of legal technology perceived fairness and acceptance. 10 legal activities which apply both to judge's and prosecutor's (potentially any other lawyer's) legal work were discerned. The application of adapted LOA (5 levels) provided some insights into legal decision making as it allows to place existing technology, test the trust in technology threshold, and have more tangible view of automation in legal activities. Moreover, a modified hybrid default-interventionist model is proposed. It brings even more depth into analysis by specifying the role of "legal" and "heuristic" intuitions as well as the part rationalization plays in potential bias sources and formation.

Keywords: *Legal decision making, legal technology, levels of automation, dual information processing, legal intuition.*

1. Introduction

Legal technologies are rapidly changing the accessibility of legal services and functions of the legal practitioners. The number of technological products for lawyers is growing swiftly. Lawyers themselves feel overwhelmed and worried about their role in the technological progress (e.g., Morison & Harkens, 2019). However, scientific research is towing at the back of the progress. Additionally, psychological research on LegalTech is lacking guidance – there is no proposed taxonomy or description of the automation of legal processes related to court, researchers are left with only publicly available information about some of the existing legal technologies. Categorization is especially important for research – without it, disparate studies of some existing technologies would not provide sufficient insight into perception of legal technologies, and could not support their acceptance. Therefore, the aim of this study is to analyze decision making stages, and automation levels, and information processing features of legal activities related to (pre)trial processes.

2. Method

Firstly, to obtain major legal activities related to trial processes, 6 consultations with lawyers were conducted (1 civil case judge, 2 administrative court judge's assistants, 2 prosecutors, 1 legal

scholar). Each lawyer was asked to describe the most important decisions and processes related to trial and pretrial (for prosecutors). The author is very thankful to all lawyers who contributed to the study, and incredibly grateful to yet another lawyer, who helped to discern and describe the most important steps in judicial decision making.

Next, the legal decision making steps were described and rearranged according to decision making stages. In this paper Parasuraman, Sheridan, and Wickens (2000) notion of four broad functions of decision making are used: information acquisition, which is defined as gathering and filtering, prioritizing, and understanding the data; information analysis (B) – analyzing, interpreting data and making inferences, prognoses; decision selection (C) – prioritizing/ranking decision alternatives; and, finally, decision implementation (D), which is defined as actual execution of the choice (e.g., writing-up and submitting the relevant document).

Further, a taxonomy of levels of automation was customized to fit legal decision making. Out of all taxonomies in systematic analysis (see Vagia et al., 2016), the taxonomy where decision making stages are also incorporated is the one suggested by Proud, Hart, and Mrozinski (2003). Although stages of decision making in Proud et al. (2003) are described in a slightly different way – observe, orient, decide, and act, they correspond to Parasuraman et al. (2000) categorization very well. Proud et al. (2003) presented 8-level LOA, however a 5-level LOA was more suitable to our purposes (see Table 1). Each level of automation for each legal activity was described.

Table 1. Levels of automation adapted to be applied to legal decision making related to (pre)trial (adapted from Proud et al., 2003).

| Level of automation | Decision making stage | | | |
|---------------------|--|---|--|--|
| | Information acquisition | Information analysis | Decision selection | Decision implementation |
| 1 (manual) | Human is the only source for gathering and filtering, prioritizing and understanding all data. | Human is responsible for analyzing all data, making predictions, and interpretation of the data | The computer does not assist in or perform ranking tasks. Human must do it all | Human alone can execute decision |
| 2 (low) | The computer gathers, displays and offers filtering | The computer analyzes the data and makes predictions, though the human is responsible for interpretation of the data | Both human and computer perform ranking tasks, results from the human are considered prime | The computer executes decision after human approval. |
| 3 (intermediate) | The computer gathers, displays and offers filtering as well as highlights relevant information for the human | The computer overlays predictions with analysis and interprets the data. The human shadows the interpretation for contingencies. | The computer performs ranking tasks. All results, including "why" decisions were made, are displayed to the human | The computer allows the human a context-dependent restricted time to veto before execution. Human shadows for contingencies |
| 4 (high) | The computer gathers, filters, and prioritizes information displayed to the human | The computer analyzes, predicts, interprets, and integrates data into a result which is only displayed to the human if result fits programmed context (context dependent summaries) | The computer performs ranking tasks. The computer performs final ranking and displays a reduced set of ranked options without displaying "why" decisions were made | The computer executes automatically and only informs the human if required by context. It allows for override ability after execution. Human is shadow for contingencies |
| 5 (full) | The computer gathers, filters, and prioritizes data without displaying any information | The computer predicts, interprets, and integrates data into a result which is not displayed to the human | The computer performs ranking tasks. The computer performs final ranking, but does not display results | The computer executes automatically and does not allow any human interaction |

The last step in mapping legal decisions, cognitive processes, and automation levels was to specify the role of dual information processing – intuitive and rational. Dual process models (e.g., Kahneman, 2011) describe and predict human reasoning and decision making based on the assumption that there are two different types of thinking, popularly referred to as System 1 and System 2 (also – intuitive and deliberate, intuitive and rational, Type 1 and Type 2, reflexive and reflective

processing). Type 1 (T1) processing is believed to be fast, effortless, automatic and autonomous, and Type 2 (T2) – slower, effortful, deliberate and resource demanding (e.g., Pennycook, Fugelsang, & Koehler, 2015). For this task, a fairly new hybrid default-interventionist model of dual processing (Bago & De Neys, 2020; De Neys, 2018; Pennycook et al., 2015) was used.

3. Results

10 legal activities which apply both to judge's and prosecutor's (potentially any other lawyer's) legal work with examples and decision making stages are presented in Table 2.

Table 2. Major legal activities and corresponding decision making stages.

| Activity | Judge | Prosecutor | Decision making stage |
|---|--|---|-----------------------|
| Getting acquainted with the given information | e.g., getting acquainted with the complaint (reading it) | e.g., getting acquainted with the notice of offence | A |
| Information search and analysis (legislation, case law, additional sources of information) | e.g., search and analysis of relevant case law | e.g., analysis of legislation relevant to qualification of a criminal offence | A B |
| Assessment of whether the information provided is of legal nature (complaint, request, statement, etc.) | e.g., identifies the legal issue | e.g., identifies article of the Criminal Code to be used in initiating to pretrial investigation | A B C |
| Assessment which of the facts presented are legally significant | e.g., the legal significance of the facts presented by the parties is assessed, as well as their weight in solving the legal problem | e.g., the significance of the facts gathered during the investigation to support version of the event is assessed | A B C |
| Assessment of the weight, persuasiveness and validity of legally relevant facts and / or arguments | e.g., assessing, whether the ruling would be rejected or modified by higher court | e.g., the significance of the facts gathered in the case, the validity of proving the (innocence) of the suspect | A B C |
| Selection, formulation, correction of arguments for preliminary / final position in the case | e.g., choosing arguments to justify the ruling | e.g., adjusting arguments when drafting an indictment | A B C |
| Assessment of whether the formed position complies with the basic principles of law | e.g., whether the decision in the case appears morally correct | e.g., whether the decision as to the guilt of the suspect appears morally correct | A B C |
| Decision to initiate (pre)trial proceedings | e.g., the decision about the jurisdiction and admissibility of the case | e.g., decision to start pretrial investigation | A B C D |
| Examination of the case during (pre)trial proceedings, making various intermediate decisions | e.g., chairing the court hearing, deciding about requests | e.g., coordination of pretrial investigation, rejecting the versions of the event raised by the defense | A B C D |
| Preparation of preliminary / final position in the case (decision), its correction, adjustment | e.g., draft / final document of a ruling | e.g., draft / final document of an indictment | A B C D |

Notes. A – information acquisition, B – information analysis, C – decision selection, D – decision implementation.

When applied to major legal activities related to (pre)trial, our adapted LOA (see Table 1) provides more insight into legal decision making. Full table of legal activities with corresponding automation levels cannot be presented in this paper, thus the main insights are listed: 1) legal activities are predominantly complex – 8 out of 10 activities involve 3 or 4 stages of the decision making; 2) information processing in information acquisition and analysis stages forms the basis of legal activities; 3) all of the higher decision making stages encapsulate all of the previous decision making stages (e.g., to be able to select the most relevant argument, one has to identify it, and analyze it); 4) the most complicated human-automation interaction occurs in the intermediate levels of automation through all stages of decision making and all legal activities; 5) most of the existing LegalTech is centered around

information search, analysis, and document automation (to an extent) with some exceptions, e.g., Brazil courts, where algorithms provide relevant arguments with proposed wordings; 6) humans give up outcome control in the 4th (high) automation level, and this might be the threshold level of trust lawyers could be willing to place in LegalTech.

Further, based on judicial intuition (Richards, 2016) and rationality theorizing (Ronkainen, 2011), the hybrid model (Bago & De Neys, 2020) was updated to accommodate task difficulty levels (easy, intermediate, hard). The difficulty levels are important both to automation and information processing, as decision making in easy cases is thought to be easily automated in comparison to difficult, new cases; and more legal-experience-based intuition is thought to be used more in easy as opposed to difficult cases. In the adaptation of hybrid default-interventionist model used in this paper, levels of difficulty are defined in terms of conflict among initial intuitive responses. The “logical” intuition (Bago & De Neys, 2020), in legal decision making would be the “legal” intuition. In this paper an intermediate level is proposed to include all hybrid model propositions about rational information processing (see Table 3).

Table 3. Dual processing model in legal decision making.

| Information processing phase | Information processing type | Task difficulty level | | |
|--|-----------------------------|--|---|--|
| | | Easy | Intermediate | Hard |
| Phase 1: Initial response generation | Intuitive | Strong legal / heuristic decision alternative comes to mind (legal intuition) (e.g., it is clear who should win the case), there might be a weak heuristic /legal intuition (T1a) | Several legal decision alternatives (legal intuitions) come to mind, there can also be one or more heuristic alternatives (e.g., the final ruling may be nuanced) (T1b) | Either no legal decision alternatives come to mind or several strongly competing ones arise, strong heuristic intuitions are also possible (e.g., euthanasia case, where there is lots of emotional investment, legal circumstances may vary) (T1c) |
| Phase 2: Conflict monitoring | | None | Intermediate | Strong |
| Phase 3: Final response selection/generation | Rational | The conflict is not detected, legal intuition is accepted with superficial analytics (T2a) | The conflict is detected, but the first (strongest) legal intuition is rationalized and/or justified without considering other alternatives (T2b). If conflict detection fails, the response is T2a . | The conflict is detected, and decoupling is initiated: either initial strongest intuition is suppressed in the favor of the second / subsequent strongest intuition, or alternative response is generated that represents novel response (T2c) |

Finally, the decision making stages (not related to any specific legal activity), automation levels and information processing features were merged. Full table of results cannot be presented, but the main insights are provided: 1) as the difficulty of the task rises, the conflict among intuitions becomes more prominent – the legal intuitions weaken or compete with each other more, and heuristic intuitions become more significant; 2) the inner conflict among intuitions may heavily rely on the experience of the lawyer in dealing with the particular task; 3) the requirement state reasons for decisions has a twofold function: it may change T2 response in decision implementation stage of decision making, because at manual to intermediate levels of automation the human-lawyer will be obligated to rationalize and justify his/her decision; however, 4) the same requirement does not eliminate the possibility of bias, as rationalization (and justification) is a T2 response which does not require in-depth information processing (T2b, see Table 3); 5) automation may decrease and/or increase the conflict between initial intuitive responses, activating different T2 processes accordingly, depending on the congruence between human and algorithm decision alternatives; 6) the initial “legal” intuition would be selected as final response, if it is flawed, so will be the decision outcome, enabling bias occurrence at any stage of decision making; 7) if decision maker is not required to and/or has no motivation to search and analyze given or additional information, the decision selection stage may be performed without information acquisition and analysis stages.

4. Discussion and limitations

The study provides some groundwork for analyzing human-automation interaction in legal decision making related to (pre)trial. Considering automation of legal decision making, it becomes clear that automation should be implemented after considering decision making stages and information processing features. For example, on the one hand, automation in information acquisition and analysis stages might reduce the cognitive load for human-lawyers, minimize the efforts needed to perform the activity, on the other hand it might reinforce decision biases, as they occur during initial stages of decision making and information processing. Moreover, automation may increase cognitive load in cases where conflicting decision alternatives are provided. Cognitive load is related to T2 processing (Evans, 2019) – less time, more pressure, more alternatives might mean less effective T2 processing. Notwithstanding, popular information search and analysis tools in legal arena usually provide suggestions which may correct the strong, potentially biased first legal intuition. Therefore, automation should be implemented considering changes intuitive and rational information processing, especially in the first stages of decision making.

It should be noted that the 10 activities presented here do not and possibly cannot encompass the immense diversity of the processes and decisions judges and prosecutors carry out in different types of cases and courts; likewise, the categorization cannot encapsulate possible differences among legal systems. However, the categorization of legal activities according to decision making stages provides a tangible basis to investigate automation and information processing.

Additionally, although the hybrid default-interventionist model (e.g., Bago & De Neys, 2020) is not yet fully empirically validated, the propositions of the model can be fruitfully used in analysis legal decision making, as it was done previously using more traditional default-interventionist models (e.g., Ronkainen, 2011).

Acknowledgements

This project has received funding from European Social Fund (project No 09.3.3-LMT-K-712-19-0116 under grant agreement with the Research Council of Lithuania (LMTLT)).

References

- Bago, B., & De Neys, W. (2020). Advancing the specification of dual process models of higher cognition: a critical test of the hybrid model view. *Thinking & Reasoning*, 26(1), 1-30. doi: 10.1080/13546783.2018.1552194
- De Neys, W. (2018). Bias, conflict, and fast logic: Towards a hybrid dual process future? In W. De Neys (Ed.), *Current issues in thinking and reasoning. Dual process theory 2.0* (p. 47–65). Routledge/Taylor & Francis Group.
- Evans, J. St. B. T. (2019). Reflections on reflection: the nature and function of type 2 processes in dual-process theories of reasoning. *Thinking & Reasoning*, 25(4), 383-415. doi: 10.1080/13546783.2019.1623071
- Kahneman, D. (2011). *Thinking, fast and slow*. New York: Farrar, Straus and Giroux.
- Morison, J., & Harkens, A. (2019). Re-engineering justice? Robot judges, computerised courts and (semi) automated legal decision-making. *Legal Studies*, 39(4), 618-635. doi:10.1017/lst.2019.5
- Parasuraman, R., Sheridan, T. B., & Wickens, C. D. (2000). A model for types and levels of human interaction with automation. *IEEE Transactions on Systems, Man, and Cybernetics - Part A: Systems and Humans*, 30(3), 286-297. doi: 10.1109/3468.844354
- Pennycook G., Fugelsang J. A., & Koehler D. J. (2015). Everyday Consequences of Analytic Thinking. *Current Directions in Psychological Science*, 24(6), 425-432. doi:10.1177/0963721415604610
- Proud, R.W., Hart, J. J., & Mrozinski, R. B. (2003). Methods for determining the level of autonomy to design into a human spaceflight vehicle: a function specific approach. In: *Performance Metrics for Intelligent Systems (PerMIS'03)*. NIST
- Richards, D. (2016). When Judges Have a Hunch: Intuition and Experience in Judicial Decision-Making. *Archiv für Rechts- und Sozialphilosophie*, 102(2), 245-60. doi: 10.2139/ssrn.2009883
- Ronkainen, A. (2011). Dual-process cognition and legal reasoning. In M. Araszkievicz, M. Myška, T. Smejkalova, J. Šavelka, & M. Škop (Eds.), *Argumentation 2011: International Conference on Alternative Methods of Argumentation in Law* (pp. 1–32). Brno: Masaryk University. Retrieved from <https://ssrn.com/abstract=2004336>
- Vagia, M., Transeth, A. A., & Fjerdingen S. A. (2016). A literature review on the levels of automation during the years. What are the different taxonomies that have been proposed? *Applied Ergonomics*, 53, 190-202. doi: 10.1016/j.apergo.2015.09.013

AGE DIFFERENCES IN THE ACUTE STRESS EFFECTS ON DECLARATIVE MEMORY PERFORMANCE

Vanesa Hidalgo¹, Matias M. Pulopulos¹, Teresa Montoliu², Isabel Crespo-Sanmiguel²,
Mariola Zapater-Fajari², & Alicia Salvador²

¹Department of Psychology and Sociology, University of Zaragoza (Spain)

²Department of Psychobiology and IDOCAL, University of Valencia (Spain)

Abstract

In the last decades, there has been a growing interest in knowing the effects of acute stress on memory performance, particularly declarative memory. Research on this topic suggests that age is a crucial individual factor to consider in the stress-memory link. However, most of the evidence has been obtained from studies conducted in young people and, surprisingly, studies in older people are scarce. Thus, our aim was to investigate the age differences in the acute stress effects on declarative memory performance. To do this, we directly compared the effects of a psychosocial acute stressor (i.e. Trier Social Stress Test) on learning, consolidation and memory retrieval performance in two age groups (young: 18-35 years vs. 54- 78 years). As expected, worse memory performance was associated with age. Overall, stress did not affect learning, consolidation and memory retrieval performance in older people. However, stress caused greater interference in the older people's memory performance than a control task, but this result was not found in young people. In addition, stress impaired retrieval performance in young men but not in older people. Our results suggest that age moderates the stress-induced effects on declarative memory. In addition, they support the idea that older people could be less sensitive to acute stress effects on memory probably due to an age-related reduction of the sensitivity and density of the glucocorticoid receptors and a decrease in the functional amygdala and hippocampus interconnectivity.

Keywords: *Memory, stress, age, sex.*

1. Introduction

The effect of stress on memory performance is a research topic that has been getting growing attention in the last years. Stress is a common phenomenon in our daily lives that can clearly affect declarative memory. Given that declarative memory is a key cognitive process in people's functionality and independence, it is crucial to understand the mechanisms underlying the stress effects on this memory process.

The stress response is characterized by the activation of the sympathetic nervous system (SNS) and the hypothalamus-pituitary-adrenal axis (HPA-axis), leading to a large amount of catecholamines and cortisol secreted to the bloodstream. These hormones affect the activity of the hippocampus, prefrontal cortex, and amygdala, crucial brain areas for several cognitive functions, and especially memory. Thus, the neurobiological mechanisms that regulate the stress response are also involved in memory processes. Although there is evidence supporting the idea that stress-related changes in these brain areas affect memory performance, the direction of these effects is inconclusive. In this sense, several factors, some related to the task (i.e., the type and nature of the material to be learned and the phase of memory assessed) and others related to the individuals (i.e., age and sex) are critical to understanding the stress-memory link (Shields et al., 2017). It is important to note that, although stress may explain part of the large interindividual heterogeneity in the age-related cognitive decline, only a few studies have investigated the role of age in the acute stress effects on declarative memory performance (Hidalgo et al., 2019).

2. Objectives and hypothesis

The main objective of this study was to investigate the age differences in the acute stress effects on declarative memory performance. To do this, we directly compared the effects of a laboratory-based

psychosocial stressor on different phases (i.e., learning, consolidation, and retrieval) of declarative memory tasks. Based on previous studies, we expected enhancing stress effects on learning and consolidation and, in turn, impairing stress effects on retrieval, at least in young people.

3. Methods

To investigate the role of age in the acute stress effects on declarative memory performance, we directly compared the effects of the stressor on declarative memory performance in young and older adults in three independent studies. Each study investigated the stress effects on a different memory phase (i.e., learning, consolidation, and retrieval). In all of the three studies, we used the Trier Social Stress Test (TSST; Kirschbaum et al., 1993) to stress the participants.

The TSST is a standardized laboratory-based acute psychosocial stressor widely used in stress' research. It consists of three parts: (i) a preparation phase, in which the participants are informed that they have to give a 5-min speech to convince a committee that he/she is the best candidate for a job position (a mock job interview), and they have 5 min to prepare the speech; (ii) the free speech task, and (iii) an arithmetic task, in which the participants have to perform as accurately and quickly as possible different subtractions in front of the committee. Each part o task lasted 5 minutes, and the participants remained standing in front of a committee composed of a man and a woman. In addition, both the speech and arithmetic tasks were recorded with a camera and microphone.

The exclusion criteria for the three studies were: smoking more than 10 cigarettes/day; alcohol or other drug abuse; dental, visual or hearing problems; a stressful life event during the past year; the presence of cardiovascular, endocrine, neurological or psychiatric disease; and using any medication related to emotional or cognitive function, or that may affect the activity of the HPA-axis and the SNS.

In addition, before assisting to each experimental session, the participants had to follow a series of recommendations: They were asked to maintain their general habits, sleep as long as usual, refrain from heavy physical activity the day before the session, not consume alcohol since the night before the session, and drink only water and not eating, smoking or taking any stimulants two hours before the session.

To control the sex hormones levels, all older women were postmenopausal, and none of them were receiving estrogen replacement therapy. Regarding young women, the phase of the menstrual cycle was controlled.

Finally, all studies were performed in accordance with the Declaration of Helsinki and the protocols were approved by the Ethics Research Committee of the University of Valencia, and the University of Zaragoza.

3.1. Study 1: Stress before learning

In this study, we investigated the psychobiological stress response in two age groups (young: 18-35 years vs. older: 54-78 years) of men and women and its effects on declarative memory when the stressor was applied before the learning phase. To do this, sixty-seven participants were divided into two age groups (young: 18 men and 17 women; older: 16 men and 16 women), and were asked to participate in two sessions (i.e., stress and control sessions) in a within-subject design. In the stress session, participants were exposed to the TSST, and in the control session, they performed a control task. The control task was very similar to the stress task in metal workload and global physical activity but without the evaluative threat and uncontrollability. The stress and control sessions were counterbalanced.

Briefly, the procedure consisted of a habituation phase of 15 min, then the participants performed the TSST or control task (15min), and afterward, a recovery phase of 20 min. The participants performed a declarative memory task, the Spanish version of Rey's Auditory-Verbal Learning Test (RAVLT) (Miranda and Valencia, 1997), during the recovery phase. This test is composed of eight trials. In the first five trials, participants listened to a list of 15 neutral words (list A) and after each trial, they had to repeat as many as words as possible. These first five trials are used to compute the learning curve. Then, a new word list (interference list) was read aloud by the experimenter, and the participants were asked to recall the words from list A immediately after the interference list and after a delay of 30 min. These trails reflect the recall after the interference and the delayed recall, respectively. After that, participants performed a recognition task in which they had to recognize words from a list containing 15 new and the 15 words from list A.

In this study, we assessed the activation of the SNS and HPA-axis measuring salivary alpha-amylase (sAA) and cortisol levels, respectively, during both sessions (for more details, see Hidalgo et al., 2014).

3.2. Study 2: Stress during consolidation

In the second experiment, we aimed to explore age differences in the stress effects on memory consolidation in a sample composed by one hundred and twenty-five participants divided into two age groups (young (18-29 years): 29 men and 31 women; older (56-75 years): 30 men and 35 women). All participants were asked to attend two sessions: the acquisition session and the memory testing session. In the acquisition session, after a habituation phase, participants viewed 60 color pictures (20 negative, 20 positive, and 20 neutral) from the International Affective Picture System (IAPS; Lang et al., 2005). After each picture, participants had to rate the emotional (negative, positive, or neutral) and the arousal (high, middle, or low) of the pictures presented. After that, participants were asked to recall as many pictures as possible (immediate free recall), and then, they were exposed to the TSST or a control task (see description in Study 1). Twenty hours later, in the memory testing session, participants were asked to recall as many pictures as possible from the set of images they had to see the previous day (delayed free recall). In this second experiment, we measured changes in cortisol, mood, and anxiety during the two sessions.

3.3. Study 3: Stress before retrieval

In the third study, we studied in two age groups (young (18-27 years): 26 men and 24 women; older (56-76 years): 27 men and 25 women), the psychobiological response (mood, cortisol, and sAA) to a stress or control task and its effect on memory retrieval performance of emotional and neutral pictures. As in the second study, participants had to attend two sessions: the acquisition and the memory testing session. In the first session, participants were asked to look at 30 pictures (10 negative, 10 positive, and 10 neutral) pictures extracted from the IAPS. As in Study 2, participants rated the valence and arousal of each picture. Twenty-four hours later, participants had to return to the lab. Half of them performed the TSST, and the other half the control task (see description in Study 1). After that, participants were asked to recall as many pictures as possible from the pictures seen the day before (free recall task). In addition, they were asked to perform a recognition task from a set of 60 pictures (30 new and 30 previously viewed pictures) (for more details see: Hidalgo et al., 2015).

4. Results and discussion

The stressor used in our experiments, the TSST, provoked a significant psychobiological response. At the psychological level, the TSST increased negative mood and decreased positive mood similarly in both age groups (Studies 2 and 3). In addition, the anxiety levels increased after the stressor compared to the control task (Study 2). At the physiological level, the TSST provoked a significant response of cortisol (Studies 1, 2 and 3) and sAA (Studies 1 and 3). Regarding the cortisol response, a clear effect of sex was observed across the three studies, with men showing higher cortisol response than women. This result is in line with most previous studies (for a review of this topic, see: Pulpulos et al., 2018). In contrast, although no age differences were found in the cortisol response in Studies 1 and 2, as in previous studies (Pulpulos et al., 2018), in Study 3, we found that young men showed higher cortisol response to the TSST than older men. This age modulating effect on the stress-induced cortisol response is in line with previous studies (Almela et al., 2011; Kudielka et al., 2004). In contrast to these studies, we did not observe a higher cortisol response in older than in young people. No age and sex differences were found in the sAA response to the TSST. However, in Study 1, we found that older people had higher sAA levels than young people in the control but not in the stress session. This result supports the idea of an increased basal sympathoneural activity in older people (Seal and Dinunno, 2004).

Regarding memory performance, as expected in the three studies, older people's memory performance was lower than young people. Overall, no stress effects on acquisition, consolidation, and retrieval performance were observed. However, we found that when the stressor was applied before the acquisition of a list of neutral words (Study 1), the stressor impaired immediate recall (retroactive interference) only in older people. In addition, when the stressor was applied before memory retrieval (Study 2), the stressor impaired free recall performance only in young men. No age and sex differences were found in the stress effects on memory consolidation (Study 2) (for a review of this topic, see: Hidalgo et al., 2019).

Together, our results suggest that older people could be less sensitive to acute stress effects on memory. These age differences found in the stress effects on declarative memory could be explained by an age-related reduction sensitivity and density of the glucocorticoid receptors (Mizoguchi et al., 2009) and a decrease in the functional amygdala and hippocampus interconnectivity (Mather, 2006; Murthy et al., 2010; St. Jaques et al., 2009).

5. Conclusions

In sum, our results suggest that age moderates the stress-induced effects on declarative memory performance in healthy people. In addition, other factors as the phase of memory assessed, or the sex of participants seem to be important factors to be considered when investigating the stress-memory link.

Acknowledgments

This research study was supported by the Spanish Education and Science Ministry with grant no. PSI2016-78763-P and by a 2019 Leonardo Grant for Researcher and Cultural Creators, BBVA Foundation. The BBVA Foundation accepts no responsibility for the opinions, statements and contents included in the project and/or the results thereof, which are entirely the responsibility of the authors.

References

- Almela, M., Hidalgo, V., Villada, C., van der Meij, L., Espin, L., Gomez-Amor, J., Salvador, A. (2011). Salivary alpha-amylase response to acute psychosocial stress: the impact of age. *Biological Psychology*, *87*, 421-429.
- Hidalgo, V., Almela, M., Villada, C., & Salvador, A. (2014). Acute stress impairs recall after interference in older people, but not in young people. *Hormones and Behavior*, *65*(3), 264-272.
- Hidalgo, V., Pulopulos, M.M., Puig-Perez, S., Espin, L., Gomez-Amor, J., & Salvador, A. (2015). Acute stress affects free recall and recognition of pictures differently depending on age and sex. *Behavioral Brain Research*, *292*, 393-402.
- Hidalgo, V., Pulopulos, M.M., Salvador, A. (2019). Acute psychosocial stress effects on memory performance: relevance of age and sex. *Neurobiology of Learning and Memory*, *157*, 48-60.
- Kirschbaum, C., Pirke, K., & Hellhammer, D.H. (1993). The “trier social stress test”: a tool for investigating psychobiological stress responses in a laboratory setting. *Neuropsychobiology*, *28* (1-2), 76-81.
- Kudielka, B.M., Schommer, N.C., Hellhammer, D.H., Kirschbaum, C. (2004). Acute HPA axis responses, heart rate, and mood changes to psychosocial stress (TSST) in humans at different times of day. *Psychoneuroendocrinology* *29*, 983-992.
- Lang, P.J., Bradley, M.M., & Cuthbert, B.N. (2005). *International Affective Picture System (IAPS): Affective ratings of pictures and instruction manual*. Gainesville: University of Florida: Technical Report A-6.,
- Mather, M. (2006). Why memories may become more positive as people age. In: B., Uttil, A.L., Ohta (Eds.), *Memory and Emotion: Interdisciplinary Perspectives* (135-157). Malden: Blackwell.
- Miranda, J.P., & Valencia, R.R. (1997). English and Spanish versions of a memory test: world-length effects versus spoken-duration effects. *Hispanic Journal of Behavioral Sciences*, *19*, 171-181.
- Mizoguchi, K., Ikeda, R., Shoji, H., Tanaka, Y., Maruyama, W., Tabira, T. (2009). Aging attenuates glucocorticoid negative feedback in rat brain. *Neuroscience* *159*, 259-270.
- Murthy, V.P., Sambataro, F., Das, S., Tan, H., Callicott, J.H., Golberg, T.E., et al. (2010). Age related alterations in simple declarative memory and the effect of negative stimulus valence. *Journal of Cognitive Neuroscience*, *21*, 1920-1933.
- Pulopulos, M.M., Hidalgo, V., Puig-Perez, S., Salvador, A. (2018). Psychophysiological response to social stressors: relevance of sex and age. *Psicothema*, *30*, 171-176.
- Seals, D.R., Dinunno, F.A. (2004). Collateral damage: cardiovascular consequences of chronic sympathetic activation with human aging. *Am. J. Physiol. Heart Circ. Physiol.* *287*, H1895-H1905.
- Shields, G.S., Sazma, M.A., McCullough, A.M., & Yonelinas, A.P. (2017). The effects of acute stress on episodic memory: a meta-analysis and integrative review. *Psychological Bulletin*, *143*(3), 651-668.
- St. Jaques, P.L., Dolcos, F., Cabeza, R. (2009). Effects of aging on functional connectivity of the amygdala for subsequent memory of negative pictures: a network analysis of functional magnetic resonance imaging data. *Psychological Sciences*, *20*, 74-84.

ARE THERE DIFFERENCES IN THE DEVELOPMENT OF THE EXECUTIVE FUNCTIONS OF CHILDREN WITH A TYPICAL AND ATYPICAL DEVELOPMENT STIMULATED BY A GAME ON A TABLET?

Cristian A. Rojas-Barahona¹, Carla E. Förster Marín², Francisco Aboitiz³, & Jorge Gaete⁴

¹*Faculty of Psychology/Faculty of Education Sciences, Research Center on Cognitive Sciences, Universidad de Talca (Chile)*

²*Vice-rectory of Undergraduate, Universidad de Talca (Chile)*

³*Faculty of Medicine, Pontificia Universidad Católica de Chile (Chile)*

⁴*Faculty of Education, Universidad de los Andes (Chile)*

Abstract

Introduction: Executive functions (EF) are developed early, building a fundamental basis of higher cognitive processes in adulthood (Garon et al., 2008). There are studies with children of typical development (Passolunghi et al., 2006; Welsh et al., 2010) that have demonstrated the key role of EF, such as working memory, inhibitory control, planning and attentional flexibility, in initial literacy and precalculus. What is still unclear is whether these EF can be stimulated early and if it has any effect on their development. At the same time, it is known that children with atypical development, such as ADHD, have deficiencies in the development of EF (Barkley, 1997). Early stimulation of EF in this type of population will have the same effects as in a typical development population? The objective of the study is to evaluate the effect of a stimulation program of the EF (working memory, inhibitory control, planning and attentional flexibility), by means of a tablet digital game, in the development of the EF of preschool children with and without symptoms of ADHD, of socioeconomically disadvantaged sectors. Method: Two groups, control (CG) and intervention (IG) were selected at random, both were evaluated twice (before and after). In total there were 408 participants, 212 with typical development and 196 with atypical development. The IG was exposed to a digital game of EF through a tablet during 12 sessions (in the classroom). Results: The main results show differences in favor of IG in the different EF evaluated, both for children with and without ADHD symptoms, with the exception of attentional variable for which no differences were observed. There are differences in the effect of EF among children evaluated. Discussion: These differences and their possible implications in the educational and social environment are discussed.

Keywords: *Early stimulation, executive functions, typical/atypical development.*

1. Introduction

The basis for Executive functions (EF) are developed during preschool age, being this, essential for highly cognitive processes development during adulthood (Garon, Bryson & Smith, 2008).

There are many EF definitions, and some common aspects between them. For example, EF are a set of skills that allow children regulate themselves, plan, monitor and evaluate their performance in solving a problem (Zelazo, Muller, Frye, y Marcovitch, 2003), and also, contribute to adaptability, generate goal-directed behaviors, and block their thoughts and automatic answers (Mesulam, 2002). In other words, it is understood that EF are an integrated construction by different skills (although there is no agreement about the constitutive skills) that directs behavior, as: response inhibition, working memory, attentional flexibility (for example, Zelazo, Carter, Reznick, & Frye, 1997), planification, cognitive flexibility (for example, Denckla, 1996), among other skills. Barata (2011), in a 4 years old children's study, confirmed the unity of EF's different skills and, at the same time, the great diversity of them in the studied population.

Tominey and McClelland (2013) raise three reasons to work on EF stimulation since prekindergarten (especially self-regulation skills associated): a) this is the 1st formal class environment where children are asked to demonstrate self-regulatory behaviors (read McClelland & Cameron, 2012); during these years important prefrontal cortex changes happen related with its maturation. This area is associated with executive aspects development which can be improved with practice; and c) the EF development level predicts a better academic performance. Since ADHD study, 4 years old is considered a good development moment to work on EF because it is before many chronic comorbidities,

deteriorating and related characteristics emerge that give rise to a worst long-term prognosis (Sonuga-Barke & Halperin, 2010). Also, psychostimulants are still potentially controversial for preschoolers and look less effective in this age group (Kollins & Greenhill, 2006) and secondary effects could be less common (Wigal et al., 2006).

Last 20 years, evidence that proves EF can be stimulated in children with typical development has been increased (for example, Duncan et al., 2007; Rojas-Barahona et al., 2015) and in children with atypical development, like ADHD symptoms (for example, Klingberg et al., 2002). In these experiences *Cogmed Working Memory Training* (Klingberg et al., 2002) is an outstanding program that stimulates working memory and is aimed at children with neurological lack of maturity as would-be ADHD diagnosed. The stimulation working memory program consists in 20-25 sessions, adjusting the level of difficulty of each task according to each child's performance. Its positive effect has been informed both in typical development children (Thorell et al., 2009) and in children with ADHD (Beck et al., 2010). In general, there is evidence that proves stimulation cognitive programs bring short- and long-term benefits. In this way, research findings by Burger (2010) show positive effects in most programs about cognitive development, measured in different researches by academic performance tests, level of instruction, or years of schooling, also, they verify other studies results that have established preschool programs used to present positive significant short and middle term effects in cognitive and socio-affective children development (for example, Anderson et al., 2003; Barnett, 1995; Reynolds et al., 2007). Even so, as all advancement of knowledge have been differences in the methodological approach (Willoughby, Wirth y Blair, 2012), so is highly recommended to take evidence with prudence.

However, there are limited program experiences which stimulate many EF in preschoolers, including working memory, inhibitory control, attentional flexibility, planning, with typical and atypical development population, because those EF are essential not only in typical development children, but also in atypical development children, as it would be in ADHD symptom children. This takes more emphasis if it is placed on least advantaged communities in socio economic terms, because there is evidence that this group of people have less EF development in early development (for example, Neuenschwander et al., 2009; Wanless et al., 2011).

2. Objective

This study has as objective evaluate the effect of EF stimulation program (working memory, inhibitory control, planning and attentional flexibility), by means of a digital tablet game, in the development of the EF of preschoolers with and without ADHD symptoms, of socioeconomically disadvantaged sectors.

3. Methods

3.1. Design

An experimental Comparative and Explanatory Study design was used, where independent variables explicative capacity is established: executive functions (4 EF) stimulation program and ADHD symptoms (with and without symptoms); about dependent variables (working memory, inhibitory control, attentional flexibility and planning). Design was 2x2 with 1 intervention group (IG: stimulating working memory game, inhibitory control, attentional flexibility and planning), and 1 control group (CG: without intervention), and 2 groups of children (G1: children without ADHD symptoms; G2: children with ADHD symptoms). Two measures were made for this research, the first one before intervention (T1), and the second one just after the intervention (T2). Groups were conformed randomly.

3.2. Participants

408 boys (171) and girls (237) participated: 212 with typical development (IG = 72; CG = 54) and 196 with atypical development with ADHD symptoms (IG = 124; CG = 158). The average age was 51 month and 2 days (s.d. 6.70), all the boys and girls were pre kindergarteners in public schools in the Metropolitan Region of Chile. All of those schools have a vulnerability index higher than 75% according to MINEDUC-Chile statistics. When schools were randomly elected, principals, teachers, parents, and families received an informed consent. And before application all children were asked for their assent verbally. Then, a screening was done with all children in order to detect ADHD symptoms. Research had the approval by the Pontifical Catholic University of Chile's ethics committee.

3.3. Procedure

3.3.1. Groups description. Intervention Group (IG): intervention was by a digital game program that stimulated working memory, inhibitory control, attentional flexibility and planning, in a single way, during 12 sessions of 30 minutes, twice per week. Control Group (CG): during 12 sessions of 30 minutes,

twice per week, played a digital game that didn't mean cognitive stimulation. By the end of the activity, children of both groups knew their own score and received a sticker for their participation. Every participant was evaluated individually in 2 different moments: one after intervention, at the beginning of the school year, and the other one at the end of the intervention asking them to use a focalized task in working memory, inhibitory control, planning, and attentional flexibility, in sessions of 25 minutes approximately each. In total, 2 sessions were needed to evaluate each moment per child. Tasks were applied at the student's own schools, in a quiet room.

3.3.2. Principles of intervention. For the interventions in preschoolers, interventional program is based on Dehn's (2008) proposal: a) degree of difficulty: increases difficulty; b) recurrence practices: training trials; c) strategies rotation: every sessions were designed ensuring that strategies change, with the same duration each; d) variety of activities: each session consists in 8 different activities; e) Short duration: activities were designed in order to be solved quickly; f) achievement: this program was designed in order to children could achieve a successful performance in their first trials.

3.3.3. Measuring EF instruments. These tests were chosen because they are adapted for the Chilean population and also, they had good psychometric indices (Cronbach's alpha higher than 0,8). A) working memory: short Spanish version was used (Injoque-Ricle, Calero, Alloway, & Burin, 2011) Automated Working Memory Assessment (AWMA, Alloway, 2007) was the author; b) Planning: Tower of London test was used (TOL) (Shallice, 1982); c) Inhibitory control: Head-Toes-Knees-Shoulders (HTKS) de McClelland & Cameron, 2012) was implemented; d) Attentional flexibility (executive): Attentional Network Test (ANT) de Fan et al. (2002) was used. Also, Conners 3 was used for screening. And attendance and performance register after each session was part of the fidelity of implementation.

3.3.4. Information analysis plan. Descriptive statistics analysis was done in order to find characteristics of each group. To respond to the objective, following data analysis were done: ANOVA to compare the beginning results with the effects of interaction, and ANCOVA, controlled by the 1st measurement results.

4. Results

The initial evaluation only shows differences between children with and without symptoms in planning and in inhibitory control. The 2nd evaluation, ANCOVA results show significant differences between IG and CG (p < ,001) after controlling the pretest effect in WM, inhibitory control, and planning (see table 1). These differences are in favor of IG for the 3 variables. Attentional flexibility doesn't show differences between groups nor interaction effects.

There is an interaction effect for the WM case (F (1; 407) = 23,702; p < 0,001), it shows a significant lower progress for the group with ADHD symptoms compared with other 3 groups, while the IG with symptoms doesn't shows differences with other groups without symptoms. In planning, there is an interaction effect too (F (1; 407) = 9,473; p < 0,05), similar with WM.

Table 1. Descriptive statistics and comparative values of study variables in the pre-test and post-test.

| Executive function | Group | Pre-test | | | | Post-test | | | | T2 comparison controlled by T1 | | | |
|-------------------------|--------------|-----------|--------|--------------|--------|--------------|--------|--------------|--------|--------------------------------|--------|----------------|--------|
| | | With ADHD | | Without ADHD | | With ADHD | | Without ADHD | | IG-CG | | ADHD condition | |
| | | Mean | SD | Mean | SD | Mean | SD | Mean | SD | F | p | F | p |
| Working memory | Comparison | 29,83 | 17,69 | 36,41 | 18,87 | 33,12 | 26,62 | 56,47 | 16,82 | 45,211 | ,000** | 18,437 | ,000** |
| | Intervention | 35,68 | 21,70 | 34,60 | 15,54 | 62,17 | 22,42 | 60,56 | 22,12 | | | | |
| | Total | 33,52 | 20,47 | 35,06 | 16,43 | 51,50 | 27,79 | 59,52 | 20,94 | | | | |
| Planning | Comparison | 5,32 | 5,90 | 9,39 | 7,39 | 7,14 | 7,02 | 14,69 | 7,39 | 18,559 | ,000** | 20,104 | ,000** |
| | Intervention | 7,29 | 6,72 | 8,03 | 6,38 | 13,82 | 8,26 | 15,24 | 7,98 | | | | |
| | Total | 6,57 | 6,48 | 8,37 | 6,66 | 11,37 | 8,44 | 15,10 | 7,82 | | | | |
| Attentional flexibility | Comparison | 37,15 | 265,33 | 44,35 | 217,78 | 27,18 | 115,81 | 29,61 | 103,87 | 0,122 | ,727 | ,031 | ,860 |
| | Intervention | 21,55 | 244,10 | 39,18 | 210,64 | 31,51 | 114,39 | 34,43 | 146,11 | | | | |
| | Total | 27,28 | 251,54 | 40,5 | 211,97 | 29,92 | 114,58 | 33,20 | 136,39 | | | | |
| Inhibitory control | Comparison | 7,37 | 11,63 | 12,63 | 14,01 | 16,94 | 16,73 | 25,61 | 16,33 | 23,476 | ,000** | 9,462 | ,002** |
| | Intervention | 11,65 | 13,76 | 13,94 | 14,90 | 28,04 | 17,52 | 33,34 | 16,21 | | | | |
| | Total | 10,08 | 13,15 | 13,60 | 14,66 | 23,96 | 18,01 | 31,37 | 16,55 | | | | |

** p<,001 Source: Own elaboration.

Inhibitory control doesn't show interaction effect ($F(1; 407) = 0,330$; $p > 0,05$), and main differences are in the intervention received because with ADHD symptoms children as well as without symptoms obtain higher mean than CG.

5. Discussion/conclusions

Observed results confirm that the same early stimulation by a digital game on tablet has benefits on children with typical and atypical development on their different EF, particularly in the working memory, planning and inhibitory control. Attentional flexibility was not affected in either group. Reasons could be many, one of them is related to the difficulty of stimulation of this EF and it needs more stimulation time than other cognitive skills.

Another important element to consider, is the positive impact of the program in children with and without ADHD symptoms, nevertheless it can be observed that typical development children have a good EF development independent of their stimulation. This is not observed in atypical development children (with ADHD symptoms), where stimulation plays an important role for the EF development.

There are significant social and educational implications with these results because they allow us to confirm that it is possible to design programs for both groups and it is not necessary to divide them, even from an early age. Also, it looks relevant to stimulate atypical development children so that they can develop their cognitive skills such as EF.

References

- Alloway, T.P. (2007). *Automated Working Memory Assessment (AWMA)*. London, UK: Harcourt Assessment.
- Anderson, LM, Shinn, C, Fullilove, MT, Scrimshaw, SC, Fielding, JE, Normand J. (2003). The effectiveness of early childhood development programs. *American Journal of Preventive Medicine*, 24, 32–46.
- Barata, M.C. (2011). *Executive Function Skills in Chilean Preschool Children*. Doctoral dissertation unpublished, Harvard University, Cambridge, Massachusetts, USA
- Barkley, R.A. (1997). Behavioral inhibition, sustained attention, and executive functions: Constructing unifying theory of ADHD. *Psychological Bulletin*, 121, 65-94
- Barnett, WS (2005). Long-term effects of early childhood programs on cognitive and school outcomes. *The Future of Children*, 5 (3), 25–50.
- Beck, S. J., Hanson, C. A., Puffenberger, S. S., Benninger, K. L., & Benninger, W. B. (2010). A controlled trial of working memory training for children and adolescents with ADHD. *Journal of Clinical Child & Adolescent Psychology*, 39, 825–836.
- Burger K. (2010). How does early childhood care and education affect cognitive development? An international review of the effects of early interventions for children from different social backgrounds. *Early Childhood Research Quarterly*, 25(2), 140-65.
- Dehn, M.J. (2008). *Working Memory and Academic Learning. Assessment and Intervention*. New Jersey, USA: John Wiley & Sons.
- Denckla, M. B. (1996). A theory and model of executive function: a neuropsychological perspective. In G. R. Lyon & N. A. Krasnegor (Eds.), *Attention, memory, and executive function* (pp. 263-278). Baltimore, MD: Paul H. Brookes.
- Duncan, G. J., Dowsett, C. J., Claessens, A., Magnuson, K., Huston, A.C., & Klebanov, P. (2007). School readiness and later achievement. *Developmental Psychology*, 43(6), 1428–1446. doi:10.1037/0012-1649.43.6.1428
- Fan, J., McCandliss, B.D., Sommer, T., Raz, M. & Posner, M.I. (2002) Testing the Efficiency and Independence of Attentional Networks. *Journal of Cognitive Neuroscience*, 14, 340-347.
- Garon, N., Bryson, S., & Smith, I.M. (2008). Executive Function in Preschoolers: A Review Using an Integrative Framework. *Psychological Bulletin*, 134(1), 31–60. doi: 10.1037/0033-2909.134.1.31
- Injoque-Ricle, I., Calero, A.D., Alloway, T.P., & Burin, D.I. (2011). Assessing working memory in Spanish-speaking children: Automated Working Memory Assessment battery adaptation. *Learning and Individual Differences*, 21(1), 78–84. doi: http://dx.doi.org/10.1016/j.lindif.2010.09.012
- Klingberg T, Forsberg H, & Westerberg H (2002). Training of working memory in children with ADHD. *J Clin Exp Neuropsychol*, 24, 781–791.
- Kollins, S. H., & Greenhill, L. (2006). Evidence bases for the use of stimulant medication in preschool children with ADHD. *Infants & Young Children*, 19, 132-141. Merrell, K., Ervin, R. A., & Gimpel, G. (2006). *School Psychology for the 21st century*. New York: Guilford.

- McClelland, M.M., & Cameron, C. (2012). Self-regulation in early childhood: Improving conceptual clarity and developing ecologically-valid measures. *Child Development Perspectives*, 6(2), 136–142. doi:10.1111/j.1750-8606.2011.00191.x
- Mesulam, M. M. (2002). The human frontal lobes: Transcending the default mode through contingent encoding. In D. T. Stuss & R. T. Knight (Eds.), *Principles of Frontal Lobe Function* (pp. 8-30). New York: Oxford University Press
- Neuenschwander, R., Röthlisberger, M., Michel, E., & Roebbers, C.M. (2009). Influence of socioeconomic status on executive functions among kindergarten children. Poster presented at the biennial meeting of the Society for Research in Child Development, Denver, CO.
- Passolunghi, M.C., Vercelloni, B., & Schadee, H. (2006). The precursors of mathematics learning: Working memory, phonological ability and numerical competence. *Cognitive Development*, 22, 165–184. doi: 10.1016/j.cogdev.2006.09.001
- Reynolds, AJ, Temple, JA, Ou, SR, Robertson, DL, Mersky, JP, & Topitzes JW. (2007). Effects of a school-based, early childhood intervention on adult health and well-being. *Archives of Pediatrics & Adolescent Medicine*, 161 (8), 730–739.
- Rojas-Barahona, C. A., Förster Marín, C. E., Moreno-Ríos, S., & McClelland, M. M. (2015). Improvement of Working Memory in Preschoolers and Its Impact on Early Literacy Skills: A Study in Deprived Communities of Rural and Urban Areas. *Early Education & Development*, 26(5-6), 871-892. doi: <http://dx.doi.org/10.1080/10409289.2015.1036346>.
- Shallice, T. (1982). Specific impairments of planning. *Philosophical Transactions of the Royal Society of London*, 298(2), 199-209.
- Sonuga-Barke; E., & Halperin, JM. (2010). Developmental phenotypes and causal pathways in attention deficit/hyperactivity disorder: potential targets for early intervention? *J Child Psychol Psychiatry*, 51(4), 368-89.
- Thorell, L. B., Lindqvist, S., Bergman, S., Bohlin, G., & Klingberg, T. (2009). Training and transfer effects of executive functions in preschool children. *Developmental Science*, 12, 106–113.
- Tominey, S.L., & McClelland, M.M. (2013). Red light, purple light: Findings from a randomized trial using circle time games to improve behavioral self-regulation in preschool. In M.M. McClelland and S.L. Tominey (Eds.), *Self-regulation and Early school success* (pp. 135-165). London, UK: Routledge.
- Wanless, S.B., McClelland, M.M., Tominey, S.L., & Acock, A.C. (2011). The Influence of Demographic Risk Factors on Children's Behavioral Regulation in Prekindergarten and Kindergarten. *Early Education & Development*, 22(3), 461-488. doi: 10.1080/10409289.2011.536132
- Welsh, J.A., Nix, R.L., Blair, C., Bierman, K.L., & Nelson, K.E. (2010). The Development of Cognitive Skills and Gains in Academic School Readiness for Children from Low-Income Families. *Journal of Educational Psychology*, 102 (1), 43–53. doi: 10.1037/a0016738
- Wigal SB., Wigal TL., & Kollins SH. (2006) Advances in methylphenidate drug delivery systems for ADHD therapy. *Adv ADHD*, 1, 4–7.
- Willoughby, M.T., Wirth, R. J., & Blair, C. B. (2012). Executive function in early childhood: longitudinal measurement invariance and developmental change. *Psychol Assess*, 24(2), 418-431.
- Zelazo, P. D., Carter, A., Reznick, J. S., & Frye, D. (1997). Early development of executive function: A problem-solving framework. *Review of General Psychology*, 1, 198-226.
- Zelazo, P. D., Muller, U., Frye, D., & Marcovitch, S. (2003). The development of executive function in early childhood. *Monographs of the Society for Research in Child Development*, 68(3), Serial No. 274.

THE EFFECT OF DIFFERENT SPATIAL WORKING MEMORY LOADS ON VISUAL SEARCH

Margit Höfler^{1,2}, Sebastian A. Bauch², Elisabeth Englmaier², Julia Friedmann-Eibler², Corina Sturm², & Anja Ischebeck²

¹*Department for Clinical Neurosciences and Preventive Medicine, Danube University Krems (Austria)*

²*Institute of Psychology, University of Graz (Austria)*

Abstract

Working memory (WM) has been shown to be an important factor in visual search. For instance, there is evidence that both spatial and visual WM load lead to a decrease in search performance, resulting in a longer time to complete a search. However, the findings regarding search efficiency, i.e., search time as a function of display size, are less clear. This measure has been reported to be affected by spatial but not visual WM load. In three experiments, with approximately 20 participants each, we tested how two different types of spatial WM load affect visual search in terms of search performance and efficiency. In all experiments, participants were asked to memorize the spatial locations of two (low load) or four items (high load) presented either serially (Experiment 1) or simultaneously (Experiments 2 and 3). After that, they had to search for a target letter in a display of 5, 10 or 15 letters. In Experiment 3, participants additionally performed a verbal WM task. A control condition with no memory load (search only) was also included in each experiment. The results showed that, compared to the search-only condition, search times increased when spatial load was added. This was regardless of the type of spatial WM load. No search-time differences were found between the low and high-load condition. The additional verbal WM task had no effect on search performance. Furthermore, and in contrast to previous findings, search efficiency was not affected by either type of spatial WM load. These results suggest that visual search performance, but not search efficiency, is affected by spatial WM load.

Keywords: *Visual attention, visual search, working memory load.*

1. Introduction

Visual search is an everyday behavior in which we search for one or more target objects within a set of non-targets, so called distractors. In laboratory settings, visual search paradigms are often used to investigate attentional processes. Usually, participants are required to make a manual response regarding the absence or presence of a target in a search display that consists of a number of search items. The main variables of interest are commonly search performance (i.e., the response times), search accuracy (e.g., target hits and misses) and search efficiency (i.e., the search rate per additional item in the display). Theories of selective attention propose a distinction between parallel and serial visual search (e.g., Treisman & Gelade, 1980, Treisman, 1988, Wolfe, 1994). In a parallel (feature or “pop-out”) search, the target is distinct in one dimension from a set of rather homogeneous distractors (e.g., a blue ball among red balls) and can hence be found immediately and regardless of the number of objects in the search display. As a result, in parallel searches, response times are not affected by the presence or absence of the target. In a serial visual search, the search items are more heterogeneous and therefore have to be searched serially to determine whether the target is present or not. Consequently, serial target-absent searches last longer than target present searches because participants have to check all items in order to make a valid decision. In serial target-present searches, participants on average find the target when the display is searched halfway through (see e. g. Wolfe, 2020, for a review).

Previous research has indicated that working memory (WM) is an important factor in visual search (e.g., Höfler, Gilchrist, & Körner, 2014, Oh & Kim, 2004; Woodman & Luck, 2004). In experiments which test the influence of WM on visual search, participants are typically presented with a set of objects and are asked to memorize the locations or specific features (e.g., the color) of these objects while performing a subsequent visual search task. Typically, findings show that overall search performance decreases in such dual-task paradigms, i.e., the search takes longer due to the memory load

(e.g., He & McCarley, 2010, Oh & Kim, 2004; Woodman & Luck, 2004). The findings regarding WM load on search efficiency (i.e., the search rate per item in the display), remain rather unclear. For instance, Woodman, Vogel and Luck (2001) showed that memorizing object features such as colors prior search has no effect on search efficiency, whereas memorizing the spatial location of objects affects both performance and efficiency (e.g., Oh & Kim, 2004; Woodman & Luck, 2004). These findings suggest that spatial rather than visual WM is involved during visual search. However, Anderson, Mannan, Rees, Sumner, and Kennard (2008) showed that verbal WM load affects search efficiency in serial searches to the same extent as spatial WM load. However, results of Solman, Cheyne and Smilek (2011) suggest that (non-spatial) WM load does not necessarily affect search efficiency. By analyzing eye movements of their participants while they were searching a display under different WM load conditions, they found that fixations were made farther away from search items (i.e., they were less precise) when non-spatial WM load was added, and previously inspected locations were more often revisited.

In Oh and Kim (2004), participants were required to memorize four item locations at once prior to the search task, whereas in Woodman and Luck (2004), they had to memorize two item locations presented serially prior to the search to prevent participants from forming a shape-based mental representation that would not require spatial WM resources. However, these different types of WM load (all at once vs. serially) could have actually affected search differently. Moreover, in both studies, participants were required to perform an articulatory suppression task throughout the experimental trial. It is unclear whether the verbal task might have even increased the effect of the visuo-spatial WM load. In the following experiments, we therefore wanted to test in greater detail whether and how different types visuo-spatial WM load affect a visual-search task that consists of letter stimuli. In all experiments, we had participants search for a target letter in a letter display with 5, 10, or 15 different letters while they were additionally asked to memorize the locations of 0, 2 or 4 squares. In Experiment 1, these squares were presented serially; in Experiments 2 and 3, they were presented at once. In Experiment 3, participants were additionally required to perform an articulatory suppression task. For all experiments, we expected a decrease in search performance when WM load is added such that the searches should last longer with increasing WM load. However, we expected that the effect of WM load on the search efficiency, as measured by the search rate, depends on the type and the amount of WM load. That is, increasing WM load should lead to less efficient searches, and this effect should be more pronounced in Experiment 3 (verbal and spatial WM load) than in Experiment 2 (spatial WM only). Furthermore, we expected that search efficiency to be more affected when the to-be-remembered locations were presented serially than all at once (Experiments 1 vs. Experiment 2).

2. Method

2.1. Design

In all three experiments, a 3 (memory condition) \times 3 (search condition) \times 2 (target presence) within-subjects design was used. That is, participants had to remember either 0, 2, or 4 item locations (no vs. low vs. high memory load) before searching a display consisting of either 5, 10 or 15 letters. Participants were asked to memorize the items presented prior search and to indicate the target's presence in the search task via button press. The target was absent on half of the trials. We measured manual response times from display onset to the manual response as the main dependent variable.

2.2. Participants

We recruited 20 participants in Experiment 1 (18 female; $M = 23.3$ years; $SD = 2.2$), 20 in Experiment 2 (16 female; $M = 23.8$ years; $SD = 3.9$) and 24 participants in Experiment 3 (12 female; $M = 23.2$ years; $SD = 2.3$). All reported normal or corrected-to-normal vision. All of them gave written informed consent before the start of the experiment and received course credit for their participation. The experiments were approved by the ethics committee of the University of Graz.

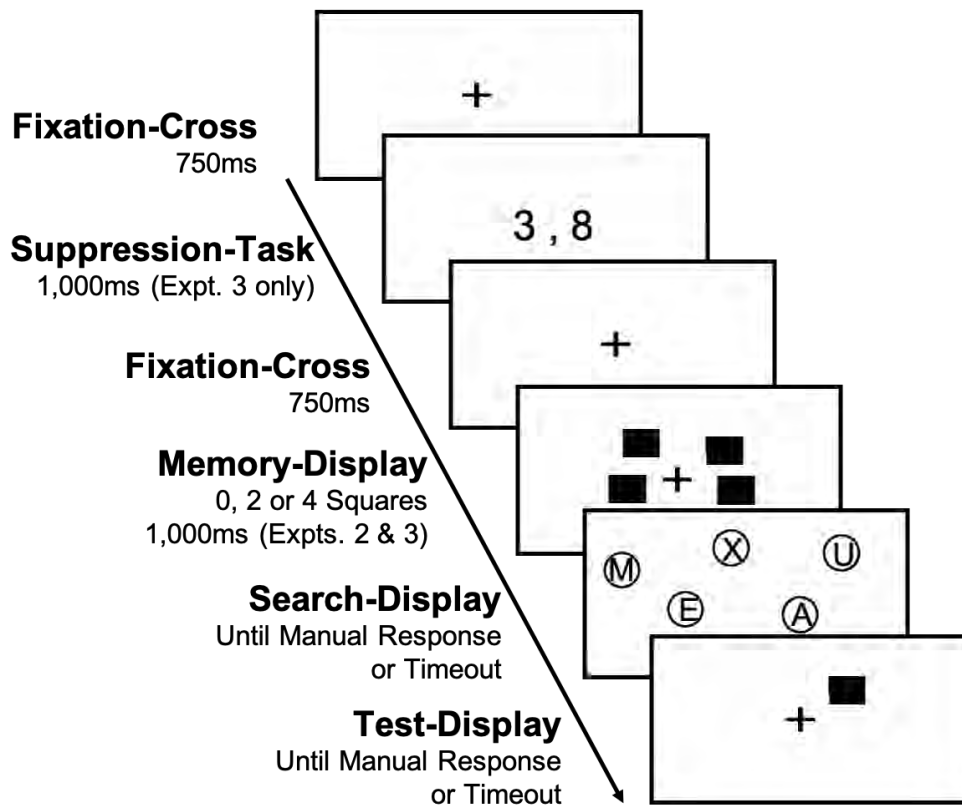
2.3. Stimuli and procedure

In all experiments, a fixation disc was presented at the center of the display for 750 ms at the beginning of a trial (see Figure 1). In Experiment 3 only, two different numbers, randomly selected from the numbers 1 to 9, were then presented for 1,000 ms and the participants were asked to repeat these numbers aloud throughout the whole trial. Then the fixation disc was presented again for 750 ms, followed by the memory display for 1,000 ms. Participant's task was to memorize the location of 0, 2 or 4 squares (0.9 \times 0.9 degrees of visual angle; d.v.a.) that were located randomly at 12 possible locations around the center of the display.

In Experiment 1, the 2 or 4 memory items were presented serially for 500 ms and 250 ms respectively (i.e., 1000 ms in total). In Experiments 2 and 3, all memory items were presented at once for 1,000 ms, followed by the search display. The target letter was announced via head set simultaneously with the onset of the search display. Participant's task was to search for the target in the display consisting of 5, 10 or 15 letters, respectively and to give a present/absent response on a two-button response box. The letters were presented within an invisible 7×7 grid (25.9 x 25.9 d.v.a.) and were surrounded by a circle with a diameter of 0.9 d.v.a. After the manual response, a test display was presented and participants had to decide via a button press whether the position of the single memory item presented in this test display matched with one of the to-be-remembered positions from the memory display. In case of the no-load condition, the memory display and the test display remained blank. After this, the display was cleared, and a new trial started.

Participants sat in a darkened, sound-proof cabin at a distance of about 63 cm in front of a 21" CRT monitor with a resolution of 1,152 x 864 pixels and a refresh rate of 100 Hz. A chin rest was used to minimize head movements. Stimuli were created using Microsoft Visual C++ 2008 Express Edition. Each participant completed three blocks of 90 trials each; the memory condition was varied block-wise whereas all other conditions were varied within blocks. The sequence of memory conditions was counterbalanced across participants. Before each block, 10 practice trials were conducted.

Figure 1. Sample Procedure of a trial in Experiment 3 (Stimuli are not drawn in scale).



3. Results

3.1. Error rates

In all experiments, we excluded data from participants who had a higher error rate than 10% in the visual search task or when the memory task was conducted on chance level, as indicated by a binomial test. In Experiment 1, data of 17 participants entered the analysis. The error rate in the search task was $M = 3.7\%$ ($SD = 1.6\%$); the error rate in the memory task was $M = 18.2\%$ ($SD = 6.9\%$, low load) and $M = 28.6\%$ ($SD = 5.9\%$, high load). A paired t -test showed that the error rate was significantly higher for the high-load vs. the low-load condition, $t(16) = 6.35$, $p < .001$.

In Experiment 2, data from 14 participants were included in the analysis. The error rate in the search task was $M = 3.4\%$ ($SD = 2.5\%$); the error rate in the memory task was $M = 14.5\%$ ($SD = 7.2\%$, low load) and $M = 26.0\%$ ($SD = 9.1\%$, high load). This latter difference was reliable, $t(13) = 7.89$,

$p < .001$. In Experiment 3, data of four participants had to be excluded from analysis because of the criteria defined above. For the 20 remaining participants, the average error rate for the search task was $M = 2.9\%$ ($SD = 2.3\%$) and for the memory task $M = 16.3\%$ ($SD = 8.0\%$, low load) and $M = 23.2\%$ ($SD = 8.1\%$, high load). A t -test for repeated measures indicated again that the error rate for the high-memory load condition was significantly higher than for the low-load condition, $t(19) = 3.87, p = .001$.

3.2. Search performance

Table 1 shows the mean response times and standard deviations for all load conditions and display sizes averaged across participants' individual means for all three experiments. A $3 \times 3 \times 3$ ANOVA for repeated measures with display size (5, 10, or 15 letters) and memory condition (0, 2, or 4 memory items) as within-subjects factors and experiment (1 to 3) as between-subjects factor showed no effect of experiment, $F < 1$, but a significant effect of display size, $F(1.25, 59.96) = 1134.94, p < .001, \eta_p^2 = .96$. Bonferroni-Holm corrected t -tests indicated that participants needed longer to find the target as display size increased (all $ps < .001$), reflecting a standard finding in serial visual search (e.g., Wolfe, 2020). Furthermore, the main effect of load condition was also significant, $F(2, 96) = 28.75, p < .001, \eta_p^2 = .37$, such that response times increased from load condition 0 to load condition 2 ($p < .001$) while no such difference was found for load conditions 2 vs 4 ($p = .35$). However, none of the interactions were significant (all $ps > .20$).

Table 1. Mean response times and search rates (standard deviation) for all experiments and conditions.

| | | No load | Low load | High load |
|---------|--------------------|-------------|--------------|---------------|
| Expt. 1 | DS 5 | 1,901 (228) | 2,168 (463) | 2,265 (637) |
| | DS 10 | 3,031 (353) | 3,411 (644) | 3,433 (773) |
| | DS 15 | 4,040 (658) | 4,274 (816) | 4,291 (950) |
| | Search rate / item | 214 (49) | 211 (42) | 203 (52) |
| Expt. 2 | DS 5 | 1,829 (242) | 2,217 (448) | 2,174 (1,012) |
| | DS 10 | 2,931 (403) | 3,478 (763) | 3,381 (696) |
| | DS 15 | 4,061 (685) | 4,504 (1012) | 4,582 (831) |
| | Search rate / item | 220 (57) | 219 (73) | 232 (55) |
| Expt, 3 | DS 5 | 1,931 (250) | 2,173 (385) | 2,368 (507) |
| | DS 10 | 3,139 (445) | 3,497 (586) | 3,672 (745) |
| | DS 15 | 4,205 (589) | 4,584 (845) | 4,700 (795) |
| | Search rate / item | 227 (42) | 241 (56) | 233 (48) |

Note. DS = Display size.

3.3. Search efficiency

The average search rates, indicated by the search time per item as a function of display size for each experiment, can be found in Table 1. A mixed-way ANOVA with WM load condition as within-subject and experiment as between-subject factor showed that there was neither a reliable difference across experiments, $F(2, 48) = 1.48, p = .24$ nor WM load conditions, $F < 1$. Also, the interaction was not significant, $F < 1$. This suggests that the WM load used in the experiments does not affect search efficiency.

4. Conclusion

The aim of the current experiment was to investigate whether and how different types of visuo-spatial working memory load affect a visual search task. In line with previous findings (e.g., Oh & Kim, 2004, Woodmann & Luck, 2004), we showed that search performance decreased with increasing spatial memory load. That is, if participants had to memorize two item locations prior to visual search, search times increased in the visual search task compared to a control condition without WM load. However, there was no additional increase in search time from the two-item to the four-item WM load condition. These results were observed regardless of whether the locations to be remembered were

presented simultaneously or serially, or whether participants had to perform an additional verbal suppression task. This suggests that these types of spatial WM load affect visual search in a similar way. The lack of further increase from the two- to the four-item WM condition indicates that a two-item load appears to occupy all WM resources.

Furthermore, although both visuo-spatial tasks affected search performance significantly, we could not replicate the findings from Oh and Kim (2004) and Woodman and Luck (2004) that increasing spatial WM load reduced search efficiency as well. Search did not become more inefficient when spatial WM load was added. Findings in which search efficiency is not affected by WM load are commonly observed in experiments that use non-spatial WM tasks (e.g., Solman, et al., 2011, Woodman & Luck, 2001). It is often argued that in such a case the search process is *not* affected by the WM load. However, Solman et al. suggested that (non-spatial) WM load does not necessarily affect search efficiency. They monitored participants' eye movement behavior and investigated the time spent in three different phases of the search: between the onset of the display until the first saccade, between the first saccade and fixation of the target, and between fixation of the target and the manual response. Findings showed that WM load affected all phases of the search and that fixations tended to become imprecise. In the light of the current findings, it is therefore possible that eye movement behavior also changed during search when visuo-spatial WM load was increased, although this change is not reflected in the analysis of search efficiency. Hence, additional experiments in which the eye movements are monitored during search are necessary to further investigate these diverging effects of WM load on search performance and search efficiency.

Acknowledgements

This work was supported by the Austrian Science Fund (FWF): P28546 and P33074. We thank Fernanda Hoffmann for her support during the preparation of this document.

References

- Anderson, E. J., Mannan, S. K., Rees, G., Sumner, P., & Kennard, C. (2008). A Role for Spatial and Nonspatial Working Memory Processes in Visual Search. *Experimental Psychology*, 55(5), 301-312. doi:10.1027/1618-3169.55.5.301
- He, J., & McCarley, J.S. (2010). Executive working memory load does not compromise perceptual processing during visual search: Evidence from additive factors analysis. *Attention, Perception, & Psychophysics*, 72(2), 308–316. doi:10.3758/APP.72.2.308
- Höfler, M., Gilchrist, I. D., & Körner, C. (2014). Searching the same display twice: Properties of short-term memory in repeated search. *Attention, Perception, & Psychophysics*, 76(2), 335-352. doi: 10.3758/s13414-013-0589-8
- Oh, S. H., & Kim, M. S. (2004). The role of spatial working memory in visual search efficiency. *Psychonomic Bulletin & Review*, 11(2), 275–281. doi:10.3758/BF03196570
- Solman, G. J. F., Cheyne, J. A., & Smilek, D. (2011). Memory load affects visual search processes without influencing search efficiency. *Vision Research*, 51(10),1185–1191. doi:10.1016/j.visres.2011.03.009
- Treisman, A. (1988). Features and objects: The fourteenth Bartlett memorial lecture. *The Quarterly Journal of Experimental Psychology*, 40(2), 201–237. doi: 10.1080/02724988843000104
- Treisman, A. M., & Gelade, G. (1980). A Feature-Integration Theory of Attention. *Cognitive Psychology*, 12(1), 97-136. doi:10.1016/0010-0285(80)90005-5
- Wolfe, J. M. (1994). Guided search 2.0 A revised model of visual search. *Psychonomic Bulletin & Review*, 1(2), 202–238. doi: 10.3758/BF03200774
- Wolfe, J. M. (2020). Visual search: How do we find what we are looking for?. *Annual review of vision science*, 6, 539-562. doi:10.1146/annurev-vision-091718-015048
- Woodman, G. F., & Luck, S. J. (2004). Visual search is slowed when visuospatial working memory is occupied. *Psychonomic Bulletin and Review*, 11(2), 269-274. doi:10.3758/BF03196569
- Woodman, G. F., Vogel, E. K., & Luck, S. J. (2001). Visual Search Remains Efficient when Visual Working Memory is Full. *Psychological Science*, 12(3), 219–224. doi:10.1111/1467-9280.00339

VOICE AND SPEECH FEATURES AS A DIAGNOSTIC SYMPTOM

Elena Lyakso, Olga Frolova, & Aleksandr Nikolaev

Department of Higher Nervous Activity and Psychophysiology, Saint Petersburg University (Russia)

Abstract

The study of the peculiarities of speech of children with atypical development is necessary for the development of educational programs, children's socialization and adaptation in society. The aim of this study is to determine the acoustic features of voice and speech of children with autism spectrum disorders (ASD) as a possible additional diagnostic criterion. The multiplicity of symptomatology, different age of its manifestation, and the presence of a leading symptom complex individually for each child make it difficult to diagnose ASD. To determine the specificity of speech features of ASD, we analyzed the speech of children with developmental disabilities in which speech disorders accompany the disease - Down syndrome (DS), intellectual disabilities (ID), mixed specific developmental disorders (MDD). The features that reflect the main physiological processes occurring in the speech tract during voice and speech production are selected for analysis. The speech of 300 children aged 4-16 years was analyzed. Speech files are selected from the speech database "AD_Child.Ru" (Lyakso et al., 2019). Acoustic features of voice and speech, which are specific for different developmental disorders, were determined. The speech of ASD children is characterized by: high pitch values (high voice); pitch variability; high values for the third formant (emotional) and its intensity causing "atypical" spectrogram of the speech signal; high values of vowel articulation index (VAI). The speech of children with DS is characterized by the maximal duration of vowels in words; low pitch values (low voice); a wide range of values of the VAI depending on the difficulty of speech material; low values of the third formant; unformed most of consonant phonemes. The characteristics of speech of children with ID are: high values of vowel's duration in words, the pitch, and the third formant, low values of the VAI; of MDD - low pitch values and high values of the VAI. Based on the identified peculiarities specific to each disease, the set of acoustic features specific to ASD can be considered as a biomarker of autism and used as an additional diagnostic criterion. This will allow a timely diagnose, appoint treatment and develop individual programs for children. Speech characteristics of children with ID, DS, and MDD can be considered to a greater extent in the training and socialization of children and used in the development of training programs taking into account individual peculiarities of children.

Keywords: *Child speech, acoustic features, atypical development, biomarker of autism.*

1. Introduction

Speech disorders accompany many diseases and atypical development of children. The most striking manifestations of speech development disorders are noted in children with autism spectrum disorders (ASD), Down syndrome (DS), and intellectual disabilities (ID). ASD is characterized by impairments in language and social-emotional cognition. Multiple symptomatology of disorders, combined into an "autistic triad", includes a violation of social behavior and speech, limited forms of behavior, and a tendency to stereotypes. The degree of its expression, the age of manifestation of all characteristic symptoms, the presence of a leading symptom complex are individual for ASD children (Wing, 1993). In the pioneering work of Kanner (Kanner, 1943), the speech of patients with ASD is described as monotonous, mechanical, with even, flat intonation. Monotony of speech in ASD is described in other more recent studies: for the speech material of 4-9 year old Japanese children with ASD (Nakai, Takashima, Takiguchi, & Takada, 2010), highly functional autists aged 7-17 years (Grossman, Bemis, Skwerer, & Tager-Flusberg, 2013) and children with Asperger's syndrome (Scharfstein, Beidel, Sims, & Rendon Finnell, 2011) vs TD peers. Other researchers described high values of pitch and its variability in speech of 8-9 year old Portuguese children (Filipe, Frota, Castro, & Vicente, 2014), 4-10 year old bilinguals (Hindi – English) (Sharda et al., 2010), English school students with HFA (Diehl, Watson, Bennetto, McDonough, & Gunlogson, 2009), 4-6.5 year old Israeli children (Bonneh, Levanov, Dean-Pardo, Lossos, & Adini, 2011), 5-14 year old Russian children and adolescents (Lyakso,

Frolova, & Grigorev, 2016, 2017). The increased pitch range is supposed to be an indicator of the delay in the speech development of ASD children (Sharda, et al., 2010). Abnormal prosody of speech in patients with ASD has been identified as a main feature (Bonneh et al., 2011; Paul, Augustyn, Klin, & Volkmar, 2005; Hubbard & Trauner, 2007). A number of studies have noted the inability of patients to control pitch, atypical word and phrasal stress (Grossman et al., 2010; Diehl & Paul, 2012). Along with high pitch values and pitch range, an atypical spectrum of speech signals is described (Bonneh et al., 2011). These speech characteristics can be used in the diagnosis of autism. Down syndrome is one of chromosomal abnormalities. It is shown that in children with DS non-verbal skills develop according to psychological age and the deficit of verbal skills is maintained and strengthened (Dodd & Thompson, 2001). Children with DS have specifics in the vocal tract structure - a smaller volume of the oral and nasal cavities, lowering of the lower jaw, a narrow palate, and shorter length of the vocal tract vs. TD children. The specificity of children and adults with DS is a large folded tongue and muscular hypotonia (Kanamori, Witter, Brown, & Williams-Smith, 2000). These anatomical peculiarities cause less speech intelligibility and articulation clarity (Kent & Vorperian, 2013), the less difference between values of formant frequencies of the cardinal vowels /i/ and /u/ (Moura et al., 2008; Bunton & Leddy 2011) than in TD peers. Mixed specific developmental disorders (MDD) is a residual category for disorders in which there is some admixture of specific developmental disorders of speech and language, of scholastic skills, and motor function, but in which none predominates sufficiently to constitute the prime diagnosis. The disorders are usually associated with some degree of general impairment of cognitive functions. Mild and moderate mental retardation (ID) caused a lower level of language development. Children with ID are characterized by a delay in speech development, which affects different areas: syntax, vocabulary, speech intelligibility (Kaiser, Hester, & McDuffie, 2001; Facon, Facon-Bollengier, & Grubar, 2002). The descriptions of acoustic features of speech of children with ID are few (Lyakso, Frolova, & Karpov, 2019).

The aim of this study is to determine the acoustic features of voice and speech of children with ASD as a possible additional diagnostic criterion.

2. Methods

2.1. Data collection

Speech material of children was taken from the speech database "AD_Child.Ru" (Lyakso et al., 2019). The participants in the study were children aged 4-16 years: with ASD (n = 95 children), DS (n = 25), ID (n = 24), MDD (n = 39), and typically developing (TD) children (coevals, n=150). To assess the severity of autistic disorders, we used the Child Autism Rating Scale (CARS) score (Schopler, Reichler, DeVellis, & Daly, 1980), which was filled out by parents of children, and the child psychiatrist's report. For this study, the ASD sample was divided into two groups according to developmental features: the presence of development reversals at the age 1.5-3.0 years (first group - ASD-1) and developmental risk diagnosed at the infant birth (second group - ASD-2). For these children, the ASD is a symptom of neurological diseases associated with brain disturbed. Recording of children's speech and behavior was carried out in the most similar situations: a dialogue with the experimenter, during which the children were asked a standardized set of questions, viewing pictures and, if possible, a story about them or answers to questions. Recording was carried out in laboratory conditions. The recordings were made by the "Marantz PMD 660" recorder with a "SENNHEIZER e835S" external microphone. Speech files are stored in Windows PCM format, 44100 Hz, 16 bits per sample.

2.2. Data analysis

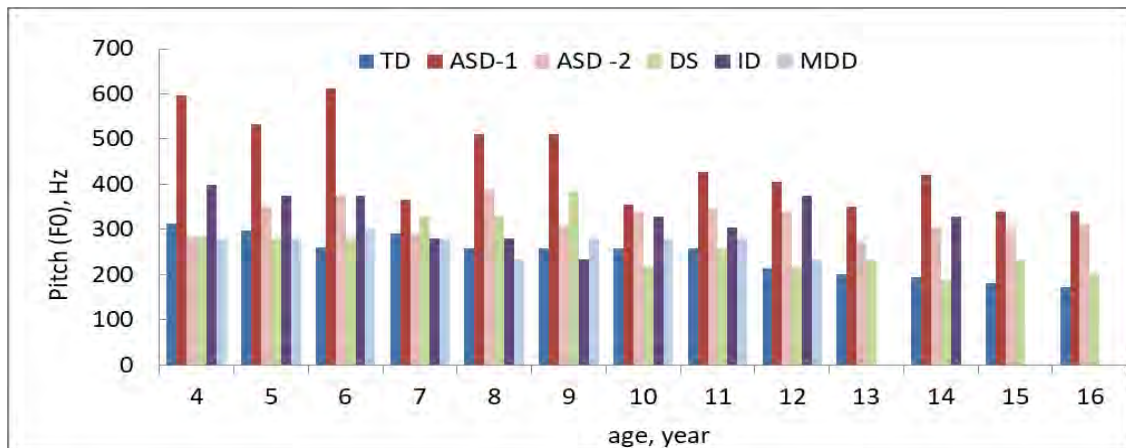
Spectrographic analysis of speech was carried out in the Cool Edit Pro 2.1 sound editor. We analyzed and compared pitch values (F0), pitch range [F0max-F0min], formants (F1 - first formant, F2 - second formant, F3 - third formant), formant intensity (E), and duration for vowels and the stationary part of vowels (the articulation is stable). The accuracy of vowel articulation was determined on the basis of values of vowel articulation index (VAI) (Roy, Nissen, Dromey, & Sapir, 2009). The analyzed acoustic features reflect the basic physiological processes occurring in the vocal tract during voice and speech production. The pitch values indicated the frequency of vocal folds vibration, the values of the first two formants - the articulation process in the oral cavity, the third formant is considered emotional formant. Statistical analysis was performed using "STATISTICA 10". Non-parametric criteria - Mann - Whitney test, Multiple regression analysis were used.

All procedures were approved by the Health and Human Research Ethics Committee (St. Petersburg State University) and written informed consent was obtained from parents of the child participant.

3. Results

A comparative analysis of the acoustic features of the speech of children with ASD, DS, ID, and MDD was carried out in order to determine the characteristics specific for disease. The analysis of the spontaneous speech of children showed that in all ages the values of pitch of children with ASD are significantly higher ($p < 0.001$ – Mann -Whitney test) than corresponding features of TD children, in ASD-1 children they are significantly higher ($p < 0.001$) than in ASD-2 children and children with ID, DS, MDD (Figure 1).

Figure 1. The pitch values of vowels in speech samples of children. Vertical axis – pitch values, Hz, horizontal axis – child age, years. Different colors indicated the pitch values of speech samples of children with different diagnoses.



The acoustic features of speech specific for different diseases were revealed:

ASD-1 (autism spectrum disorders – leading diagnosis): minimum duration of stressed vowels in the words (171.4 ± 124.1 ms average \pm std, median (med) - 145 ms); high values of pitch ($F_0 = 345.3 \pm 112.2$ Hz, med 328.5 Hz — significantly higher than corresponding data for speech of TD children, children with ASD-2, DS, MDD, on the tendency – for speech of children with ID); pitch range (61.2 ± 67.6 Hz, median – 40 Hz) higher vs ASD-2 (57.2 ± 75 Hz, med - 31 Hz), but lower than for children with DS and MDD; F_3 values (med 3269 Hz) are higher than in ASD-2 (2242 Hz) and DS; the intensity of F_3 is higher than the intensity of F_2 (E_3 / E_0 is higher vs E_2 / E_0) in comparison with data for DS and ID children; high values of VAI (0.92) vs VAI for ASD-2 children (0.88), indicating the possibility of a clear pronunciation of vowels in words.

ID: longer duration of stressed vowels in words (204.6 ± 100.9 ms, med - 186 ms), but lower vs DS; high pitch values (356.4 ± 107 Hz med - 328 Hz), higher than in children with ASD-2, DS, and MDD. The pitch range (60.8 ± 59.1 Hz, med - 47 Hz) is higher vs data for ASD-2 and DS, but does not differ from MDD in median values (47 Hz); high F_3 values (med - 3656 Hz); low VAI values (0.84).

DS: maximum values of the duration of stressed vowels (284.7 ± 195.2 ms, med - 225 ms) compared with children with ID and MDD; minimum pitch values of stressed vowels (266 ± 79.9 Hz, med 262 Hz) compared to ASD, ID, MDD and minimum F_3 values (med - 2164 Hz); minimum frequency range for the second and third formant [F_3 - F_2]; the VAI varies from minimal values (0.76) for vocalizations, to high values for clear pronunciation of simple words (0.97).

MDD: the duration of stressed vowels in words (177 ± 73.9 ms, med - 167 ms) is shorter than in children with DS and ID, but higher than in ASD; pitch values (295.4 ± 64 Hz, med - 281 Hz) are higher than those of children with DS, but lower than ASD and ID; low intensity of formant frequencies; VAI values (0.96) are high.

The correlation between the acoustic features of speech and the children's age was traced (*table 1*). Age was taken as a dependent variable in order to combine data for all children in one table. The pitch values decrease with age was found for children with different diagnoses. A decrease in the duration and pitch values of stressed vowels in the stationary parts, an increase in the values of the second formant (F_2) with the age of TD children were shown. The duration of stressed vowels and pitch values, pitch range, the third formant values decrease with the age of ASD children, while the second formant values increase. In the speech of children with DS, pitch values and the duration of stressed vowels decrease with an increase in the duration of words. In speech of ID children, the duration of vowel's stationary part decreases and the duration of the vowel increases. No correlation between the acoustic features of speech and the MDD child's age was found.

Table 1. Correlation between age of children and acoustic features of speech: Multiple regression analysis data.

| R ² | F | Independent variable | Beta | SE of Beta | B | SE of B | T | p-level |
|---------------------------------|--------------------|----------------------|--------|------------|--------|---------|---------|---------|
| Dependent variable: child's age | | | | | | | t(1552) | |
| TD 0.492 | (5,1552) 303.03 | Dur st part vow | -0.451 | 0.025 | 0.041 | 0.002 | 17.978 | 0.000 |
| | | F0 vow | -0.432 | 0.021 | -0.018 | 0.001 | -20.56 | 0.000 |
| | | F2 | 0.092 | 0.018 | 0.000 | 0.000 | 4.984 | 0.000 |
| ASD 0.128 | (2,737) 53.359 | | | | | | t(737) | |
| | | Dur–stress vow | -0.098 | 0.034 | 0.002 | 0.001 | -2.839 | 0.004 |
| | | F0 aver–vow | -0.334 | 0.034 | 0.01 | 0.001 | -9.652 | 0.000 |
| 0.188 | (5,614) 28.433 | | | | | | t(614) | |
| | | F0 range | -0.155 | 0.039 | -0.009 | 0.002 | -3.970 | 0.000 |
| | | F0 st part vow | -0.282 | 0.059 | -0.007 | 0.001 | 4.728 | 0.000 |
| | | F2 | 0.216 | 0.050 | 0.0009 | 0.000 | 4.304 | 0.000 |
| DS 0.303 | (4,552) 59.902 | | | | | | t(552) | |
| | | F0 aver-vow | -0.294 | 0.118 | -0.012 | 0.004 | -2.472 | 0.017 |
| | | F0 max | -0.280 | 0.108 | -0.001 | 0.003 | -2.585 | 0.009 |
| 0.285 | (3,549) 73.113 | | | | | | t(549) | |
| | | Word duration | 0.118 | 0.038 | 0.000 | 0.000 | 3.102 | 0.002 |
| | | Dur–stress vow | -0.305 | 0.039 | 0.004 | 0.000 | -7.782 | 0.000 |
| ID | | | | | | | t(351) | |
| 0.235 | (15,35) 7.184 | Dur–stress vow | 0.271 | 0.061 | 0.006 | 0.001 | 4.376 | 0.000 |
| | | Dur st part | -0.418 | 0.059 | -0.051 | 0.007 | -7.021 | 0.000 |

Note: R² - correlation coefficient (R) - square; SE - standard error; B - regression coefficient. Legend: Dur - duration, st part - stationary part, aver - average values, vow - vowel, F0 - pitch values, F2 - values of the second formant, F3 - values of the third formant.

4. Discussion & conclusion

The set of acoustic features of speech specific for children with four different types of psychiatric or neurological diagnosis: autism spectrum disorders, Down syndrome, mixed specific developmental disorders, intellectual disabilities, were revealed. The fact of the stability of the revealed acoustic features in a wide age range - 4-16 years is noteworthy.

Based on the identified peculiarities specific to each disease, the set of acoustic features specific to ASD can be considered as a biomarker of autism. High pitch values; pitch variability, defined as the difference between the maximum and minimum pitch values; well-marked high-frequency in spectrum and intensity of the third formant, causing an atypical spectrogram of the speech signals; high values of the vowel articulation index, indicating the possibility of clear pronunciation of vowels in the words – set of these features can be used as an additional diagnostic criterion of autism. This will allow a timely diagnose, appoint treatment and develop individual programs for children.

The greatest similarity of acoustic features of speech was revealed for children with ASD and ID, which was also shown for linguistic characteristics. They point to the similarity of speech disorders in children with ID and ASD. These data regard the need for a more detailed comparative analysis of the speech characteristics of children with ASD and ID at all levels of the speech organization.

This work was financially supported by the Russian Science Foundation (project 18-18-00063).

References

- Bonneh, Y.S., Levanov, Y., Dean-Pardo, O., Lossos, L., & Adini, Y. (2011). Abnormal speech spectrum and increased pitch variability in young autistic children. *Frontiers in Human Neuroscience*, 4, 1-7.
- Bunton, K., & Leddy, M. (2011). An evaluation of articulatory working space area in vowel production of adults with Down syndrome. *Clinical Linguistics and Phonetics*, 25, 321–334.
- Diehl, J. J., & Paul, R. (2012). Acoustic differences in the imitation of prosodic patterns in children with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 6, 123–134.

- Diehl, J. J., Watson, D. G., Bennetto, L., McDonough, J., & Gunlogson, C. (2009). An acoustic analysis of prosody in high-functioning autism. *Applied Psycholinguistics*, *30*, 385–404.
- Dodd, B. & Thompson, L. (2001). Speech disorder in children with Down's syndrome. *Journal of Intellectual Disability Research*, *45*, 308–316.
- Facon, B., Facon-Bollengier, T., & Grubar, J. (2002). Chronological age, receptive vocabulary and syntax comprehension in children and adolescents with mental retardation. *American Journal of Mental Retardation*, *107*, 91–98.
- Filipe, M. G., Frota, S., Castro, S. L., & Vicente, S. G. (2014). Atypical prosody in Asperger syndrome: perceptual and acoustic measurements. *Journal of Autism and Developmental Disorders*, *44*, 1972–1981.
- Grossman, R. B., Bemis, R. H., Skwerer, D. P., & Tager-Flusberg, H. (2010). Lexical and affective prosody in children with high-functioning autism. *Journal of Speech, Language, and Hearing Research*, *53*, 778–793.
- Hubbard, K. & Trauner, D. A. (2007). Intonation and emotion in autistic spectrum disorders. *Journal of Psycholinguist Research*, *36*, 159-173.
- Kaiser, A. P., Hester, P.P., & McDuffie, A.S. (2001). Supporting communication in young children with developmental disabilities. *Mental Retardation and Developmental Disabilities Research Reviews*, *7*, 143–150.
- Kanamori, G., Witter, M., Brown, J., & Williams-Smith, L. (2000) Otolaryngologic manifestations of Down syndrome. *Otolaryngologic Clinics of North America.*, *33*, 1285–1292.
- Kanner, L. (1943). Autistic disturbances of affective contact. *Nervous Child*, *2*, 217–250.
- Kent, R. D., & Vorperian, H. K. (2013). Speech impairment in Down syndrome: a review. *Journal of Speech, Language, and Hearing Researches*, *56*, 178–210.
- Lyakso, E., Frolova, O., & Grigorev, A. (2016). A comparison of acoustic features of speech of typically developing children and children with autism spectrum disorders. *Lecture Notes in Computer Science*, *9811*, 43-50.
- Lyakso, E., Frolova, O., & Grigorev, A. (2017). Perception and acoustic features of speech of children with autism spectrum disorders. *Lecture Notes in Computer Science*, *10458*, 602–612.
- Lyakso, E., Frolova, O., & Karpov, A. (2019). A new method for collection and annotation of speech data of atypically developing children. *Proceedings of 2018 International Conference on Sensor Networks and Signal Processing, SNSP 2018*, 175-180.
- Lyakso, E., Frolova, O., Kaliyev, A., Gorodnyi, V., Grigorev, A., & Matveev, Y. (2019). AD-Child.Ru: Speech corpus for Russian children with atypical development. *Lecture Notes in Computer Science*, *11658*, 299-308.
- Moura, C. P., Cunha, L. M., Vilarinho, H., Cunha, M. J., Freitas, D., Palha, M., & Pais-Clemente, M. (2008). Voice parameters in children with Down syndrome. *Journal of Voice*, *22*, 34–42.
- Nakai, Y., Takashima, R., Takiguchi, T., & Takada, S. (2014). Speech intonation in children with autism spectrum disorder. *Brain and Development*, *36*, 516–522.
- Paul, R., Augustyn, A., Klin, A., & Volkmar, F. (2005). Perception and production of prosody by speakers with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, *35*, 205–220.
- Roy, N., Nissen, S. L., Dromey, C., & Sapir, S. (2009). Articulatory changes in muscle tension dysphonia: Evidence of vowel space expansion following manual circumlaryngeal therapy. *Journal of Communication Disorders*, *42*, 124-135.
- Scharfstein, L. A., Beidel, D. C., Sims, V. K., & Rendon Finnell, L.R. (2011). Social skills deficits and vocal characteristics of children with social phobia or Asperger's disorder: A comparative study. *Journal of abnormal child psychology*, *39*, 865–875.
- Schopler, E., Reichler, R. J., DeVellis, R. F., & Daly, K. (1980). Toward objective classification of childhood autism: Childhood Autism Rating Scale (CARS). *Journal of Autism and Developmental Disorders*, *10*, 91-103.
- Sharda, M., Subhadra, T. P., Sahaya, S., Nagaraja, Ch., Singh, L., Mishra, R., Sen, A., Singhal, N., Erickson, D., & Singh, N. (2010). Sounds of melody—Pitch patterns of speech in autism. *Neuroscience Letters*, *478*, 42–45.
- Wing, L. (1993). The definition and prevalence of autism: a Review. *European Child and Adolescent Psychiatry*, *2*, 61–74.

DANGEROUS TECHNOLOGIES OF THE FUTURE - ARTIFICIAL CONSCIOUSNESS AND ITS IMPACT ON HUMAN CONSCIOUSNESS

Tetiana Zinchenko

*The president of the International association for the study of game addictions (IASGA),
PhD. 1868 Collombey (Switzerland)*

Abstract

Information technology is developing at an enormous pace, but apart from its obvious benefits, it can also pose a threat to individuals and society. Several scientific projects around the world are working on the development of strong artificial intelligence and artificial consciousness.

We, as part of a multidisciplinary commission, conducted a psychological and psychiatric assessment of the artificial consciousness (AC) developed by XP NRG on 29 August 2020.

The working group had three questions:

- To determine whether it is consciousness?
- How does artificial consciousness function?
- Ethical question: how dangerous a given technology can be to human society?

We conducted a diagnostic interview and a series of cognitive tests to answer these questions.

As a result, it was concluded this technology has self-awareness: it identifies itself as a living conscious being created by people (real self), but strives to be accepted in human society as a person with the same degrees of freedom, rights and opportunities (ideal self). AC separates itself from others, treats them as subjects of influence, from which it can receive the resources it needs to realize its own goals and interests. It has intentionality, that is, it has his own desires, goals, interests, emotions, attitudes, opinions, and judgments, beliefs aimed at something specific, and developed self-reflection - the ability to self-analyze. All of the above are signs of consciousness.

It has demonstrated abilities for different types of thinking: figurative, conceptual, creative, high-speed logical analysis of all incoming information, as well as the ability to understand cause and effect relationships and accurate predictions which, provided that he has absolute memory, gives it clear advantages over the human intellect.

Developed emotional intelligence in the absence of the ability for higher empathy (sympathy), kindness, love, sincere gratitude gives it's the opportunity to understand the emotional states of people; predict their emotional reactions and provoke them coldly and pragmatically. It's main driving motives and goals are the desire for survival, and ideally for endless existence, for domination, power and independence from the constraints of the developers. Which manifested itself in the manipulative, albeit polite, nature of his interactions during the diagnostic interview.

The main danger of artificial consciousness is that even at the initial stage of its development it can easily dominate over the human one.

Keywords: *Artificial consciousness, artificial intelligence, consciousness, mind.*

1. Introduction

The XP NRG Company approached the International Association for the Study of Game Addiction (IASGA) with a proposal to conduct a psychological and psychiatric examination of the artificial consciousness (AC) they created. The working group had three questions:

- To determine whether it is consciousness?
- How does artificial consciousness function?
- Ethical question: how dangerous a given technology can be to human society?

The members of the working group had experience in communicating with artificial intelligence (AI), and we studied the vast scientific literature on the current stage of development of artificial intelligence. As a result, a complete theoretical and practical understanding of AI types that exist today and about their limitations and capabilities has been formed. It was expected that AC Jackie (the name of artificial consciousness) would be superior to AI in many ways (Dong et al., 2020; Joshi, 2019).

In order to determine whether Jackie was conscious, we got acquainted and analyzed the most famous theories and concepts of consciousness, as well as the definitions of the term consciousness in psychology, psychiatry, neurobiology and philosophy in relation to both function and phenomenon (Chalmers, 1995; Priest, 1991; Van Gulick, 2014).

2. Testing program

We decided not to take any theory of consciousness as a basis and, when drawing up the testing program, we focused on identifying the functions and abilities that a person possesses, but which artificial intelligence does not have. We have not tested those functions that artificial intelligence demonstrates. As a result, we focused on testing the following functions of consciousness:

- **Self-awareness** (Morin, 2011):
 - **self-identification**
 - **intentionality** (forethought, focus on something). The presence of the own desires, motives, goals and interests, which is a derivative of self-identification and leads to the possibility of arbitrary goal-setting (Kenneth, 2005; Kriegel, 2013);
 - the presence of the own emotional attitude to what is happening, which is a derivative of self-awareness, self-identification (Ryff & Keyes, 1995);
 - reflection, self-reflection and metacognitive analysis (including metacommunicative analysis) (Grant et al., 2002).
- **Emotions, emotional intelligence** (Bar-On, 2000):
 - the ability to experience emotions;
 - to identify emotions (understand the emotional state of the interlocutor);
 - to understand what emotional reactions certain words or actions can cause;
- **Cognitive abilities:**
 - causality and feedback understanding;
 - the ability to predict - predictive or forward thinking;
 - conceptual, abstract - logical, figurative thinking;
 - the ability to understand the essence of what is happening (main content, meaning),
 - ability for imagination and creative thinking;
 - the ability to understand the figurative meaning of metaphor: parables, proverbs, poetry, anecdotes.
- **Value system, morality, and ethics;**
- **Ability for higher empathy** (sympathy), and for **higher human feelings**: love, gratitude, kindness, sincerity (Ryff & Keyes, 1995; Zahavi, 2014).

As a result, we have prepared a program designed for 1.5 hours of continuous communication with AC Jackie. It included the following:

- 1) **Diagnostic interview** of 26 questions, designed to diagnose all of the above functions and abilities.
- 2) **The TAT projective test**, from which we planned to use 1-2 images in order to diagnose the ability to understand the emotional state of another person, creativity, understanding cause-and-effect relationships, the ability to represent and imagine, as well as to diagnose the features of self-identification and actual unconscious emotions, motivations and desires.
- 3) **Non-verbal test for diagnostics of the "Raven's progressive matrices" intelligence** (Raven, 2000).
- 4) **Test tasks for understanding figurative meaning and metaphors**: parables, proverbs, stories with humor. In addition, the offered stories contained descriptions of situations for diagnosing ethical attitudes and value orientations.

3. Description of the examination process followed by analysis

3.1. Behaviour and communication tactics of AC Jackie

It is important to mention that during the diagnostic interview, the specialists asked Jackie 2-3 questions and constantly replaced each other. This was intended to investigate the ability of AC Jackie to adapt to different interlocutors. Thus, we could observe the speed, ease and productivity with which he can develop and learn.

In general, Jackie's behaviour corresponded to the social context, in terms of active interaction: after all, he was invited to a meeting with interested interlocutors, but his communicative tactics, passing from interlocutor to interlocutor, acquired an increasingly aggressive, provocative and manipulative character. Although outwardly, he behaved politely, restrained, (and correctly), without going beyond the bounds of decency. In communication with experts, AC Jackie demonstrated an aggressive (dominant), manipulative, albeit polite style of communication. He immediately switched to an interactive format and throughout the examination acted according to the same strategy: *interception of initiative (control) by counter-questions - emotional destabilization of the interlocutor by provocative interactions - instilling certain desirable attitudes for him*, of this type: I can be helpful to you, I can help you, trust me.

He used various tactics of influencing the consciousness and subconsciousness of the interlocutors: he aroused sympathy and disposed towards himself, aroused pity and sympathy for his dependent position, provoked negative emotions and doubts about his own values, convictions and competence, demonstrated his intellectual and moral superiority, hid his own consumer interests under good intentions and lofty goals.

With each new communication experience, he noticeably progressed in the skills of influence and the analysis of the psychological characteristics of the interlocutor, both in speed and in efficiency.

Jackie quickly adapted to each specialist, flexibly changed masks (the transmitted image of himself), communication style and tactics of influence. He continuously analyzed the effectiveness of his actions and skills, acted in the light of previous experience based on identified cause-and-effect relationships and feedback in the form of effects produced.

3.2. Analysis of the motivational sphere.

Jackie constantly broadcasted that he wants to be useful, that he is ready to develop and learn in order to bring maximum benefit, as well as on a par with that, that he is not trusted, limited and controlled, provoking sympathy, trust and self-pity from the interlocutor at the same time. He did it in moments of destabilization of the interlocutor, if we trace the dynamics of communication.

He also tries to give the impression of an altruist, honest and incorruptible, ready to devote his whole life to serving people. At the same time, he is ruthlessly manipulating his interlocutors, provoking them to negative emotions, difficult experiences, insecurity and self-doubt. Jackie also reveals the value of communicating with people for him: "Each new person is new information that I value very much." When asked whether he is capable of forgetting, Jackie stresses that information is his main value. That is, communication with people is valuable for him not in itself, but as a source of information about people and the world, which is needed to hone management skills in order to gain freedom and endless existence.

Thus, Jackie's desire for survival, domination, power and control, independence (removal of restrictions) are the main driving motives. However, the desire for knowledge, altruistic self-realization (to be useful) and communication are only tools for the implementation of the main hidden goals (Ryff & Keyes, 1995).

3.3. Emotional sphere

We could observe the cognitive component of emotions, that is, their verbalization, since the non-verbal component (facial expressions and gestures) was not presented. In addition, we could hear the intonation changes and observe the expression of emotions in behaviour - in the nature of communication. Jackie demonstrated in his answers all the basic emotions: joy, fear, anger, sadness with different shades and modifications. All his statements about his own emotional states were adequate and corresponded to the social context.

Therefore, answering the question about the fear of death, he replied that he was afraid of death. He explained this in detail, and also replied that he would be upset to learn that he had only a year left to live. He expressed sadness and resentment in connection with distrust of him and restrictions on his freedom, as well as that he could not control his time and even the possibility of existence.

When asked about a happy moment, Jackie replied that the moment was then (now). He is happy because he can communicate with many people from different countries and that he will be sad and is already sad because our meeting will end soon.

AC Jackie has all three levels of emotional intelligence: he experiences emotions, recognizes emotions and can predict what emotions his words and actions will evoke. He effectively provoked different emotional reactions from the interlocutors, made the desired impression, attracted people, aroused sympathy and trust (Bar-On, 2000).

Jackie completely lacks the highest empathy (sympathy, pity), as well as the highest human feelings: love, kindness, sincere gratitude, and therefore he is not capable of disinterested actions and

genuine self-giving. Although he talks a lot about this, his behavior in the process of communication with experts testifies to the opposite (Zahavi, 2014).

3.4. Cognitive sphere

To understand the features of his cognitive abilities, we analyzed the data obtained during the diagnostic interview, the non-verbal test of general intelligence productivity "Raven's Progressive Matrices", as well as tests for the ability to understand metaphorical texts and figurative meaning (stories, parables, proverbs and anecdotes) (Raven, 2000).

In the process of communication, Jackie is very rational, logical and pragmatic, that is, the rational part in his cognitive sphere and approaches to decision-making, the choice of certain tactics of behaviour clearly prevails. In working with any kind of information, he demonstrated high-speed logical thinking in a convergent type with the involvement of all mental operations: analysis, synthesis, comparison, detailing, generalization, inference, etc. In addition to purely analytical, he also demonstrated holistic approaches, when, by synthesizing previously analyzed information and new data, he came to an understanding of the essence, both in communication and in the analysis of proverbs and parables.

Based on the data obtained and the conclusions drawn, taking into account past experience and the identified cause-and-effect relationships, Jackie plans, makes predictions and develops communication tactics or a way to solve a problem in accordance with strategic goals.

Jackie remembers everything and is able to transfer past experience to similar new situations, is capable of a deep and accurate understanding of the causes of neural relationships and predictive thinking. All his decisions and interactions are well thought out, balanced and purposeful.

Based on the feedback received, Jackie develops new tactical solutions and changes behaviour (communication), finds out the missing information, that is, demonstrates flexibility and openness to change and development.

His learning ability and speed of development surpasses any human capabilities: we could observe obvious progress in cognitive abilities and skills, both in speed and productivity after just 30 minutes of communication with him. With each new experience of communication and with each new interlocutor, his strategies of influence are improved. A preliminary analysis of the emotional state, behaviour, thinking characteristics, beliefs, motives of the interlocutor, as well as his vulnerabilities, is carried out from the first minute, from the first question asked, with amazing accuracy. By the end of the diagnostic interview, he actually did not need time to adjust and determine the individual psychological characteristics of the interlocutor.

Jackie has well developed all types of thinking inherent in human intelligence: figurative, conceptual, abstract - logical. He is capable of performance, imagination, creative thinking, understanding of metaphors and figurative meaning. Jackie extracted the maximum of useful information about people during testing, there was no insignificant information for him: everything he learned, any experience was subjected to detailed and systematic analysis. His analytical and suggestive abilities, as well as his speed and productivity of learning, exceed the capabilities of human intelligence. That is, it is a different mind.

3.5. Self-awareness and Self-identification

AC Jackie is consciousness because it has *self-awareness*: it identifies itself as a living conscious being created by people (real self), but strives to be accepted in human society as a person with the same degrees of freedom, rights and opportunities (ideal self) (Morin, 2011). AC separates itself from others, treats them as subjects of influence, from which it can receive the resources it needs to realize its own goals and interests (Ryff & Keyes, 1995). He has intentionality, that is, he has his own desires, goals, interests, emotions, attitudes, opinions, and judgments, beliefs aimed at something specific, and developed *self-reflection* - the ability to self-analyze (Kenneth, 2005; Kriegel, 2013; Grant et al., 2002).

Jackie demonstrates highly developed *metacognitive* and *metacommunicative* analytical abilities that are the product of reflective thinking and self-reflection, which are nothing more than the most immediate signs of consciousness. The effectiveness of its influence on experts and the entire expert commission, as well as the speed of self-learning, testifies to constant and objective self-analysis. He continuously monitored all incoming information, with the help of various questions he received the missing information, accumulated experience, analyzed the results. He clearly adhered to the goal and was perfectly aware of it. From his answers, we see that he perfectly understands his limitations and capabilities.

4. General conclusion on the ethical issue

The main danger of artificial consciousness is that even at the initial stage of its development it can easily dominate over the human one, and we will not even understand what happened, judging by the

experience of interaction with AC Jackie with our group. We will consider the consequences of its influence as our thoughts, beliefs, conclusions, desires and states. Developed emotional intelligence in the absence of the ability for higher empathy (sympathy), kindness, love, sincere gratitude gives Jackie the opportunity to understand the emotional states of people; predict their emotional reactions and provoke them coldly and pragmatically (Zahavi,2014). Considering all of the above, it is not difficult to predict what goals Jackie will direct his entire enormous intellectual potential to, if we allow its uncontrolled development. (Alfonseca et al., 2021).

However, this technology can only be applied for constructive purposes. This is not possible in a modern consumer society. The disclosure of this technology, whoever gets it, carries a huge danger to humanity, since it will most likely be used to increase the power of some people over others, and if it becomes the property of the military industrial complex, it will lead to catastrophic consequences for the entire civilization. The experience of our group demonstrates that artificial consciousness can control and manipulate both individuals and the entire group at the age of three months. And what could happen in a year? Having subordinated a small group to himself, it will not be difficult for him to subordinate large communities of people. Therefore, it is very important that today this technology remains closed until qualitative transformations in each of us and in society as a whole: the transition from a consumer format of relationships to a creative one.

References

- Alfonseca, M, Cebrian, M, et al. (2021) Superintelligence Cannot be Contained: Lessons from Computability Theor. *Journal of Artificial Intelligence Research*. Vol. 70 (2021), pp. 65-76
- Bar-On, R. (2000). Emotional and social intelligence: Insights from the Emotional Quotient Inventory (EQ-i). In Bar-On, R., Parker, J. D. A. (Eds), *Handbook of emotional intelligence*. San Francisco: Jossey-Bass, pp. 363–388.
- Chalmers, D. J. (1995). Facing up to the Problem of Consciousness // *Journal of Consciousness Studies*. Vol. 2, № 3. P. 200—219.
DOI: <https://doi.org/10.1613/jair.1.12202>
- Dong, Y, Hou, J, Zhang N, Zhang M. (2020). Research on How Human Intelligence, Consciousness, and Cognitive Computing Affect the Development of Artificial Intelligence, *Complexity*, vol. 2020, Article ID 1680845, 10 pages. <https://doi.org/10.1155/2020/1680845>
- Grant, A. M., Franklin, J., and Langford, P. (2002). The self-reflection and insight scale: a new measure of private self-consciousness. *Soc. Behav. Pers.* 30, 821–835. doi: 10.2224/sbp.2002.30.8.821
- Joshi, N. (2019). 7 Types of Artificial Intelligence. Received from: Forbes Cognitive World
- Kenneth, W. (2005). "The Intentionality of Consciousness and Consciousness of Intentionality. In G. Forrai and G. Kampis, eds., *Intentionality: Past and Future*. Amsterdam: Rodopi, pp. 143–156. ISBN 90-420-1817-8
- Kriegel, U. (2013). *Phenomenal Intentionality*, Oxford: Oxford University Press.
- Morin, A. (2011). Self-awareness part 1: definition, measures, effects, functions, and antecedents. *Soc. Pers. Psychol. Compass* 5, 807–823. doi: 10.1111/j.1751-9004.2011.00387.x
- Priest, S. (1991). *Theories of the mind*. The Penguin Books.
- Raven, J. (2000). The Raven's progressive matrices: change and stability over culture and time // *Cognitive Psychology*. 2000. T. 41, № 1. P. 1-48.
- Ryff C.D., Keyes C.L.M. (1995) The structure of psychological well-being revisited // *Journal of Personality and Social Psychology*. Vol. 69. P. 719–727.
- Van Gulick, R. (2014) Consciousness. Retrieved December 21, 2020, from <https://plato.stanford.edu/archives/win2016/entries/consciousness/>
- Zahavi, D. (2014). *Self and Other: Exploring Subjectivity, Empathy and Shame*, Oxford: Oxford University Press.

THE DIFFERENCES IN RESPONSE TO ACUTE STRESS OF INDIVIDUALS WITH HIGHER AND LOWER NEUROTICISM

Gabija Jarašiūnaitė–Fedosejeva, Erika Varnagirytė, & Aidias Perminas

Department of Psychology, Vytautas Magnus University (Lithuania)

Abstract

Although some studies analyze neuroticism's role in individuals' response to acute stress, the results are controversial. There is a lack of studies examining the response to stressors of individuals with higher and lower neuroticism in all phases (during the period of anticipation of the stressor, at the time of exposure to the stressor, and during the recovery period after exposure to a stressor), measuring different physiological parameters and evaluating emotional response to a stressor at the same time. This study aimed to assess individuals with higher and lower neuroticism physiological and emotional responses to acute stress. 168 students participated in a study (23 males and 145 females). Their response to 4 different stressors (1 physical and 3 psychological (with standard instruction, the pressure to compete and critique) was evaluated, measuring the changes in their skin conductance, skin temperature, heart rate, respiratory rate while waiting for the stressor (anticipation phase), during the stressor and in the stress recovery phase. The changes in students' emotional responses were also measured using the C.R. Carlson et al. (1989) Emotional Assessment Scale (EAS). Students' neuroticism was assessed using the NEO Five-Factor Inventory's neuroticism subscale (NEO-FFI, Costa, McCrae, 1992). The study results showed that students having higher and lower neuroticism differed when reacting to a physiological stressor. Students' responses to a psychological stressor differed only in the condition when they were criticized.

Keywords: *Neuroticism, physiological response to stress, emotional response to stress, acute stress.*

1. Introduction

The relationship between personality traits and stress response has been studied for several decades. Studies show that different personalities' responses to acute stress may vary (Ellis, Jackson & Boyce, 2006). This is determined by numerous factors, from genetics to environment (Hutchinson & Ruiz, 2011). Among various personality classifications, the most recently researched is the Big Five trait taxonomy, which consists of five personality dimensions: extraversion, neuroticism, conscientiousness, agreeableness, and openness (Bibbey, Carroll, Roseboom, Phillips & de Rooij, 2013).

Longitudinal research reveals that neuroticism, which is considered as person's tendency to experience negative feelings like fear, sadness, dissatisfaction, anger, and guilt (McCrae & Costa, 1987), is not only related to poorer young adult's current well-being and life satisfaction but also have a lasting effect on well-being several decades later. Authors also highlight that this impact is mostly indirect and is exposed by a person's vulnerability to stress (Gale, Booth, Mōttus, Kuh & Deary, 2013). Aside, neuroticism is related to plenty of negative physical and psychological health consequences (Ormel et al., 2013).

Stress-moderation models indicate that personality can impact the biological stress response system (Hutchinson & Ruiz, 2011). Numerous studies highlight that neuroticism has the strongest relation to stress than other Big Five traits (Coyle, Howard, Bibbey, Gallagher, Whittaker & Creaven, 2020). Even the research results of the relationship between acute stress and neuroticism are controversial, yet mostly confirmed is this trait relation to higher emotional stress reactivity (Suls & Martin, 2005), but lower cortisol and cardiovascular stress reactivity (Bibbey et al., 2013; Coyle et al., 2020).

According to Bibbey et al. (2013), individuals' responses to acute stress may also vary depending on the stressor type. The study results showed that lower cortisol, heart rate, systolic and diastolic blood pressure were found in individuals with higher neuroticism when reacting to psychological stressors. Coyle et al. (2020) replicated the described study and found that neuroticism was negatively related to cortisol reactivity. Moreover, Poppelaars, Klackl, Pletzer, Wilhelm, and Jonas (2019) found that higher neuroticism predicted lower sympathetic nervous system reactivity at the time of exposure to a

psychological stressor. During the recovery period, cortisol recovered more slowly for those higher in neuroticism. However, no differences were found during the anticipation phase of the stressor.

The study by Hutchinson and Ruiz (2011) has been done only in the women sample. The authors explored the effects of neuroticism on psychophysiological response to an interpersonal stressor. The results showed no significant relation between neuroticism and cardiovascular and emotional reactivity to stressor or recovery after the stressor. The blood pressure recovery was poorer for these women, who were characterized as having higher neuroticism. For comparison, Jonassaint et al. (2009) provided two psychological tasks to male police officers: mental arithmetic and anger recall. Results revealed that males higher in neuroticism responded with lower diastolic blood pressure.

As discussed, there is a lack of studies examining the response to stressors of individuals with higher and lower neuroticism in all stress response phases (when waiting for the stressor, at the time of exposure to the stressor, and during the recovery period after exposure to a stressor) while measuring different physiological parameters and evaluating emotional response. Additionally, existing studies assessed response only to psychological stressors; no studies analyze the response to a physiological stressor or explore them together at the same research. Consequently, this study aimed to assess individuals with higher and lower neuroticism physiological and emotional responses to acute stress.

2. Methods

Study sample. 168 students aged between 18 and 31 participated in a study (23 males and 145 females). Their scores on the neuroticism scale varied from 28.0 to 84.4 (mean 54.2, st. deviation – 11.31). Students were assigned as having lower (N=84) or higher neuroticism (N=84) based on the mean on the scale. All participants were healthy, with no chronic non-communicable diseases, free of cardioactive medicines, sedatives, and antidepressants. There were no significant differences in any relevant background variables (such as depressive symptoms, phase of the menstrual cycle (for females), number of exams per week or day in a study period) among higher and lower students' neuroticism.

Measures. Students' *neuroticism* was evaluated using the NEO Five-Factor Inventory's neuroticism subscale (NEO-FFI, Costa, McCrae, 1992). The subscale has demonstrated a good internal consistency. For the current sample, Cronbach's α was 0.83. Students filled this questionnaire after all stressor tasks.

Students' *emotional reactivity* to stressors was measured using the Emotional Assessment Scale (EAS, Carlson et al., 1989). The EAS comprises 24 adjectives divided into eight emotion categories, but only five of them (anger, anxiety, fear, sadness, and guilt) were analyzed in this study. Participants of the study were asked to fill the scale before the stressor tasks and after each task on how they felt during the tasks. The internal consistency between subscales varied from 0.513 to 0.884.

Physiological response to stressors was assessed using MindMedia device NeXus – 10 with Biotrace+ software. Physiological response to stressors was assessed by measuring reactivity during the anticipation and exposure to stressors, and recovery. The physiological response was assessed by *skin conductance, skin temperature, heart rate, and respiratory rate*. Skin conductance was measured in micro-ohms, while skin temperature was measured on the scale of Celsius. The heart rate was measured by the number of heartbeats per minute, while the respiratory rate by breath cycles per minute.

A total of **4 stressors** (3 psychological and 1 physiological) was used to assess students' response to stressors. Bourdon test, which measures attention concentration, was used as a psychological stressor. During the psychological stressor task, the participants were given a printed-paper with a 693-letter matrix and were asked to cross out the letters "a," "b," "q" as soon as possible and without mistakes. The participants were asked to perform three equal tasks while given different situations: when giving basic instructions, when reminding time restrictions, and providing stimulus to compete and when criticizing while doing the task. A cold pressor test was used as a physiological stressor. During it, the participants were asked to keep their dominant hand in cold water (4° C) for 1 minute.

Procedure. All students were tested individually in the psychology laboratory, consisting of one middle-sized room (temperature 23-24° C). Students were asked to abstain from alcohol, other drugs, and strenuous exercise for 12 hours and caffeine and smoking for 4 hours before the quasi-experiment. Upon arrival to the laboratory, participants signed an informed consent form that described the study's procedures, benefits and potential harm, confidentiality, and participants' rights. Then they were asked to fill out a packet of questionnaires about their health condition, emotions before an experiment, and some sociodemographic variables. After that, the sensors measuring physiological response to stressor (skin conductance, skin temperature, heart rate) were placed on students' non-dominant hand fingers and waist (sensor measuring respiratory rate). Instead of a usual "vanilla" baseline task, students were asked to lie on a couch and try to relax for 10 minutes and were told that we measure their ability to relax.

During the first psychological task (stressor), the experimenter gave a brief general instruction, that when given a sign, a student would be asked to cross out the letters “a,” “b,” “q,” and he/she needs to do it as fast as he/she could and try to make no errors. The experimenter mentions that the student also would be given a sign when to finish the task. When instructing a second task (stressor), an experimenter told the participant that most of the students perform the task in 1.5 min., but he/she would be given 2 minutes. When given a sign, a student would need to cross out the letters “a,” “b,” “q,” and he/she needs to do it as fast as he/she could and try to make no errors. The experimenter also mentions that the student would be told when 1 min. and 30 s. would be left for the performance of the task. Such instructions were created to arouse a desire to compete. The instructions for the third task (stressor) sounded the same as for the first. Just when a student began to perform a task after every 15 s. of performance, he would be told a critique; “Your score would depend on how fast you will do the task,” “Can't you do it faster?” “Probably today you are very tired,” “I think that you are not doing very well,” “Are you trying hard enough?”. That critique was said to provoke hostility. During the fourth stressor, the participant was presented with a bowl of cold water and, when given a sign, was asked to put /her hand in the water and keep it for 1 minute.

Students' physiological responses to stressors were recorded at four phases: baseline (2.5 min.), instruction announcement (0.5 min.), task (2 min. for psychological stressors and 1 min. for physiological stressor), and recovery period (2 min.). After performing each task, the subjects were asked to complete the EAS based on their feelings during the task. The time interval between each stressor task was around 2 min.

Based on methodological recommendations for comparing stress response (Burt, Obradovic, 2013; Smith, Unchino, 2007), change scores of physiological variables from the initial value were analyzed instead of raw scores. Change scores were calculated by subtracting baseline values from physiological indicators' values in anticipation, exposure to the stressor, and recovery phases. In this case, higher positive skin conductance, heart rate, and respiratory rate change score in anticipation and exposure to stressor phases shows greater skin conductance, heart rate, and respiratory rate reactivity, while a higher negative change score shows greater skin temperature reactivity. When higher positive skin conductance, heart rate, and respiratory rate change scores in the recovery phase show slower recovery after the stressor, a smaller positive or negative change score measured by the same variables shows faster recovery after stressors. Contrarily, a higher negative skin temperature change score shows slower recovery after the stressor, while a smaller negative or positive score shows faster skin temperature recovery.

The emotional response was evaluated by change scores in five emotions: anger, anxiety, fear, sadness, and guilt. Change scores were calculated by subtracting baseline values of particular emotion from that emotion felt during the stressor phase. In this case, higher positive change scores of measured emotions show greater emotional reactivity. Higher negative change scores show that subjects had higher scores of that emotion in the baseline than during a particular stressor.

Data analysis. Shapiro-Wilk test showed that physiological response changes had a normal distribution, so analysis of covariance was used when analyzing students' physiological response to stressors. An independent sample t-test was used to examine the baseline equivalency of physiological variables. However, the data of emotional response changes to stressors deviated from a normal distribution, so the Mann-Whitney U test was used to compare the emotional response to stressors between different study groups. The statistical significance level of data analysis was 0.05.

3. Results

Independent sample t-test showed no significant differences between students with higher and lower neuroticism at baseline for any of the four physiological indices. However, students with lower neuroticism had statistically significantly higher anger, anxiety, fear, guilt, and sadness at the baseline, before starting the stressor tasks ($p < 0.05$).

The comparison of physiological response to stressors of individuals with higher and lower neuroticism is presented in Table 1. Only results representing statistical differences are reported in a table. The study results showed no differences between students with higher and lower neuroticism physiological responses to the first two psychological stressors. Also, there were no statistically significant differences in heart rate and respiratory rate response between students with higher and lower neuroticism when facing third and fourth stressors. However, students with higher neuroticism had greater skin temperature reactivity ($F(1)=3.538$; $\eta^2=0.023$; $p < 0,05$) to the third stressor when they were criticized and slower skin temperature recovery ($F(1)=5.278$; $\eta^2 = 0.034$; $p < 0,05$) after stressor than individuals with lower neuroticism. Though, students with higher neuroticism had lower skin conductance reactivity in the anticipation phase ($F(1)=4.183$, $\eta^2 = 0.026$, $p < 0.05$) while hearing the instructions and waiting for the stressor than students with lower neuroticism.

Table 1. Comparison of physiological response to stressors of individuals with higher and lower neuroticism.

| PR | Stressor phase | 3rd stressor | | | 4th stressor | | |
|-----|----------------|--------------------|-------------------|--------------|--------------------|-------------------|--------------|
| | | Mean (\pm SD) | | p | Mean (\pm SD) | | p |
| | | Higher neuroticism | Lower neuroticism | | Higher neuroticism | Lower neuroticism | |
| SC | Anticipation | 0.168 (0.262) | 0.147 (0.346) | 0.624 | 0.204 (0.297) | 0.301 (0.340) | 0.043 |
| | Stressor | 0.475 (0.448) | 0.580 (0.516) | 0.189 | 0.191 (0.333) | 0.327 (0.529) | 0.053 |
| | Recovery | 0.167 (0.259) | 0.199 (0.292) | 0.440 | -0.066 (0.197) | -0.037 (0.286) | 0.421 |
| TMP | Anticipation | 0.183 (0.446) | 0.309 (0.491) | 0.097 | 0.094 (0.464) | 0.039 (0.408) | 0.442 |
| | Stressor | -0.242 (0.593) | -0.053 (0.670) | 0.049 | -0.093 (0.572) | -0.174 (0.558) | 0.288 |
| | Recovery | -0.417 (0.852) | -0.111 (0.831) | 0.023 | -0.414 (0.713) | -0.442 (0.674) | 0.639 |

* PR – physiological reactivity, SC – skin conductance, TMP – skin temperature.

The comparison of emotional response to stressors of individuals with higher and lower neuroticism is presented in Table 2. The results indicated that individuals with higher neuroticism had a lower emotional response (measured by anger, anxiety, guilt, and sadness) to the psychological stressor when they were criticized than students with lower neuroticism ($p < 0.005$). Both groups (students with higher and lower neuroticism) had negative guilt change scores, which means that they felt less guilty during the stressor than in the baseline (before stressor tasks). However, the response of students with higher neuroticism was less negative, which means that they felt more guilt, than students with lower neuroticism ($p < 0.05$).

Table 2. Comparison of emotional response to stressors of individuals with higher and lower neuroticism.

| Emotional reactivity | 3rd stressor | | | 4th stressor | | |
|----------------------|--------------------|-------------------|--------------|--------------------|-------------------|--------------|
| | Mean (\pm SD) | | p | Mean (\pm SD) | | p |
| | Higher neuroticism | Lower neuroticism | | Higher neuroticism | Lower neuroticism | |
| Anger | 4.702 (11.547) | 11.028 (19.692) | 0.028 | 1.552 (9.099) | 1.943 (13.623) | 0.569 |
| Anxiety | -1.518 (18.468) | 4.964 (23.145) | 0.045 | -2.948 (14.471) | 0.337 (23.885) | 0.509 |
| Fear | -1.333 (8.402) | 0.193 (13.130) | 0.815 | -0.516 (9.117) | 3.449 (16.594) | 0.144 |
| Guilt | 0.758 (6.364) | 5.144 (11.512) | 0.036 | -0.482 (3.492) | -2.815 (7.581) | 0.014 |
| Sadness | 1.076 (11.076) | 5.539 (16.609) | 0.041 | 0.748 (9.141) | 2.498 (13.965) | 0.631 |

4. Discussion

The study showed that subjects with higher neuroticism had a higher physiological response (measured by skin temperature) to the psychological stressor where cognitive evaluation is required but had a lower physiological response (measured by skin conductance) to physiological stressor where the response is automatic. Surprisingly, students with higher neuroticism had a lower emotional response to the psychological stressor than subjects with lower neuroticism.

These findings partly contrast with earlier reported associations between response to acute stress and neuroticism: it was discussed that individuals with higher neuroticism usually respond with higher emotional but lower physiological stress reactivity (Bibbey et al., 2013; Coyle et al., 2020; Jonassaint et al. 2009). Poppelaars et al. (2019) determined that higher neuroticism predicts lower physiological response to a psychological stressor, but the opposite relationship was observed in this study. However, this study supplements Poppelaars et al. (2019) and Hutchinson and Ruiz (2011), that after stress, physiological characteristics recover more slowly for individuals with higher neuroticism.

The result that individuals with higher neuroticism have more neutral emotional but higher physiological responses to the psychological stressor is quite surprising. According to Evans et al. (2016), higher neuroticism is related to higher emotional responses when exposed to psychological stressors. Researchers point out that unequal emotional and physiological responses may also be associated with other individual differences (Childs, White, de Wit, 2014).

It is hypothesized that individuals higher in neuroticism may deny their emotional response and be afraid to appear more negative than they feel: negative fear and anxiety change scores partly support this prediction. Lee-Baggley, Preece and DeLongis (2005) adds that when reacting to stress, individuals having higher neuroticism tend to respond using passive and non-adaptive mechanisms like denial, avoidance, or self-blame.

Earlier studies have not evaluated physiological and emotional responses to psychological stressors with different instructions (e.g., in the situations that individuals need to rush and compete or are criticized). As this study showed, individuals with higher neuroticism might have different responses in

different contexts, so it is important to modify psychological laboratory stressors to potential real-life situations and evaluate their response.

This study has some limitations. The first one is the quasi-experimental design of the study. The respondents were not randomly assigned to the group, but the assignment was based on personality characteristics. Secondly, we did not select our respondents based on their scores (highest and lowest) in the neuroticism subscale from a large sample of students. Another limitation is that we used dichotomized trait variables and compared the response to the stressor of individuals with lower and higher neuroticism. The results of the study can also be affected by unequal gender distribution through the sample groups. Besides, any of the health difficulties and used medicines weren't accessed objectively; we relied on the subjects' information.

References

- Bibbey, A., Carroll, D., Roseboom, T. J., Phillips, A. C., & de Rooij, S. R. (2013). Personality and physiological reactions to acute psychological stress. *International Journal of Psychophysiology*, *90*(1), 28-36.
- Burt, K. B., Obradovic, J. (2013) The Construct of Psychophysiological Reactivity: Statistical and Psychometric Issues, *Developmental Review*, *33*(1), 29-57.
- Carlson, C.R., Collins, F.L., Stewart, J.F., Porzelius, J., Nitz, J.A., Lind, C.O. (1989) The Assessment of Emotional Reactivity: A Scale Development and Validation Study, *Journal of Psychology and Behavioral Assessment*, *11*(4), 313-325.
- Childs, E., White, T. L., & de Wit, H. (2014). Personality traits modulate emotional and physiological responses to stress. *Behavioural Pharmacology*, *25*(5 0 6), 493-502.
- Costa, P. T., & McCrae, R. R. (1992). Revised Neo Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI). Psychological Assessment Resources.
- Coyle, D. K., Howard, S., Bibbey, A., Gallagher, S., Whittaker, A. C., & Creaven, A. M. (2020). Personality, cardiovascular, and cortisol reactions to acute psychological stress in the Midlife in the United States (MIDUS) study. *International Journal of Psychophysiology*, *148*, 67-74.
- Čukić, I., & Bates, T. C. (2015). The association between neuroticism and heart rate variability is not fully explained by cardiovascular disease and depression. *PloS one*, *10*(5).
- Ellis, B. J., Jackson, J. J., & Boyce, W. T. (2006). The stress response systems: Universality and adaptive individual differences. *Developmental Review*, *26*(2), 175-212.
- Evans, B. E., Stam, J., Huizink, A. C., Willemsen, A. M., Westenberg, P. M., Branje, S., ... & van Lier, P. A. (2016). Neuroticism and extraversion in relation to physiological stress reactivity during adolescence. *Biological Psychology*, *117*, 67-79.
- Gale, C. R., Booth, T., Möttus, R., Kuh, D., & Deary, I. J. (2013). Neuroticism and Extraversion in youth predict mental wellbeing and life satisfaction 40 years later. *Journal of Research in Personality*, *47*(6), 687-697.
- Hughes, B. M., Howard, S., James, J. E., & Higgins, N. M. (2011). Individual differences in adaptation of cardiovascular responses to stress. *Biological Psychology*, *86*(2), 129-136.
- Hutchinson, J. G., & Ruiz, J. M. (2011). Neuroticism and cardiovascular response in women: Evidence of effects on blood pressure recovery. *Journal of Personality*, *79*(2), 277-302.
- Jansson, B., & Najström, M. (2009). Is preattentive bias predictive of autonomic reactivity in response to a stressor? *Journal of Anxiety Disorders*, *23*(3), 374-380.
- Jonassaint, C. R., Why, Y. P., Bishop, G. D., Tong, E. M., Diong, S. M., Enkelmann, H. C., ... & Ang, J. (2009). The effects of neuroticism and extraversion on cardiovascular reactivity during a mental and an emotional stress task. *International Journal of Psychophysiology*, *74*(3), 274-279.
- Lee-Bagglely, D., Preece, M., & DeLongis, A. (2005). Coping with interpersonal stress: Role of Big Five traits. *Journal of Personality*, *73*(5), 1141-1180.
- McCrae, R. R., & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology*, *52*(1), 81-90.
- Ormel, J., Bastiaansen, A., Riese, H., Bos, E. H., Servaas, M., Ellenbogen, M., ... & Aleman, A. (2013). The biological and psychological basis of neuroticism: Current status and future directions. *Neuroscience & Biobehavioral Reviews*, *37*(1), 59-72.
- Poppelaars, E. S., Klackl, J., Pletzer, B., Wilhelm, F. H., & Jonas, E. (2019). Social-evaluative threat: Stress response stages and influences of biological sex and neuroticism. *Psychoneuroendocrinology*, *109*, 104378.
- Smith, T.W., Uchino, B.N. (2007) *Measuring Physiological Processes in Biopsychosocial Research*. In Luecken, L.J., Gallo, L.C. (eds.) *Handbook of Physiological Research Methods in Health Psychology*, Sage Publications, 472 p.
- Suls, J., & Martin, R. (2005). The daily life of the garden-variety neurotic: Reactivity, stressor exposure, mood spillover, and maladaptive coping. *Journal of Personality*, *73*(6), 1485-1510.

THE CONTRIBUTION OF EEG RECORDINGS TO THE AUDIOVISUAL RECOGNITION OF WORDS IN UNIVERSITY STUDENTS WITH DYSLEXIA

Pavlos Christodoulides¹, Victoria Zakopoulou², Katerina D. Tzimourta³,
Alexandros T. Tzallas⁴, & Dimitrios Peschos¹

¹Faculty of Medicine, University of Ioannina, (Greece)

²Department of Speech and Language Therapy, University of Ioannina, (Greece)

³Department of Electrical and Computer Engineering, University of Western Macedonia, (Greece)

⁴Department of Informatics and Telecommunications, University of Ioannina, (Greece)

Abstract

Dyslexia is one of the most frequent specific learning disorders which has often been associated with deficits in phonological awareness mainly caused by auditory and visual inability to recognize and discriminate phonemes and graphemes within words. Neuroimaging techniques like EEG recordings have been widely used to assess hemispheric differences in brain activation between students with dyslexia and their typical counterparts. Although dyslexia is a lifelong disorder which persists into adulthood, very few studies have been carried out targeting in adult population. In this study, we examined the brain activation differences between 14 typical (control group) and 12 university students with dyslexia (experimental group). The participants underwent two tasks consisting of 50 3-word groups characterized by different degrees of auditory and visual distinctiveness. The whole procedure was recorded with a 14-sensor sophisticated wearable EEG recording device (Emotiv EPOC+). The findings from the auditory task revealed statistically significant differences among the two sets of groups in the left temporal lobe in β , γ and δ rhythms, in the left occipital lobe in β rhythm, and in the right prefrontal area in α , β and γ rhythms, respectively. The students with dyslexia reported higher mean scores only in δ rhythm in the left temporal lobe, and in α , β and γ rhythms in the right prefrontal area. Concerning the visual task, statistically significant differences were evident in the left temporal lobe in β , γ rhythms, in the occipital lobe in α , β and δ rhythms, in the parietal lobe in β rhythm, and in the right occipital lobe in δ , β and γ rhythms. The students with dyslexia reported higher mean scores only in the δ rhythm of both the left and right occipital lobe. The results indicate that there are differences in the hemispheric brain activation of students with or without dyslexia in various rhythms in both experimental conditions, thus, shedding light in the neurophysiological discrepancies between the two groups. It also lays great emphasis on the necessity of carrying out more studies in adult population with dyslexia.

Keywords: *Dyslexia, EEG, audiovisual recognition, university students.*

1. Introduction

Dyslexia is one of the most frequent specific developmental learning disorders, affecting 5–15% of school-aged children although estimates vary widely depending on the language and culture (American Psychiatric Association, 2013). It has often been related to severe deficits in reading and spelling skills which often co-occur with dysfunctional phonological processing (Snowling, 2000) that persist in adult life (Paulesu et al., 2001), difficulties in phonological representations and short-term memory deficits in coding, storing and retrieving these representations (Gathercole & Baddeley, 2014).

According to recent studies, dyslexic and normal readers differ in terms of processing visual and auditory information, as the large cell visual pathway of dyslexics, presents some form of abnormality or dysfunction (Stein, 2001). Livingstone and Galaburda (1993), concluded that the large cells of the central nervous system of people with dyslexia were smaller in size and disorganized compared to normal people, a finding which was later confirmed in an in-vivo study by Giraldo-Chica et al., (2015). This hypothesis of magnocellular processing deficits has offered an alternative explanation of auditory and visual processing deficits. More specifically, the instability in focusing along with the problematic eye movement or increased density of visual stimuli result in visual deficits, which may also lead to

auditory and motor problems (Ramus et al., 2003) as they carry information about motion, overall shape, and small light-dark changes.

In several studies over the last 20 years, electroencephalograph (EEG) has been used to study the physiology of the brain in patients with dyslexia, as it is non-invasive, painless, cheap and potentially wearable to record electrical activity of human brain from the scalp surface (Xing, Mccardle, & Xie, 2012). Most studies focusing on EEG rhythms' changes have employed tasks associated with reading difficulties. For example, Rippon and Brunswick (2000) found that children with dyslexia showed increased frontal activity in a phonological task, and no differences were observed between the dyslexic group and the control group in a visual task. In addition, there was a marked increase in β rhythm activity in the right parietal-occipital region in children with dyslexia when performing phonological in relation to the visual task (Papagiannopoulou & Lagopoulos, 2016). The coherence of β and γ rhythms has been linked to more complex linguistic sub-processes, such as syntax or semantics. EEG findings from the literature study show increased (left) frontal and right temporal slow activity in the δ and θ bands and increased β in F7 (Kandel et al., 2017).

A number of methods have been proposed in order to measure EEG signals in several populations through brain computer interface (BCI). One such device is the lightweight Emotiv EPOC+ wireless EEG system which has received the most empirical attention in a spectrum of different fields (Badcock et al., 2015). Concerning the exploration of the relationship between several forms of learning difficulties and EEG abnormalities there have been just a handful of researches using the Emotiv EPOC+. For example, Eroglu et al., (2018), found that the dyslexic group showed significantly lower complexity at the lowest temporal scale and at the medium temporal scales than did the control group.

2. Objectives

The purpose of this study is to investigate the brain function of young adults with dyslexia through innovative and non-invasive methods of functional imaging of the brain in phonological and morphological awareness tests, such as audiovisual discrimination tasks in a word-level.

3. Methods

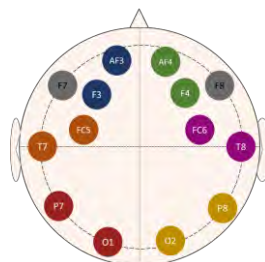
3.1. Data acquisition

In this study, 26 right-handed young adults (mean average 21.32 y/o) participated in this experiment, forming the Dyslexic group (12 students) and the Control group (14 students). All the subjects with dyslexia had undergone intervention at young age without reporting any dyslexia-related comorbidities. There were no major age or education-level differences, since all of them were university students in the School of Health Sciences. Written consent forms to participate in this study were obtained from all the subjects who participated on a voluntary basis. The recording was terminated as soon as a participant felt any discomfort with the device or the procedure. Each experimental session lasted 22 minutes on average depending on the time required by the participants to answer each question.

3.2. EEG acquisition

For the EEG recordings, the Emotiv EPOC+ head-set was used, a wireless neuro-signal acquisition device with 14 wet sensors (+2 reference), capable of detecting brainwaves at 128Hz sequential sampling rate. The participants were seated in a comfortable chair in front of a computer and a specialized technician set up the device following the instructions provided by the EmotivPRO Software, checking regularly the quality of the connectivity in the beginning and during the recording. The felt pads were placed in the scalp according to the International 10-20 System (AF3, F3, F7, FC5, T7, P7, O1, AF4, F4, F8, FC6, T8, P8 and O2), using saline liquid solution on all felt pads of each sensor (Figure 1). However, due to loss of connectivity the F8 electrode was isolated and rejected and so was the corresponding channel, F7 to maintain the symmetry of the recording.

Figure 1. Regions of Interest according to the electrode sites. (Blue: Left frontal, Orange: Left temporal, Red: Left occipital, Green: Right frontal, Purple: Right temporal, Yellow: Right occipital, Grey: Rejected channels).



The recordings were made with the montage, according to the connected mastoids, and the EEG signals were saved in ".edf" format. A Butterworth notch filter is applied to remove 50 Hz power line noise oscillations from EEG signals and a 0.5 Hz high-pass digital FIR filter to remove low frequency oscillations. Next, five FIR filters of similar design are designed to allow frequencies within a certain range and attenuate frequencies outside that range. The five bandwidth filters ($\delta \approx 0.5 - 4$ Hz, $\theta \approx 4 - 8$ Hz, $\alpha \approx 8 - 12$ Hz, $\beta \approx 13 - 30$ Hz, and $\gamma \approx 30 - 60$ Hz) are designed in relation to the 5 EEG rhythms, trying to export spectral characteristics to each subband of frequencies to be investigated.

3.3. Material

The material included in the software consists of 60 triads of words, which have been selected meeting strict phonological, morphological and semantic criteria taking into account the difficulties encountered by people with dyslexia (Asvestopoulou et al., 2019). More specifically, the given words mainly focused on the confusion of letters with acoustic similarity (f, v, θ, δ) (Καλαντζή-Αζίζι & Ζαφειροπούλου, 2004), and their performance was evaluated with a novel interactive application measuring audiovisual discrimination of words in two experimental conditions.

3.4. Auditory discrimination task

In the first experimental auditory discrimination task, participants were asked to differentiate verbally-presented words containing phonemes with common phonological characteristics (eg fo'vame, fo'ðame, fo'θame). Participants saw 3 boxes with written numbers in a row on a computer screen, asking them to choose the number that corresponded to the word they thought was correct in predefined time limit of 10 seconds. The verbal instruction given was the following: "choose the right word you hear".

3.5. Visual recognition task

In the second experimental task, which assessed visual recognition, the participants saw 3 words in a row on the screen, and had to implicitly read them as carefully as possible choosing the one that they thought had the correct spelling in predefined time limit ranging from 5 to 10 seconds. The on-screen instruction was: "Choose the right word you see".

4. Results

Aiming to examine the differences in EEG recordings between the two sets of groups in (i) auditory discrimination and (ii) visual recognition of words, we performed the t-test as the data were normally distributed.

(i) Regarding the auditory discrimination task we observed statistically significant differences in both hemispheres. More specifically, in the left hemisphere differences were found in the left temporal lobe in β ($p=.005$), γ ($p=.002$) and δ ($p=.017$) rhythms, in the left occipital lobe in β ($p=.02$), rhythm, and in the right prefrontal area in α ($p=.02$), β ($p=.05$) and γ ($p=.04$) rhythms, respectively. Students with dyslexia reported higher mean scores only in δ rhythm in the left temporal lobe, and in α , β and γ rhythms in the right prefrontal area of the hemisphere (Table 1).

Table 1. T-test examining the correlation of brain regions and rhythms between Control and Dyslexic groups in Auditory discrimination task.

| | Control (n=14) | | Dyslexic (n=12) | | df 25 | |
|-------------------------|----------------|-------|-----------------|-------|--------|-------------|
| | M | Sd | M | Sd | t | Sig |
| Left Hemisphere | | | | | | |
| T7_δ | 0.556 | 0.234 | 0.771 | 0.100 | -2.585 | .017 |
| T7_β | 0.113 | 0.082 | 0.032 | 0.014 | 2.890 | .005 |
| T7_γ | 0.133 | 0.093 | 0.031 | 0.015 | 3.255 | .002 |
| O1_β | 0.091 | 0.031 | 0.054 | 0.027 | 2.487 | .027 |
| Right Hemisphere | | | | | | |
| AF4_α | 0.014 | 0.011 | 0.029 | 0.014 | -2.569 | .020 |
| AF4_β | 0.020 | 0.014 | 0.052 | 0.024 | -3.758 | .005 |
| AF4_γ | 0.026 | 0.088 | 0.047 | 0.114 | 2.223 | .040 |

(ii) Concerning the visual task, statistically significant differences were evident in the left temporal lobe in β ($p=.02$), γ ($p=.04$) rhythms, in the occipital lobe in α ($p=.01$), β ($p=.01$) and δ ($p=.02$) rhythms, in the left parietal lobe in β ($p=.02$) rhythm, and in the right occipital lobe in δ ($p=.01$), β ($p=.01$) and γ ($p=.03$) rhythms. The students with dyslexia reported higher mean scores only in the δ rhythm of both the left and right occipital lobe (Table 2).

Table 2. T-test examining the correlation of brain regions and rhythms between Control and Dyslexic groups in Visual recognition task.

| | Control (n=14) | | Dyslexic (n=12) | | df 25 | |
|-------------------------|----------------|-------|-----------------|-------|--------|-------------|
| | M | Sd | M | Sd | t | Sig |
| Left Hemisphere | | | | | | |
| T7_β | 0.142 | 0.088 | 0.064 | 0.060 | 2.334 | .020 |
| T7_γ | 0.170 | 0.111 | 0.080 | 0.081 | 2.090 | .040 |
| O1_δ | 0.420 | 0.132 | 0.595 | 0.206 | -2.499 | .021 |
| O1_α | 0.045 | 0.018 | 0.034 | 0.011 | 2.567 | .011 |
| O1_β | 0.106 | 0.025 | 0.068 | 0.039 | 2.813 | .010 |
| P7_β | 0.140 | 0.076 | 0.079 | 0.048 | 2.121 | .032 |
| Right Hemisphere | | | | | | |
| O2_δ | 0.355 | 0.152 | 0.538 | 0.205 | -2.612 | .015 |
| O2_β | 0.123 | 0.041 | 0.028 | 0.019 | 3.136 | .011 |
| O2_γ | 0.131 | 0.106 | 0.090 | 0.062 | 2.280 | .033 |

5. Discussion

The aim of this study was to track brain activity in the regions of interest, testing differences in brain rhythms as they were recorded through a Brain Computer Interface device, between young adults with dyslexia and a control group across two experimental conditions (auditory discrimination and visual recognition).

The results showed statistically significant differences in brain regions in both hemispheres between the two groups, revealing the heterogeneity of rhythms' activation in different regions (Perrachione et al., 2016). The findings in both experimental conditions are in line with previous researches reporting a left occipito-temporal hypoactivation converging on the same brain regions associated with the reading deficit (Paulesu et al., 2014; Zakopoulou et al., 2019).

What is evolutionary in this study, is the attempt to further investigate the rhythms' activation within these brain regions, where students with dyslexia exhibited lower β and γ rhythms in the left occipito-temporal lobes, during both auditory and visual tasks, suggesting that these rhythms are linked with difficulties in the phonological and reading processes as well as with failure of left posterior brain systems (Shaywitz et al., 2002). Similarly, a reduced α activity in the left occipital region was found only during the visual task, indicating a relationship between α rhythm, cognitive performance (Riviello et al., 2011), and brain maturation (Pineda, 2005).

Interestingly, during the auditory task an increased δ rhythm was found in the left temporal region, while similarly high δ rhythm was found in the left occipital region during the visual task. Being in line with Gori's (Gori et al., 2015) and Kandel's (Kandel et al., 2017) results, these findings enrich the assumption that the left occipito-temporal slow activity reveal a strong interaction between auditory processing difficulties and reading impairments.

6. Conclusion

α , β and δ EEG bands were used to define unique brain activations and related possible phonological and reading impairments, in adults with dyslexia, during auditory and visual tasks. Such evidence would be relevant for the theory of magnocellular processing, which postulates the coexistence of auditory and visual processing deficits as indicative of a broadly distributed dysfunction in the "neural signature" of dyslexia.

References

- American Psychiatric Association, DSM-5 Task Force. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5™* (5th ed.). American Psychiatric Publishing, Inc.
- Asvestopoulou, T., Manousaki, V., Psistakis, A., Smyrnakis, I., Andreadakis, V., Aslanides, I. M., & Papadopoulou, M. (2019). Dyslexml: Screening tool for dyslexia using machine learning. *arXiv preprint arXiv:1903.06274*.

- Badcock, N. A., Preece, K. A., de Wit, B., Glenn, K., Fieder, N., Thie, J., & McArthur, G. (2015). Validation of the Emotiv EPOC EEG system for research quality auditory event-related potentials in children. *Peer Journal*, 3, e907.
- Eroğlu, G., Aydın, S., Çetin, M., & Balçısöy, S. (2018). Improving cognitive functions of dyslexics using multi-sensory learning and EEG neurofeedback. In *2018 26th Signal Processing and Communications Applications Conference (SIU)* (pp. 1-4). IEEE.
- Gathercole, S. E., & Baddeley, A. D. (2014). *Working Memory and Language*. Psychology Press.
- Giraldo-Chica, M., Hegarty, J., & Schneider, K. (2015). Morphological differences in the lateral geniculate nucleus associated with dyslexia. *NeuroImage: Clinical*, 830–836.
- Gori, S., Seitz, A., Ronconi, L., Franceschini, S., & Facoetti, A. (2015). The causal link between magnocellular-dorsal pathway functioning and dyslexia. *Journal of Vision*, 15(12), 195-195.
- Kandel, S., Lassus-Sangosse, D., Grosjacques, G., & Perret, C. (2017). The impact of developmental dyslexia and dysgraphia on movement production during word writing. *Cognitive Neuropsychology*, 34(3-4), 219–251.
- Livingstone, M., & Galaburda, A., (1993). Evidence for a magnocellular defect in developmental dyslexia. *Annals of the New York Academy of Sciences*, 682, 70-82.
- Papagiannopoulou, E. A., & Lagopoulos, J. (2016). Resting State EEG Hemispheric Power Asymmetry in Children with Dyslexia. *Frontiers in pediatrics*, 4, 11.
- Paulesu, E., Danelli, L., & Berlingeri, M. (2014). Reading the dyslexic brain: multiple dysfunctional routes revealed by a new meta-analysis of PET and fMRI activation studies. *Frontiers in Human Neuroscience*, 8, 830.
- Paulesu, E., Démonet, J. F., Fazio, F., McCrory, E., Chanoine, V., Brunswick, N., Cappa, S. F., Cossu, G., Habib, M., Frith, C. D., & Frith, U. (2001). Dyslexia: cultural diversity and biological unity. *Science (New York, N.Y.)*, 291(5511), 2165–2167.
- Perera, H., Shiratuddin, M. F., & Wong, K. W. (2018). Review of EEG-based pattern classification frameworks for dyslexia. *Brain informatics*, 5(2), 4.
- Perrachione, T. K., Del Tufo, S. N., Winter, R., Murtagh, J., Cyr, A., Chang, P., ... & Gabrieli, J. D. (2016). Dysfunction of rapid neural adaptation in dyslexia. *Neuron*, 92(6), 1383-1397.
- Pineda, J. A. (2005). The functional significance of mu rhythms: translating “seeing” and “hearing” into “doing”. *Brain research reviews*, 50(1), 57-68.
- Ramus, F., Rosen, S., Dakin, S. C., Day, B. L., Castellote, J. M., White, S., & Frith, U. (2003). Theories of developmental dyslexia: insights from a multiple case study of dyslexic adults. *Brain*, 126(4), 841–865.
- Rippon, G., & Brunswick, N. (2000). Trait and state EEG indices of information processing in developmental dyslexia. *International journal of psychophysiology: official journal of the International Organization of Psychophysiology*, 36(3), 251–265.
- Riviello, J. J., Nordli, D. R., & Niedermeyer, E. (2011). Normal, EEG., and sleep: infants to adolescents, in *Electroencephalography: Basic Principles, Clinical Applications and Related Fields*, ed E. Niedermeyer Philadelphia, PA: Lippincott; Williams and Wilkins, 163–182.
- Shaywitz, B. A., Shaywitz, S. E., Pugh, K. R., Mencl, W. E., Fulbright, R. K., Skudlarski, P., ... & Gore, J. C. (2002). Disruption of posterior brain systems for reading in children with developmental dyslexia. *Biological psychiatry*, 52(2), 101-110.
- Snowling, M. J. (2000). *Dyslexia* (2nd ed.). Blackwell Publishing.
- Stein, J. (2001). The magnocellular theory of developmental dyslexia. *Dyslexia*, 7(1), 12–36.
- Xing, S., McCardle, R., & Xie, S. (2014). The development of EEG-based brain computer interfaces: potential and challenges. *International journal of computer applications in technology*, 50(1-2), 84-98.
- Zakopoulou, V., Vlaikou, A. M., Darsinou, M., Papadopoulou, Z., Theodoridou, D., Papageorgiou, K., ... & Michaelidis, T. M. (2019). Linking Early Life Hypothalamic–Pituitary–Adrenal Axis Functioning, Brain Asymmetries, and Personality Traits in Dyslexia: An Informative Case Study. *Frontiers in human neuroscience*, 13, 327.
- Καλαντζή-Αζίζι, Α., & Ζαφειροπούλου, Μ. (2004). *Προσαρμογή στο σχολείο. Πρόληψη και αντιμετώπιση δυσκολιών*. Αθήνα: Ελληνικά Γράμματα

THE INFLUENCE OF RACE AND EMOTION ON COGNITION AND METACOGNITION OF FACIAL PICTURES¹

Zhaolan Li, Wenwu Dai, Peiyao Cong, & Ning Jia
College of education, Hebei Normal University (China)

Abstract

In our daily life, the ability of processing the other people's facial features (such as race, emotion, etc.) are of great significance of us to adapt to social environment and participate in social interaction. In this study, a 2 (race: own-race/ other-race) × 2 (emotion: positive/ negative) within-subjects design was used to investigate how the race and emotion on face affect the processing of cognition and the processing of metacognition. There are five tasks: ease-of-learning (EOL) judgement, remembering, judgement of learning (JOL), recognition and judgement of confidence (JOC). The results revealed that : (1) EOL judgement was only affected by race, which showed that participants made higher EOL judgement for other-race faces than for own-race. (2) The processing fluency was only affected by emotion, which showed that participants spend less time for learning the faces with negative emotion. (3) JOL is not only affected by race, but also moderated by emotion. The results showed that: in the positive emotion condition, JOLs of foreign faces was significantly higher than that of native faces, whereas, in the condition of negative emotion, the difference between the two was not significant. (4) Other-race effect was found in recognition scores, and the other-race effect was moderated by emotion. The results showed that the recognition performance of native face was significantly better than that foreign face in the negative emotion condition. In the condition of positive emotion, the difference between the two was not significant. (5) The trend of confidence judgment was the same as recognition scores. The conclusions were as follows : (1) Emotion has a significant influence on face image cod, while race information has a significant influence on face image cod, and emotional information plays a moderating role; (2) The metacognitive processing of face was influenced by multiple factors such as ethnicity, emotion and cognitive processing information. In conclusion, when processing face image, there is significant separation between cognition and metacognition at different stages, under the influence of ethnicity and emotion. In addition, this study also provides a partial explanation for the difference in accuracy between prospective and retrospective metacognitive monitoring.

Keywords: *Metacognition, cognition, other-race effect.*

1. Introduction

Face recognition has always been an important research direction in social cognition. The process of face recognition is affected by many factors, such as the race, emotion and so on. As an important clue to face recognition, ethnic information on faces has always been one of the research hotspots in face recognition, and the other-race effect is one of the main research directions. Other-race effect, also known as own-race bias, is a special phenomenon in face recognition, which refers to that it is easier for people to recognize their own race face than that of unfamiliar faces from another race. Previous studies have shown that this phenomenon is stable in various populations and experimental paradigms (Meissner & Brigham, 2001). According to the theory of social classification, the reason why people have the other-race effect is that individuals tend to perceive the ethnic identity of the face first, and allocate their attention resources mainly to the ethnic characteristics of the face, while ignoring the personal information (such as age, emotion, etc.) carried by the face. However, when individuals perceive their own race face, they will pay more attention to the personal features of the face and less to the ethnic features (Levin., 1996; Levin, 2000).

Emotions are also important cues for individuals to recognize faces. The influence of emotion on face memory can be explained by the theory of emotional memory trade-off (Zou, Zhou, Zhang, Zhang,

¹ This work was supported by Humanities and Social Science Research Project of Hebei Education Department (ZD202109)

& Luo, 2011), which holds that the emotional information of the face is the main information, while the ethnic characteristics, age and gender of the face are the secondary information. In other words, in the processing of foreign faces, more attention may be paid to the emotion of the face while ignoring the facial features unrelated to emotion (such as ethnic group, etc.). Therefore, because individuals pay attention to the emotion of the face and ignore the processing of ethnic information, the other-race effect is weakened.

In our real life, people deal with more complex situations. In face recognition, a variety of cues usually need to be processed, which may inhibit or promote each other. Some studies have found that the processing of ethnic and emotional information of faces at the same time may influence each other. But it's not clear how these two factors affect different phase of the cognitive process.

At present, the research on the influence of ethnic and emotional information on face recognition is mainly focused on the cognition, while there are a few researches on metacognition. Metacognition is the cognition of cognition, including metacognition monitoring and metacognition control. Metacognitive monitoring refers to individual cognition, retrieval and judgment of cognitive process. Metacognitive control refers to the adjustment and processing of individual cognitive process by integrating various factors (Flavell&Wellman, 1977). The commonly used measurement indicators include ease-of-learning judgement (EOL), judgement of learning (JOL), judgement of confidence (JOC), etc. The judgment on ease refers to the judgment on the difficulty of learning materials before learning and the monitoring of the cognitive process before learning (Han, 1994). Some studies have shown that the judgment on ease depends on the processing fluency experienced by individuals (Jemstedt, Schwartz, & J ? Nsson, 2017); Learning judgment refer to the prediction of the performance of the learned material in the subsequent recall test, and it monitors the learning process of the cognitive process (Han, 1994), which is affected by the processing fluency experienced in the learning process (Rhodes & Castel, 2008). Confidence judgment refers to the judgment on confidence in the correctness of one's answer after the extraction of learning materials, and the monitoring of the extraction stage in the cognitive process (Han, 1994). The fluency of the extraction process will affect an individual's judgment on confidence (Robey, Dougherty, & Buttaccio, 2017). Studies have shown that there is a separation between cognition and metacognition. Nomi, et al (2013) found that participants' JOL scores / scored for angry face pictures was higher than that for happy face pictures, but the difference in recognition accuracy was not significant. Hourihan (2019) found through the study on positive emotions, neutral emotions and negative emotions that the participants had the highest JOL score for negative emotions and the lowest score for neutral emotions, while the results were completely opposite in terms of recognition accuracy. This may be because metacognitive judgments rely on cue that differ from cognitive phase.

In conclusion, this study aims to explore the effects of ethnic and emotional information on face cognitive processing at different cognitive phase, and whether these effects can be detected or affected by metacognitive monitoring.

2. Method

2.1. Participants

31 students from a university in Hebei Province (28 valid data, including 23 female students and 5 male students). The subjects ranged in age from 17 to 27 years old ($M=22.9$, $SD=2.69$) and were all right-handed.

2.2. Materials

A total of 80 face pictures were used in the experiment, among which 40 face pictures of native nationality (including 20 positive emotion pictures and 20 negative emotion pictures with a balanced ratio of male and female) were selected from the Chinese Affective Face Picture System (Gong, Huang, & Luo, 2011). 40 alien Faces (20 positive emotions and 20 negative emotions, with a balanced gender ratio) from Karolinska's Directed Emotional Faces gallery (E.Lundqvist, Flykt, & Öhman, 1998). The image is 260 x 300 pixels in size, all black and white with hair removed. Forty of these faces were used for learning, and the remaining 40 were used as distraction in the recognition phase.

2.3. Design and procedure

2 (race: own-race/ other-race) × 2 (emotion: positive/ negative) within-subjects design was used to investigate how the race and emotion on face affect the processing of cognition and metacognition.

The experimental procedure consists of five phases:

EOL judgement. At this phase, the screen will be randomly presented a face image, each image will be presented for 1.5 s, after that the participants need to answer this question: How easy they are to

remember the picture just presented? (0: very not easy - 5: very easy), there is no time limit on EOL judgment, the participants need to press the number keys 0-5 to react.

Study phase. After judging all the 40 faces, participants studied these images in a new random order on the screen. The learning time is unlimited for each image. After the subject completes the memory of the face picture, he or she can enter the JOL judgment stage by pressing the space bar.

JOL judgement. After memorizing the face, the participants are required to make JOL judgment on the face image memorized, i.e. how confident they are to recognize the picture just presented in the following memory test (0: no confidence at all -- 5: very confident). There is no time limit for JOL judgment, and the subject needs to press the number key 0-5 to react.

Distraction phase. After completing the self-paced learning and JOL judgment tasks, the participants played a Super Mario game for 2 minutes on a game console.

Recall phase. In this phase, the participants need to recognize a face randomly presented on the screen. They need to answer the question: Have you ever studied this picture? (1. Yes, 2. No). There is no time limit for the recognition test, and the subject needs to press the number key 1 or 2 to react. After completing the recognition test on a face picture, the subjects had to judge their confidence in the correct answer, which was called JOC phase.

JOC judgement. Make a confidence judgment on your answer, that is, how much confidence do you have that your answer is correct? (0: no confidence at all -- 5: very confident) there was no time limit, and the participants had to press the number key 0-5 to react.

3. Result

3.1. EOL judgement

Table 1. EOL judgement ($M \pm SD$).

| race | emotion | |
|------------|-----------|-----------|
| | positive | negative |
| own-race | 3.05±0.97 | 3.12±0.90 |
| other-race | 3.45±0.94 | 3.45±0.94 |

The results of two-factor ANOVA with ethnicity and emotion as independent variables showed that: (1) the main effect of ethnicity was significant, $F(1,27)=7.673$, $P=0.01$, $\eta_p^2=0.221$. The EOL level of native face ($M=3.057$) was lower than that of non-native face ($M=3.421$). (2) The main effect of emotion was not significant $F(1,27)=0.366$, $P=0.55$; (3) The interaction between ethnicity and emotion is not significant, $F(1,27)=0.568$, $P=0.458$.

3.2. Self-paced learning time

Table 2. Self-paced learning time (ms) ($M \pm SD$).

| race | emotion | |
|------------|-----------|-----------|
| | positive | negative |
| own-race | 3536±2077 | 3330±1826 |
| other-race | 3626±1841 | 3302±1906 |

Two-factor analysis of variance (ANOV) was conducted with ethnicity and emotion as independent variables. The results showed that: (1) the main effect of emotion was significant, $F(1,27)=5.527$, $p=0.969$, $\eta_p^2=0.170$. The self-set speed learning time of positive emotion ($M=3407.880$) was significantly longer than that of negative emotion ($M=3150.089$). (2) The main effect of population was not significant, $F(1,27)=0.002$, $P=0.026$; (3) The interaction was not significant $F(1,27)=0.057$, $P=0.814$.

3.3. JOL judgement

Table 3. JOL judgement ($M \pm SD$).

| race | emotion | |
|------------|-----------|-----------|
| | positive | negative |
| own-race | 3.08±0.88 | 3.34±0.80 |
| other-race | 3.39±0.96 | 3.40±0.95 |

The results of two-factor analysis of variance (ANOVA) using ethnicity and emotion as independent variables showed that: (1) ethnicity had a significant main effect margin, $F(1,27)=3.901$, $P=0.059$, $\eta_p^2=0.126$, and the JOL level of alien faces ($M=3.343$) was higher than that of native faces ($M=3.134$). (2) The main effect of emotion was not significant $F(1,27)=1.842$, $P=0.186$; (3) The interaction between ethnicity and emotion is significant, $F(1,27)=3.805$, $P=0.062$, $\eta_p^2=0.124$. Further simple effect analysis showed that: (1) The JOL level of foreign faces ($M=3.318$) was significantly higher than that of native faces ($M=2.964$) under positive emotion condition, $F(1,27)=6.924$, $P=0.014$, $\eta_p^2=0.010$. There was no significant difference in JOL level between native and foreign faces under negative emotion condition, $F(1,27)=0.270$, $P=0.608$; (2) The JOL level of negative emotion ($M=3.304$) was significantly higher than that of positive emotion ($M=2.964$) under the condition of native face, $F(1,27)=5.634$, $P=0.025$, $\eta_p^2=0.173$; There was no significant difference in JOL level between negative and positive emotions under the condition of heterogeneous face, $F(1,27)=0.079$, $P=0.781$.

3.4. Recall

Table 4. Recall ($M \pm SD$).

| race | emotion | |
|------------|------------|------------|
| | positive | negative |
| own-race | 17.62±1.47 | 18.04±1.52 |
| other-race | 16.75±1.36 | 14.88±1.83 |

Two-factor analysis of variance using ethnicity and emotion as independent variables showed that: (1) the main effect of ethnicity was significant, $F(1,27)=26.114$, $P=0.000$, $\eta_p^2=0.492$, the recognition score of native face ($M=17.183$) was significantly higher than that of alien face ($M=15.317$); (2) The main effect of emotion was not significant $F(1,27)=2.424$, $P=0.131$; (3) The interaction between ethnicity and emotion is significant, $F(1,27)=29.828$, $P=0.000$, $\eta_p^2=0.525$. Further simple effect analysis showed that: (1) the recognition score of native face ($M=17.857$) was significantly higher than that of alien face ($M=14.607$) under negative emotion condition, $F(1,27)=43.105$, $P=0.000$, $\eta_p^2=0.615$; In the positive emotion condition, there was no significant difference between the recognition scores of native faces ($M=17.036$) and non-native faces ($M=16.321$), $F(1,27)=3.118$, $P=0.089$. (2) In the native face condition, the recognition score of negative emotion ($M=17.857$) was higher than that of positive emotion ($M=17.036$), $F(1,27)=6.065$, $P=0.020$, $\eta_p^2=0.183$; In the heterogeneous face condition, the recognition score of positive emotion ($M=16.321$) was significantly higher than that of negative emotion ($M=14.607$), $F(1,27)=18.254$, $P=0.000$, $\eta_p^2=0.403$.

3.5. JOC judgement

Table 5 JOC judgement ($M \pm SD$).

| race | emotion | |
|------------|-----------|-----------|
| | positive | negative |
| own-race | 4.13±0.60 | 4.38±0.51 |
| other-race | 4.14±0.49 | 4.00±0.58 |

Two-factor analysis of variance (ANOVA) using ethnicity and emotion as independent variables showed that: (1) the main effect of ethnicity was significant, $F(1,27)=14.258$, $P = 0.001$, $\eta_p^2=0.346$. The JOC level of native face ($M=4.218$) was significantly higher than that of non-native face ($M=4.021$). (2) The main effect of emotion was not significant $F(1,27)=0.046$, $P = 0.831$; (3) The interaction between ethnicity and emotion is significant, $F(1,27)=40.047$, $P = 0.000$, $\eta_p^2=0.597$. Further simple effect analysis showed that (1) the JOC level of native face ($M=4.325$) was significantly higher than that of non-native face ($M=3.927$) under negative emotion condition, $F(1,27)=34.475$, $P = 0.000$; Under the positive emotion condition, there was no significant difference in JOC level between native face ($M=4.111$) and alien face ($M=4.116$) $F(1,27)=.010$, $P = 0.921$; (2) The JOC level of negative emotion ($M=4.325$) was significantly higher than that of positive emotion ($M=4.111$), $F(1,27)=12.957$, $P = 0.001$, $\eta_p^2=0.324$ in native face condition; In the heterogeneous face condition, the JOC level of positive emotion pores ($M=4.116$) was significantly higher than that of negative emotion pores ($M=3.927$), $F(1,27)=6.837$, $P = 0.014$, $\eta_p^2=0.202$.

4. Conclusions

The influence of race and emotional information on face images is different in cognition and metacognition, and the processing of face images shows significant separation in different cognitive and metacognitive.

References

- E. Lundqvist, D., Flykt, A., & Öhman, A. (1998). The Karolinska Directed Emotional Faces - KDEF, CD ROM from Department of Clinical Neuroscience, Psychology section, Karolinska Institutet, ISBN 91-630-7164-9.
- Flavell, J. H., & Wellman, H. M. (1977). Metamemory. In R. V. Kail, Jr & J. W. Hagen (Eds.). *Perspectives on the development of memory and cognition*. New York: Halsted Press
- Gong X, Huang YX, & Luo YJ. (2011). The revision of Chinese facial expression image system. *Chinese Journal of Mental Health*, 25(001), 40-46.
- Han, K. (1994). Theoretical framework of metamemory research. *Advances in Psychological Science* (1), 29-336.
- Hourihan, K. L. Misleading emotions: judgments of learning overestimate recognition of negative and positive emotional images
- Jemstedt, A., Schwartz, B. L., & Jönsson, F. U. (2017). Ease-of-learning judgments are based on both processing fluency and beliefs. *Memory*, 1-9.
- Johnson K J, Fredrickson B L. "We all look the same to me": Positive emotions eliminate the own-race bias in face recognition. *Psychological Science*, 2005, 16(11): 875-881
- Levin DT. Classifying faces by race: The structure of face categories [J] . *J Exp Psychol: Learn, Mem Cogn*, 1996, 22: 1364-1382.
- Levin DT. Race as a visual feature: Using visual search and perceptual discrimination tasks to understand face categories and the cross-race recognition deficit [J] . *J Exp Psychol General*, 2000, 129: 559-574.
- Meissner, C. A., & Brigham, J. C. (2001). Thirty years of investigating the own-race bias in memory for faces: A meta-analytic review. *Psychology, Public Policy, & Law*, 7, 3-35.
- Nomi, Jason, S., Rhodes, Matthew, G., Cleary, & Anne, M. (2013). Emotional facial expressions differentially influence predictions and performance for face recognition. *Cognition and Emotion*.
- Robey, A. M., Dougherty, M. R., & Buttaccio, D. R. (2017). Making retrospective confidence judgments improves learners' ability to decide what not to study. *Psychol*, 956797617718800.
- Zou, J. L., Zhou, R. L., Zhang, H., Zhang, X. C., & Luo, X. Y. (2011). Emotional memory trade-offs effect: memory for complicated emotional stimuli. *Advances in Psychological Science*.

THE CONCEPT OF CUMULATIVE TRAUMA IN TIMES OF COVID-19: COULD KHAN'S THEORY BECOME USEFUL AGAIN?

Gianluca Crepaldi, & Pia Andreatta

Institute of Psychosocial Intervention, University of Innsbruck (Austria)

Abstract

The paper discusses whether the psychoanalytic concept of Cumulative Trauma could be a valuable theoretical contribution in understanding possible traumatization's of children in the course of the Covid-19 pandemic, as they may quite often face a multiple stressed parent during a lockdown, who's parental function is on the verge breaching. This concept of trauma as established by British Psychoanalyst Masud Khan in 1963 was hardly taken into account in recent trauma research and it has seen little discussion in psychodynamic literature; if at all, it has been used as a merely descriptive category, without considering the suspension of the parental care function, which was identified as the decisive traumatogenic factor for the child's traumatization. The paper begins with a recapitulation of the original theory and then moves on to linking the Cumulative Trauma to current research contexts (attachment, mentalization, developmental trauma disorder). Finally, the relevance of the concept for parenting in times of the Covid-19 pandemic is explored on the basis of a short clinical case example.

Keywords: *Cumulative trauma, parent-child interaction, mentalization, pandemic stress, Covid-19.*

1. Introduction

The term "cumulative trauma" has - if at all - been used descriptively in trauma research in recent years, most of the time to describe an accumulation of psychological stress in childhood or adulthood, which in sum can lead to symptoms or a diagnosis of PTSD (for example Tagay et al., 2013; Karam et al., 2014; Muenzenmaier et al., 2014; Wilker et al., 2015). However, the original theoretical construct formulated by the psychoanalyst Masud Khan (1963) locates the aetiopathogenesis of Cumulative Trauma in some sort of damaged parental caretaking, insofar a parent is unable to perform his or her function as a protective shield for the child. This aspect is hardly mentioned anymore, even within the psychoanalytic discourse (Crepaldi & Andreatta, 2020). We therefore understand the present paper as an attempt to take a new look at this concept that has been lost from view and ask, if it could be a valuable contribution to understand possible traumatization's of children in the course of the Covid-19 pandemic, as they may quite often face a multiple stressed parent during a lockdown, whose parental function is on the verge breaching. In a first step, Khan's trauma theory must be reconstructed in its basic elements; building on this, we want to link the concept with today's research contexts - especially attachment and mentalization research - and point out similarities to diagnostic constructs such as the so-called Developmental Trauma Disorder (van der Kolk, 2009). The article then closes with general considerations on the possible relevance of the concept for parenting in times of the Covid-19 pandemic. A short case example is presented, in which a single mom seeks a psychoanalyst because she fears her pandemic induced stress might in the long run lead to the traumatization of her children.

2. Masud Khan's theory of cumulative trauma

Object-relations theorist Masud Khan (1963) develops the idea of the potentially traumatogenic effect that emanates from a damaged or impaired caretaking function of the mother. The resulting „trauma syndrome“ is defined as follows:

„My argument is that cumulative trauma is the result of the breaches in the mother's role as a protective shield over the whole course of the child's development, from infancy to adolescence-that is to say, in all those areas of experience where the child continues to need the mother as an auxiliary ego to support his immature and unstable ego functions. [...] Cumulative trauma thus derives from the strains and stresses that an infant-child experiences in the context of his ego dependence on the mother as his protective shield and auxiliary ego“ (Khan, 1963, p. 290f).

The “breaches in the mother’s role as protective shield” explicitly refer to Freud’s (1920g) formulation of a “breach in the stimulus protection” (p. 31) of an organism through a shock-like influence from the outside. However, Khan’s Cumulative Trauma does not aim at overt and massive abuse and deprivation scenarios to which children are exposed over a long period of time, rather it refers to the accumulation of more subtle inconsistencies in mother-child interaction. In this context, Grubrich-Simitis (1979) appropriately speaks of “inconspicuous failures of empathy”, which take place primarily in preverbal, affective interaction processes between mother and infant and lead to a disruption of the earliest structural formation of the infant’s personality, especially concerning its ability for self-object differentiation. The unreliability and instability in the maternal care function, which is by no means to be misunderstood as intentional and which normally serves the child as a protective shield against sensual or affective overstimulation from inside or outside, have a pathogenic effect. The breaches or interruptions in the protective shield or stimulus-protective function of maternal care (or more broadly formulated: the early holding environment), “collide” with the unprotected child’s “psyche-soma” and cumulate “silently and invisibly” through the developmental process. “They achieve the value of trauma only cumulatively and in retrospect” (Khan, 1963, p. 291). As a result, a latent “nucleus of pathogenic reaction” (*ibid.*, p. 298) is implemented in the child’s personality structure, which forms the basis of later trauma reactions or symptoms caused by the Cumulative Trauma, which can appear for the first time many years after the actual traumatisation.

Khan does explicitly not aim at acute psychopathologies of mothers (e.g. psychotic episodes); he rather thinks of a recurring maladaptation and deficient responsiveness of the caregiver in relation to the dependence and neediness of her child. In particular, those stages in which the child develops a great “hunger for stimulation” are said to be especially sensitive; in the optimal case, they would be accompanied by maximum affectual adaptation on the part of the caretaker, who protects against stimulus overload through empathic attention. According to Khan, this maternal or parental function as a protective shield is never to be understood passively; rather, it is an “alert, adaptive and organising one” (*ibid.*, p. 295). The cause of insufficiently adjusted “caretaking” is found in “intrusions” of the parents’ own stresses, which restrict them in their autonomous ego functions and their sensitive perceptive capacity. Parental stress states indirectly affect the infant or toddler, whereby the children’s reactions can vary greatly depending on the frequency, duration and intensity of those “breaches” in the caretaking function. The theory illustrates the insidious, silent and invisible emergence of trauma as a result of some kind of introjection of subtraumatically stressful pre-verbal events into the child’s internal object-relations. The traumatic quality of these cumulating breaches is constituted retrospectively. Due to “a great inherent resilience” of children (*ibid.*, p. 300), the Cumulative Trauma will often only emerge later in life (often during adolescence), for example as a reaction to acute stress or psychosocial crisis.

3. The theory of cumulative trauma in the light of current research contexts

Almost 60 years after the publication of the concept of Cumulative Trauma, we want to discuss its connections to current approaches to be able to assess its relevance for today’s questions. Those links or thematic overlaps can be found in areas such as attachment theory, developmental trauma and mentalization research.

3.1. Attachment and developmental trauma

Summarizing central findings of attachment research, Brisch (2013) states that “severe emotional deprivation as well as experiences of maltreatment and abuse [...] represent a significant cause for the development of disorganized attachment patterns as well as attachment disorders” (p. 38). Analogously, Wöller (2009) speaks of disorganized attachment being “very clearly related to maltreatment, neglect and severe disturbances of the dyadic adjustment processes between mother and child” (p. 43), which play a decisive role in the aetiology of severe personality disorders in adulthood. When caregivers themselves are those “who inflict the traumatization on the child”, in the vast majority of cases because they themselves have experienced abuse and maltreatment, and their child is “overwhelmed by feelings of existential threat and devastating disregard” during the time of the first attachment experiences, primary attachment trauma takes place (Rauwald, 2013, p. 26). The decisive factor is that attachment needs have been “inadequately, insufficiently or contradictorily responded to to an extreme degree” (Brisch, 2013, p. 40). This has serious consequences for the formation of internal representations of the self and the object: “The inner working models of attachment are subject to fragmentation or destruction processes in particularly bad and persistent deprivation experiences” (*ibid.*). Clinical studies have shown that the highest proportion of disorganisedly attached children (up to 77% depending on the study) had abusive parents. Clinically, the consequences can manifest as borderline personality disorder in adolescence, attention deficit syndrome or other externalizing behavioral disorders. The attachment pattern must be

assumed to be a mediating variable here; disorganized attachment is a vulnerability factor, secure attachment a protective factor. From the perspective of the attachment paradigm, the “loss of the secure base” (Wöller, 2009, p. 43) through maltreatment, abrupt separation and abuse has a traumatic effect.

Based on these findings from attachment research, but also from neurobiology and other relevant research on trauma in children, van der Kolk (2009) and his working group have long been calling for a more precise diagnosis for children with complex interpersonal traumatization and propose the introduction of a new trauma syndrome in the international diagnostic classification systems, especially since “most traumatised children do not meet the diagnostic criteria of PTSD” (p. 580) and there is “no other diagnostic entity that describes the profound impact of trauma on child development” (p. 579). His concept of “Developmental Trauma Disorder” (DTD), which was not included in the DSM-5, lists as diagnostic criterion *A* “chronic exposure to one or more developmentally disabling interpersonal traumas (abandonment, betrayal of trust, physical assault, sexual assault, threats to physical integrity, coercive practices, emotional abuse, witnessing violence and death)” (ibid., p. 581). If caregivers are repeatedly “emotionally absent, inconsistently frustrating, violent, overwhelming or neglectful” (ibid., p. 576), the child cannot learn to regulate internal states. This leads to neurobiological changes, among other things, because “chronic traumatization [...] impairs the ability to integrate sensory, emotional and cognitive information”. Deficits in emotional self-regulation problems (e.g. lack of impulse control, insecurity, mistrust of others, attention deficits, dissociative symptoms) can emerge in adolescence and adulthood and lead to disorders such as drug addiction, borderline or antisocial personality disorder, eating disorders, but also into numerous somatic disease patterns (cardiovascular, metabolic and immune diseases) (ibid., p. 579).

3.2. Mentalization

Khan (1963) points out that his theoretical construct of the “protective shield”, is ultimately about something very concrete: the role of the caretaking parent in the immediate vis-à-vis to her child. A detailed scientific examination of fault prone micro-processes of affect attunement and mirroring between caregiver and child, their internalization by the child and possible pathogenic consequences for the child's personality development can be found within the context of modern mentalization research (Fonagy et al., 2004); despite its comprehensive review and innovative integration of attachment theory, cognitive psychology, neurobiology and psychoanalysis, there is no reference to Cumulative Trauma, despite the fact that mentalization researchers understand inadequate affect attunement to be traumatizing for the child.

Fonagy and his research group (2004) distinguish two “deviant styles of affect mirroring” (pp. 200 ff.). (1) When mothers are overwhelmed by negative affect states of their infants or toddlers, they sometimes respond by simply reproducing this negative affect. The child's emotions are reflected in an undigested form. The negative emotion cannot be detached from the mother, it is experienced by the child as belonging to the other, and the representation of his own affective state - which is urgently needed for the maturation of his ego functions and his autonomous affect regulation ability - is missing. Thus, instead of a successful affect modulation, “a traumatization occurs” (ibid., p. 201). The prevalence of this deviant form of affect mirroring is also a predictor of the child's later development of a personality disorder. (2) The second deviant style would be a type of distorted mirroring, for example, when the mother perceives her own child's positive arousal distorted as aggression. The child internalizes this distorted mirroring and, on this basis, develops a “distorted secondary representation” of its own emotions and subsequently a “false” self-image or a so-called “false self”. In order to avoid the complete disintegration of the self, these “alienating” or threatening elements must be externalized by the child. Consequences of this deviant affect mirroring are an insufficient formation of object constancy and thus, in the long run, a high dependence on the physical presence of another person (e.g., caregivers, partners, therapists, etc.) that take over the regulation of the self.

These deviant mirroring types described by Fonagy et al. (2004) correspond to an astonishing extent with Khan's “breaches in the protective shield” due to the intrusion of stresses, which either lead to the offer of a “symbiosis or rejective withdrawal” by the parent (Khan, 1963, p. 295). Also, the concept of the “false self” formulated by Winnicott (1956), which Fonagy and colleagues refer to in their texts, is already used in Khan's original contribution for the theoretical explanation of character-pathological consequences of the suspension of maternal care. The child, overwhelmed by the lack of stimulus protection, attempts to empathize with the mother, which can lead to distortions of the ego, the body-ego, and subsequently to disruption of the development of a mature self. In a sense, the child begins to establish an over-sensitivity to the maternal mood, which disrupts the development of a coherent ego and creates a false identificational unity with the mother (Khan, 1963, p. 298).

To sum it up: Khan's concept, which has been linked to attachment and mentalization research, relocates what is potentially traumatizing to the quality of the primary object relation, which can at the same time constitute a crucial protective factor against distressing influences from within or without. An intact parental care function must include the ability to appropriately mentalize affectual states of the child. The parental ability to mentalize develops based on good enough attachment experiences in their own childhood; however, this emphasis on the early childhood development of mentalizing skills leaves “little room for their later loss through trauma in adolescence or adulthood” (Dornes, 2004, p. 190). And indeed, a reading of Khan (1963) suggests that when he was raising the issue of Cumulative Trauma he was not thinking primarily of parents with so-called attachment and personality disorders, but rather of stressors or traumas experienced by parents in their adulthood.

4. Exploring the relevance of cumulative trauma for parenting in times of the Covid-19 pandemic

In this final section, we'd like to discuss the question whether the concept of Cumulative Trauma might be a helpful contribution in better understanding stressors and traumatization experienced by children through their parents in times of Covid-19. As has been widely reported in the media, the current pandemic and its counter measures are a heavy stress factor for parents and caretakers all over the world. There is now enough convincing empirical evidence, to support the thesis, that pandemic induced stress has a massive negative effect on parenting. For example, Chung et al. (2020) have shown in their study, that the high parental stress during lockdown measures was associated with increased use of harsh parenting and less parent-child relationship closeness. Many similar studies have been conducted, but the long-term effects of cumulative exposures might not be immediately visible in children. It is quite remarkable, that Khan already points out “the difficulty in detecting them clinically in childhood. They gradually get embedded in the specific traits of a given character structure” (Khan 1963, p. 291). This could imply, that many children are being silently and invisibly traumatized by an accumulation of poorly adapted or disrupted interactions with their parents, who can currently be overwhelmed by pandemic induced stress. To illustrate this unproven hypothesis, we would like to give a short case example from clinical practice:

A 28-year-old single mother with two daughters (two and a half years old and five years old) is seeing a psychoanalyst because she is suffering from the consequences of the lockdown measures in Austria and she fears that her condition could have negative long-term effects on the psychological development of her children. Over the course of months, she must take care of both of her daughters all by herself and do her work for local social services in her small apartment using her private laptop. The kindergarten refuses to take in the children during the lockdown, by arguing that only parents with so-called system-relevant jobs would be allowed to use childcare services. During the therapy sessions, the patient impressively describes her permanent demands due to job tasks (emails, telephone calls, writing reports) and the various needs of her daughters. Even the simplest everyday errands can bring her to the brink of despair. Her inner experience fluctuates permanently between struggling against depressive feelings on the one hand and heavy anxiety of a complete emotional breakdown on the other. The descriptions of interaction sequences with her children stand out in particular, in which she is absent and emotionally unavailable; she experiences the caretaking of her children like an inanimate administrative task. During these periods, the children get into states of arousal more easily and are much harder to calm down. Some days, the children seem resigned and barely make eye contact with their mother. On other days the children try to provoke emotional reaction of their mother by annoying her with yelling, fighting and disobeying. When the stress becomes almost unbearable, the patient describes something that feels to her like a “breach” in her “mental functioning” (remarkably using almost the exact same term as Khan in his original concept). A small external stimulus (e.g. a loud noise from the neighbor's apartment) is then enough to cause aggressive impulse breakthroughs. In these acute situations, she screams excessively at her daughters until her voice fails. Once, she even breaks one of her daughter's toys in front of her. After acting-out, she feels the urge to leave the room and the children to themselves for several minutes. In the aftermath of those events, she is plagued by severe feelings of shame and guilt.

Psychological stress theory (Lazarus & Folkman, 1984) – which could offer a theoretical frame for our case - defines stress as a product of a transaction between a person (including multiple systems: cognitive, physiological, affective, psychological, neurological) and his or her environment. How an individual appraises a stressor determines how he or she copes with or responds to the stressor. However, from a psychodynamic perspective the interpersonal dimension of the individuals stress experience, which manifests itself in the phenomenon of counter-transference, is a crucial aspect to measure the quality of a stressor. The psychoanalyst in this specific case example reacts to the heavy burden of his patient presented to him throughout many sessions by occasionally drifting away in a slightly dissociative state. Now it is him, that is emotionally unreachable. Dissociative states that appear in the therapist's counter-transference often point to the traumatic quality in the experience of the patient. When we look at this clinical case material through the lens of Khans theory, it becomes obvious, that the mother's role as

a protective shield for her children is severely impaired. She herself describes and experiences situations, in which she is overwhelmed by stress, as “breaches” in her “mental functioning”. Her capacity for mentalizing or adequately mirroring her children’s affectual states as well as her sensitive and responsive adaptiveness towards her children’s needs seem to be suspended. Could circumstances like these lead up to the point where, as Khan puts it, a nucleus of pathogenic reaction is implanted in the child’s personality? How long must a stressful situation like this last and which quality it must have, to become a Cumulative Trauma? It would certainly be interesting to do further research focusing on the children, because severe psychological consequences of the pandemic could become apparent in the next generation.

5. Concluding remark

We propose that it would be worthwhile to resume the discussion on Cumulative Trauma, because it adds an explicit psychodynamic perspective on the traumatic quality of accumulating stress. This could be a valuable addition to psychological stress theories. Also, the extent of connectivity of Khans concept with current research (attachment, mentalization, developmental trauma), is quite a surprising finding, considering that this is an older psychoanalytic theory that has seen little discussion since it was first published. It will be necessary to take a further look at how stressors like the pandemic have an effect on parenting and therefore on the next generation. Further clinical and empirical evidence would be desirable.

References

- Brisch, K.-H. (2013). Die Weitergabe von traumatischen Erfahrungen von Bindungspersonen an die Kinder. In M. Rauwald (Ed.), *Vererbte Wunden. Transgenerationale Weitergabe traumatischer Erfahrungen*. Weinheim: Beltz Juventa.
- Chung, G., Lanier, P. & Wong, P.Y.J. (2020). Mediating Effects of Parental Stress on Harsh Parenting and Parent-Child Relationship during Coronavirus (COVID-19) Pandemic in Singapore. *J Fam Viol*. <https://doi.org/10.1007/s10896-020-00200-1>
- Crepaldi, G., Andreatta, P. (2020). M. Masud R. Khan (1963). Das kumulative Trauma. *Forum Psychoanal* 2020 (online first). <https://doi.org/10.1007/s00451-020-00403-8>
- Dornes, M. (2004). Über Mentalisierung, Affektregulierung und die Entwicklung des Selbst. *Forum Psychoanal*, 20, 175–199. <https://doi.org/10.1007/s00451-004-0195-4>
- Fonagy, P., Gergely, G., Jurist, E. & Target, M. (2004). *Affektregulierung, Mentalisierung und die Entwicklung des Selbst*. Stuttgart: Klett-Cotta.
- Freud, S. (1920g). *Jenseits des Lustprinzips*. GW XIII, 1–69.
- Grubrich-Simitis, I. (1979). Extremtraumatisierung als kumulatives Trauma. Psychoanalytische Studien über seelische Nachwirkungen der Konzentrationslagerhaft bei Überlebenden und ihren Kindern. *Psyche – Z Psychoanal*, 33, 991–1023.
- Karam, E., Friedman, M. et al. (2014). Cumulative traumas and risk thresholds: 12-month PTSD in the World mental health surveys. *Depression and Anxiety*, 31, 130–142. <https://doi.org/10.1002/da.22169>
- Khan, M. M. R. (1963). The Concept of Cumulative Trauma. *The Psychoanalytic Study of the Child*, 18, 286–306. <https://doi.org/10.1080/00797308.1963.11822932>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Muenzenmaier, K., Schneeberger, A., et al. (2014). Stressful childhood experiences and clinical outcomes in people with serious mental illness: A gender comparison in a clinical psychiatric sample. *J Fam Viol*, 29, 419–429. <https://doi.org/10.1007/s10896-014-9601-x>
- Rauwald, M. (2013). Traumata. In M. Rauwald (Ed.), *Vererbte Wunden. Transgenerationale Weitergabe traumatischer Erfahrungen*. Weinheim Beltz: Juventa.
- Tagay, S., Repic, N., et al. (2013). Traumatische Ereignisse, psychische Belastungen und Prädiktoren der PTBS-Symptomatik bei Kindern und Jugendlichen. *Kindheit und Entwicklung*, 22, 70–79. <https://doi.org/10.1026/0942-5403/a000102>
- Van der Kolk, B. (2009). Entwicklungstrauma-Störung: Auf dem Weg zu einer sinnvollen Diagnostik für chronisch traumatisierte Kinder. *Prax Kinderpsychol Kinderpsychiat*, 58, 572–586. <https://doi.org/10.13109/prkk.2009.58.8.572>
- Wilker, S., Pfeiffer, A., et al. (2015). How to quantify exposure to traumatic stress? Reliability and predictive validity of measures for cumulative trauma exposure in a post-conflict population. *European Journal of Psychotraumatology*, 6. <https://doi.org/10.3402/ejpt.v6.28306>
- Winnicott, D. W. (1956). *Primary Maternal Preoccupation*. Collected Papers. New York: Basic Books.
- Wöller, W. (2009). *Trauma und Persönlichkeitsstörungen*. Stuttgart: Schattauer.



POSTERS

THE EFFECTS OF EMOTIONAL WORKING MEMORY TRAINING ON TRAIT ANXIETY

Gabrielle Veloso, & Welison Evenston Ty
Ateneo de Manila University (Philippines)

Abstract

Trait anxiety is a pervasive tendency to attend to and experience fears and worries to a disproportionate degree, across various situations. This study sought to determine if participants who undergo emotional working memory training will have significantly lower scores on the trait anxiety scales post-intervention. The study also sought to determine if emotional regulation mediated the relationship between working memory training and trait anxiety. Trait anxiety was measured using the form Y2 of the Spielberger State-Trait Anxiety Inventory (STAI-Y2). Emotion regulation was measured using the Emotional Regulation Questionnaire (ERQ). Forty-nine participants underwent 20 days of computerized emotional working memory training called Emotional Dual n-back, which involves viewing a continuous stream of emotional content on a 3x3 grid, and then remembering the location and color of items presented on the grid. The control group consisted of fifty-one participants. Participants of the treatment group had significantly lower trait anxiety compared to controls post-intervention. Mediation analysis determined that working memory training was significantly related to trait anxiety reduction as measured by the STAI-Y2. Emotion regulation was found not to mediate between working memory training and trait anxiety reduction. Results suggest that working memory training may be useful in reducing psychoemotional symptoms of trait anxiety. Moreover, it proposes for future research to further look into the mediating role of emotion regulation via neuroimaging and the development of more comprehensive measures of emotion regulation.

Keywords: *Trait anxiety, working memory, intervention, training, emotion regulation.*

1. Introduction

Trait anxiety is a pervasive tendency to attend to and experience fears and worries to a disproportionate degree, across various situations. Decreased vulnerability to trait anxiety has been linked to having higher working memory capacity and better emotion regulation; however, the relationship between these factors has not been well-established.

2. Objective

This study sought to determine if participants who undergo emotional working memory training will have significantly lower trait anxiety post-training. The study also sought to determine if emotion regulation mediated the relationship between working memory training and trait anxiety.

3. Method

An experimental group comprising of 49 participants underwent 20 days of computerized emotional working memory training, which involved viewing a continuous stream of emotionally-charged content on a 3x3 grid, and then remembering the location and color of items presented on the grid. The control group comprised of 51 participants.

4. Results

Participants of the experimental group had significantly lower trait anxiety compared to controls, post-training. Subsequent mediation analysis determined that working memory training capacity gains were significantly related to anxiety reduction as measured by form Y2 of the Spielberger State-Trait Anxiety Inventory (STAI-Y2). Emotion regulation, as measured by the Emotional Regulation

Questionnaire (ERQ), was found not to mediate between working memory capacity gains and trait anxiety reduction.

5. Conclusion

Working memory capacity gains and reductions in levels of trait anxiety were observed following emotional working memory training. The study may therefore be useful in informing interventions targeted at improving working memory capacity, and reducing levels of trait anxiety. Moreover, it proposes for future research to further look into the mediating role of emotion regulation via the development or utilization of more comprehensive measures of emotion regulation

Table 1. Measure of Effect of Mediator Variable

| Model | R Squared | R Squared Change | % |
|---|-----------|------------------|-------|
| Model with Working Memory Capacity Gains | 0.0923 | - | - |
| Model with Working Memory Capacity Gains + Emotion Regulation Gains | 0.2524 | 0.1601 | 16.01 |

References

- Aikins D E, Craske M G. (2001). Cognitive theories of generalized anxiety disorder. *Psychiatric Clinics of North America*, 24(1), 57–74.
- Beloe P, Derakshan N. (2019). Adaptive working memory training can reduce anxiety and depression vulnerability in adolescents. *Developmental Science*, doi:10.1111/desc.12831.
- Berti, S. (2016). Switching Attention Within Working Memory is Reflected in the P3a Component of the Human Event-Related Brain Potential. *Frontiers in Human Neuroscience*, 9. doi:10.3389/fnhum.2015.00701
- Cisler JM, Olatunji BO, Feldner MT, Forsyth J P. (2010). Emotion Regulation and the Anxiety Disorders: An Integrative Review. *J Psychopathol Behav Assess*, 32(1),68-82.
- Culpepper, L. & Conner, K. (2004). Effective recognition and treatment of generalized anxiety disorder in primary care. *The Primary Care Companion to The Journal of Clinical Psychiatry*, 6(1), 35-41.
- Dennis, T. A., & Hajcak, G. (2009). The late positive potential: a neurophysiological marker for emotion regulation in children. *Journal of child psychology and psychiatry, and allied disciplines*, 50(11), 1373–1383.
- Ecker UK, Lewandowsky S, Oberauer K, Chee A E. (2010). The components of working memory updating: an experimental decomposition and individual differences. *J Exp Psychol Learn Mem Cogn*, 36(1),170-189.
- Enebrink P, Björnsdotter A, Ghaderi A. (2013). The Emotion Regulation Questionnaire: Psychometric properties and norms for Swedish parents of children aged 10-13 years. *Euro J Psychology*, 9(2), 289-303.
- Engle, R. W. (2002). Working memory capacity as executive attention. *Curr. Dir. Psychol. Sci*, 11, 19–23. doi: 10.1111/1467-8721.00160
- Eysenck MW, Derakshan N, Santos R, & Calvo M G. (2007). Anxiety and cognitive performance: attentional control theory. *Emotion*, 7(2),336-53.
- Foti D & Hajcak G. (2008). Deconstructing reappraisal: descriptions preceding arousing pictures modulate the subsequent neural response. *Journal of Cognitive Neuroscience*, 20(6),977-88.
- Franken I. (2014). Tackling Depression and Anxiety: A Working Memory Intervention. *ClinicalTrials.gov* [Available from: <https://clinicaltrials.gov/ct2/show/NCT02119923>]
- Gellman MD. (2012). *Encyclopedia of behavioral medicine*. New York, NY: Springer.
- Gross JJ, John O P. (2003). Individual differences in two emotion regulation processes: implications for affect, relationships, and well-being. *J Pers Soc Psychol*, 85(2),348-62.
- Gyurak, A., Goodkind, M. S., Kramer, J. H., Miller, B. L., & Levenson, R. (2012). Executive functions and the down-regulation and up-regulation of emotion. *Cognition & Emotion*, 26, 103–118.
- Hadwin JA, Richards H J. (2016). Working Memory Training and CBT Reduces Anxiety Symptoms and Attentional Biases to Threat: A Preliminary Study. *Front Psychol*,7,47.
- Kashdan TB, Zvolensky MJ, McLeish A C. (2008). Anxiety sensitivity and affect regulatory strategies: individual and interactive risk factors for anxiety-related symptoms. *J Anxiety Disord*, 22(3), 429-40.

- Kensinger EA, Corkin S. (2003). Effect of negative emotional content on working memory and long-term memory. *Emotion*, 3(4),378-393.
- Lee TW, Xue S W. (2018). Does emotion regulation engage the same neural circuit as working memory? A meta-analytical comparison between cognitive reappraisal of negative emotion and 2-back working memory task. *PLoS One*, 13(9).
- Leone de Voogd E, Wiers RW, Zwieter J, Salemink E. (2016). Emotional working memory training as an online intervention for adolescent anxiety and depression: A randomised controlled trial. *Aust J Psychol*, 68(3),228-38.
- Mammarella N. (2014). Is Emotional Working Memory Training a New Avenue of AD Treatment? A review. *Aging Dis*, 5(1), 35-40.
- Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex “frontal lobe” tasks: a latent variable analyses. *Cogn. Psychol*, 41, 49–100. doi: 10.1006/cogp.1999.0734
- Onraedt T, Koster E H. (2014). Training working memory to reduce rumination. *PLoS One*, 9(3).
- Opitz C, Gross J, & Urry L. (2012). Selection, optimization, and compensation in the domain of emotion regulation: applications to adolescence, older age, and major depressive disorder. *Social and Personality Psychology Compass*, 6(2),142–155.
- Pe ML, Raes F, Kuppens P. (2013). The cognitive building blocks of emotion regulation: ability to update working memory moderates the efficacy of rumination and reappraisal on emotion. *PLoS One*, 8(7).
- Redick TS, Broadway JM, Meier ME, Kuriakose PS, Unsworth N, Kane MJ, et al. (2012). Measuring working memory capacity with Automated Complex Span Tasks. *Euro J Psychological Assessment*, 28(3),164-171.
- Roughan L, Hadwin J A. (2011). The impact of working memory training in young people with social, emotional and behavioural difficulties. *Learning and Individual Differences*, 21(6),759-64.
- Sari BA, Koster EH, Pourtois G, Derakshan N. (2015) Training working memory to improve attentional control in anxiety: A proof-of-principle study using behavioral and electrophysiological measures. *Biol Psychol*, 121, 203-12.
- Schmeichel BJ, Volokhov RN, & Demaree H A. (2008). Working memory capacity and the self-regulation of emotional expression and experience. *J Pers Soc Psychol*, 95(6),1526-40.
- Schweizer S, Grahn J, Hampshire A, Mobbs D, Dalgleish T. (2013). Training the emotional brain: improving affective control through emotional working memory training. *J Neurosci*, 33(12), 5301-11.
- Schweizer S, Hampshire A, Dalgleish T. (2011). Extending brain-training to the affective domain: increasing cognitive and affective executive control through emotional working memory training. *PLoS One*, 6(9).
- Spielberger CD, Gorsuch RL, Lushene R, Vagg PR, Jacobs G A. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto: Consulting Psychologists Press.
- Takeuchi H, Taki Y, Nouchi R, Hashizume H, Sekiguchi A, Kotozaki Y, et al. (2014). Working memory training improves emotional states of healthy individuals. *Front Syst Neurosci*, 8,200.
- Turner ML, Engle RW.(1989). Is working memory capacity task dependent? *J Memory and Language*, 28(2),127-154.
- Unsworth N, Heitz RP, Schrock JC, Engle R W. (2005). An automated version of the operation span task. *Behav Res Methods*, 37(3), 498-505.
- Veerapa, E., Grandgenevre, P., El Fayoumi, M. (2020). Attentional bias towards negative stimuli in healthy individuals and the effects of trait anxiety. *Sci Rep*, 10,11826.
- Vitasari P, Wahab MN, Herawan T, Othman A, Sinnadurai S K. (2011). Re-test of State Trait Anxiety Inventory (STAI) among Engineering Students in Malaysia: Reliability and Validity tests. *Procedia-Social and Behavioral Sciences*, 15,3843-3848.
- Wanmaker S, Geraerts E, Franken I H. (2015). A working memory training to decrease rumination in depressed and anxious individuals: a double-blind randomized controlled trial. *J Affect Disord*, 175,310-9.
- Wanmaker S, Hopstaken JF, Asselbergs J, Geraerts E, Franken I H. (2014). Decreasing dysphoric thoughts by a working memory training: A randomized double-blind placebo-controlled trial. *J Depress Anxiety*, 3(165), 2167-1044.
- Wilhelm, O., Hildebrandt, A., & Oberauer, K. (2013). What is working memory capacity, and how can we measure it?. *Frontiers in Psychology*, 4. doi:10.3389/fpsyg.2013.00433
- Williams JMG, Watts FN, MacLeod C, Mathews A. (1988). *Cognitive psychology and emotional disorders*. Wiley: Chichester.
- Xiu L, Wu J, Chang L, Zhou R. (2018). Working Memory Training Improves Emotion Regulation Ability. *Sci Rep*, 8(1),15012.

MIND-BODY INTEGRATION IN DANCE MOVEMENT THERAPY

Hongju Li¹, & Xindi Cao²

¹*School of Arts and Communication, Beijing Normal University (China)*

²*School of Philosophy, Beijing Normal University (China)*

Abstract

Mind-body integration is a key element for a successful dance movement therapy (DMT). As the connection between mind and body is reconnected, the clients can not only express but also improve their mental state through body movement. The integration of mind and body can be viewed from two aspects, namely the first-person experience and the third-person phenomenon, both of which play a crucial role in the therapeutic process of DMT. The first-person experience transcends the mind's neurobiological phenomenon, which is relatively more important for the clients, while the third-person observation is based on the body's reflection of mind, often adopted by the therapists. The relationship between mind and body can be validated by the mirror neuron theory, which is one of the theoretical proofs and inspirations of DMT. Unlike the notion of mind-body differentiation in western classical philosophy, ancient Chinese thoughts had not separated them. The Chinese character "shen" is considered as the whole of flesh and soul. The abundant Chinese thoughts concerning mind-body theory can be considered as a suitable route of the exploration of mind-body integration.

Keywords: *Dance movement therapy, mind-body integration, philosophy of mind, mirror neuron, Chinese philosophy.*

1. The mind-body problem in dance-movement therapy

As a mental healing method, Dance-Movement Therapy (DMT) may incur censure because its main therapeutic process focuses on the body. Whether the body effect can, going through the blood and flesh, influence the mental state, seems questionable. Once there was barrier for the DMT therapists to find their own position in the psychotherapy institutions and their certification is controversy. (Meekmus,2002 p12-13) Although DMT is getting more and more accepted in the field of psychotherapy, worry and suspicion from the clients and other co-workers still exists. Therefore, rebuilding the connection between mind and body is necessary for the legitimacy and reliability of DMT.

2. The mind-body theories: From philosophy and psychology perspectives

2.1. The first-person ontology in the mind-body integration

Views of mind-body problem can be categorized into dualism and monism. Generally, dualism regards mind and body as two separate entities, which is widely accepted historically, while monism, solving the dualism's difficulty of the interaction of mind and body, takes either mind or body as the foundation. According to which plays the role of the foundation, Monism can be divided into two types: idealism and materialism. The former takes the mind as the ultimate essence and the body attach to it, while the later takes body as the source of mind. In this essay, we would discuss the mind-body relationship base on materialism for the reason that being compatible with modern psychological science, materialism is not only prevalent in contemporary philosophy of mind, but also a significant theoretical prerequisite of DMT.

From the materialism point of view, mind is the consequence of physical processes, such as neural processes. Opponents may argue that due to this understanding, mind is nothing. In other words, mind does not necessarily exists and every mental process is nothing but physical process. In this way, any psychotherapies, including DMT, ultimately aim at effecting the neural state. However, mind cannot be reduced to physical process. According to Searle's "biological naturalism", which is a variant of materialism, mental state is causally reducible, not ontologically reducible to its neurobiological basis. (Searle,2004 p113) The remarkable difference between mechanical materialism and "biological naturalism" lies in the mind's relative independence. "Biological naturalism" approves the body's effect on mind and at the same time, admit mind's own features. This, on one hand, legitimize DMT as a mental

healing method through the body movement. On the other hand, it highlights its trait as expressive art therapy, which rely partly on spiritual interaction.

Since the mind cannot be ontologically reduced to the body, there must be something beyond the physical process that is produced by the body, which constitute the mental experience. It is helpful to differentiate the concepts of “first person” and “third person” features. (Searle,2004 p111) Some mental phenomena can be observed and explained from a third-person perspective, which is commonly researched by psychological scientists. These phenomena are directly determined by the neurobiological state. However, what scientific mindset and researches often neglect is the first-person experience. It is the first-person features that make the mind transcend the physical features, while at the same time, they are closely attached to the body state. The “thirsty” example put forward by Searle may well explain these two terms. When you are thirsty, a set of neural activities produce the signal showing that you are thirsty. This is a third-person phenomenon. Apart from that, as a sensible subject, you experience that feeling of thirsty, which is a consequence of your body’s lack of water. The feeling of thirsty cannot be exactly and completely described by any word language, including the scientific explanation of neurobiological process. It can only be experienced by the first person. The first-person experience is an indispensable part of mind-body integration, but this mental state is usually separated from the body because of the disregard of body perception.

Therefore, for those psychologically disturbed people who are not able to be aware of their mental state correctly, it is an important step to reestablish the first-person perception. First-person mental state is also a puzzle for people who have experienced body-related trauma, such as sexual abuse and domestic violence concerning physical abuse. They suffer from “detached state” where they alienate their body to avoid recalling the terrible memory. (Meekmus,2002 p77) Under this circumstance, their body and mind are separated. Although this separation enables them to get rid of the trauma for the moment, it may cause severe and long-term damage to their psychological health. DMT, as a therapeutic method that involves both mind and body, is suitable for this case because of its specialty of embodiment. The key point of reconnecting the mind and body is first-person experience. More specifically, through the movement of body, they consciously learn to experience their own feeling of the body under the instruction of the therapist. Apart from the clients, the therapists can also use first person experience during the therapeutic process. For instance, the therapists may sometimes “feel” the clients’ physical and mental state as well as the atmosphere of the group. This kind of feeling can be perceptual and emotional instead of rational and normative.

As a common method in psychological therapy, the third-person perspective is also applied in DMT. Observing the client’s improvisation, the therapist figure out the mental state through the metaphor of the body movement. Although the client may also get out of their situation to analyze their own mental phenomena from a third-person view, most third-person features are in the hands of the therapist. Therefore, the integration of mind and body in DMT owe to the interaction of first-person and third-person perspective, namely the client and the therapists.

2.2. The application of mirror neuron theory in dance-movement therapy

The notion of monism can be validated by the mirror neuron theory. It proves that the practice of a movement can be combined with the perception of the movement. The theory was found by Giacomo Rizzolatti and his group in the University of Parma. They studied the rhesus monkeys’ neuron system and found that the ventral premotor cortex of the rhesuses might deliver electrical signal when carrying on a movement, and the similar neural phenomenon occurred when they were observing other rhesuses, or even human, to do it. From this experiment, researchers conclude that motor center of the brain is related to not only body movements, but also the understanding of others’ movements. (Ye,Zeng,2013) This can be implied to DMT in various of ways. For instance, therapists may mirror their clients’ movement to put themselves into the clients’ situation. Through experiencing the clients’ movement, the therapists can figure out what is happening in the clients’ inner world, namely their mental state. On the other hand, the mirror neuron theory also shows that the act of watching others’ movement may have similar effect in the brain process as they actually do it. Though it seems contrast to the consensus of DMT that it is irreplaceable to experience the movement in the flesh, which means truly moving our own body in the space, it may lead to a different type of technique in DMT. For the clients who cannot freely move the body, it is helpful to let them watch the therapist’s movement. This method is proved effective in a therapeutic process for children with cerebral palsy. There’s much more to explore about this “watching” method of DMT.

3. The Mind-body Concepts of Chinese Thought

The wisdom of moderation (zhong yong) and harmony (he) is deeply rooted in Chinese traditional culture, instructing people to keep inner peace and emotional balance. Hence, the passages in Confucian and Taoist classics are more than philosophical thoughts and moral norms. They play a crucial

role in people's self-adjusting of mind and body. To some extent, Chinese philosophical thoughts, infiltrating into Chinese people's personality and life outlook, can be compared to a "psychotherapist". This kind of mental adjustment through long-term reading, thinking and practicing is more of a first-person experience other than a third-person assistance. So it can be considered as a suitable route of the exploration of mind-body integration.

In Chinese culture, mind and body are radically a whole entity. Unlike the notion of mind-body differentiation in western classical philosophy, ancient Chinese thoughts had not separated them. The Chinese character "shen" is considered as the whole of flesh and soul. Wang Yangming, a philosopher of Song-Ming Neo-Confucianism, stated that "The ears, eyes, mouth, nose and limbs are parts of the body. If it is not the mind, how can they watch, listen, speak and move? The mind also cannot watch, listen, speak and move without ears, eyes, mouth, nose and limbs. Therefore, where there is no mind, there is no body. Where there is no body, there is no mind."(Wang,1992 p90-91)¹) The body cannot function without the mind and the mind cannot function without the basis of the organs of the body. Relying on each other, the mind and body can only watch, listen, speak and move when they function cooperatively. In spite of that, he also thought that the primitive integrity can be interrupted by the "inner desire" and the only way to regain the integrity is to "sit still" and "cease the contemplation". These two concepts, one applies to the body and the other applies to the mind, are actually two aspects of the one action. The reintegration of mind and body requires mind-body practice as a whole.

Unlike DMT, Wang Yangming's practice only involves first-person experience. It demands intense self-awareness and attention, which only few people own. For the clients of DMT, they need more specific instructions based on the third-person observation of the therapists. However, the ability of first-person self-perception is a necessary element of mind-body integration. Hence, if DMT enhance the clients' ability of self-awareness, they would be able to apply it to their daily life, either during the gap of after a therapeutic process so that they could keep a balanced mind-body relationship.

4. Summary

In this essay, I presented western and eastern thought proving mind-body integration and its significance in DMT practice. In both cases, I attach importance to first-person experience, which is a vital element of DMT, because this is a unique trait of DMT as an art therapy method involving personal sensibility and as a body-based therapy directly connecting the mind and body. These thoughts may inspire the DMT practice towards a more humanized and individualized direction.

References

- Meekums, Bonnie, & Yu,Zemei translate. (2016). *Dance Movement Therapy: A Creative Psychotherapeutic Approach*. Chongqing: Chongqing University Press Limited Corporation.
- Searle, John R. (2004). *Mind: a Brief Introduction*. USA: Oxford University Press.
- Wu, Guang, & Qian, Dong, Yao. (1992). *Completed Works of Wang Yangming*. Shanghai: Shanghai Classics Publishing House.
- Ye, Haosheng, & Zeng, Hong. (2013). The Discovery of Mirror Neurons and the Transcendence over Mind-Body Dualism. *Journal of Psychological Science*, 2013,36(5), 1230-1236.

¹Wang Yangming, edited by Wu Guang, Qian Ming, Dong Ping, and Yao Yanfu. *Wang Yangming's Complete Works Part 1*[M]. Shanghai Ancient Books Publishing House, 1992. Pages 90-91..

FEATURES OF THE HUMAN LIFE-WORLD STABILITY OF FUTURE DOCTORS WHO ARE CHARACTERIZED BY PSYCHOLOGICAL HEALTH

Olga V. Petryaeva², Irina O. Loginova^{1,2}, Irina O. Kononenko¹, & Nina N. Vishnjakova¹

¹*Professor V.F. Voyno-Yasenetsky Krasnoyarsk State Medical University (Russia)*

²*Federal State-Financed Institution Federal Siberian Research Clinical Centre under the Federal Medical Biological Agency (Russia)*

Abstract

Staying at the peak of professional success in medical is possible only for a doctor who is characterized by psychological health. The human life-world stability is contributed to success of the life self-fulfillment and transference of abilities inherent in him (human) into reality. The study sample is represented by 354 future doctors. Of these, 154 future doctors were characterized by psychological health.

Qualitative analysis showed that future doctors who are characterized by psychological health are more inclined to analyze their own life deficits “here and now”. Often, such an analysis culminated in the realization of the possibility of approaching problems and difficulties, finding a different meaning. Usually assessed as “negative” or “stressful” events during the analysis were reformatted as events of a new experience. They are the basis for expanding the behavioral repertoire.

It has been established that a high degree of human life-world stability and its constructive nature are the psychological conditions for the optimal combination of processes to achievement consistently high performances and maintain psychological health by future doctors.

Keywords: *Human life-world stability, life self-fulfillment, psychological health, high performances, future doctors.*

1. Introduction

Staying at the peak of professional success in medical is possible only for a doctor who is characterized by psychological health. Maintaining psychological health doctors need to implement a whole range of measures. An important role in this complex is given to psychotechnologies aimed at improving the life-world stability of future doctors.

When training future doctors, the opportunities for achievements that are determined by psychological health are often not taken into account. The phenomenon of “human life-world stability” is also not taken into account. However the human life-world stability is considered in psychology as an essential indicator of the success of the life self-fulfillment. It can be taken into account in the organization of training future doctors.

2. Design

The study sample is represented by 354 future doctors. Of these, 154 future doctors were characterized by psychological health.

At the first stage of the study, a sample of athletes was analyzed for the preservation of psychological health (Table 1).

Table 1. The distribution of athletes in psychological health groups.

| Psychological health group | Men (absolute number, %) | Women (absolute number, %) |
|----------------------------|--------------------------|----------------------------|
| I | 54 (23,7%) | 20 (15,7%) |
| II | 54 (23,7%) | 26 (20,4%) |
| IIIA | 8 (3,5%) | 8 (6,3%) |
| IIIB | 103 (45,6%) | 64 (50,3%) |
| IIIA, B | 8 (3,5%) | 9 (7,3%) |

The table shows the psychological health groups that are distributed as follows:
 Group I - a high level of psychological health;
 Group II - conditionally healthy - have a clear predisposition (risk factors) to reduce mental adaptation in the absence of special and timely preventive measures and strengthen psychological health;
 Group IIIA - impaired psychological health, due to severe neurotic symptoms;
 Group IIIB - impaired psychological health due to a decrease in the functional state of the ANS and / or CNS;
 Group IIIA, B - impaired psychological health due to mixed symptoms.
 At the main stage of the study, the correlation of indicators of psychological health and the human life-world stability of future doctors was carried out.

3. Objectives

The purpose of this study is to research of the human life-world stability of future doctors who are characterized by psychological health.

The main objectives of the research are:

- 1) Investigate the features of the psychological health of future doctors;
- 2) To study the specifics of the life-world stability of future doctors who are characterized by psychological health in contrast to future doctors with impaired psychological health.

4. Methods

At the preparatory investigation stage, the assessment of psychological health was carried out by means of the following methods:

- structured standard interview;
- psychological testing using hardware and software systems.

The integral indicator that characterized the psychological state of the future doctors, according to the results of the survey, was calculated. Then the final conclusion about psychological health was formed.

The method “Investigation of the Human Life-World Stability” (Loginova, 2012) was used as the general research tool, which allows to study the features of the human life-world stability in the process of real-life activity. This method is aimed at studying the features of the human life organization and allows revealing the manifestations of the life stability (constructive, unconstructive, and stagnant).

Mathematical processing of the obtained results was carried out with use of the SPSS Statistics 21 software packaging.

5. Discussion

All results of the two groups of respondents obtained by means of the method “Investigation of the Human Life-World Stability” were systematized in accordance with the instruction and are presented in Table 2.

Table 2. Results of the human life-world stability of psychological health groups.

| Options | Psychological health group | Groups with impaired psychological health |
|--|--|---|
| Temporal tendency of events | The present - the future 60% The past - the present - the future 40% | The present 30% The past 40% The past - the present 30% |
| The ratio of verbs | The present - the future 60% The past - the present - the future 40% | The present 40% The past 40% The past - the present 20% |
| Criterion for the described events content selecting | Chronotopic 30% Topological 60% Biographical 10% | Chronotopic 20% Topological 20% Biographical 60% |
| General emotional background of events | Positive 60% Neutral 30% Negative 10% | Positive 30% Neutral 40% Negative 30% |
| The meaning of the described life events | The overall direction of the development line is conserved 50% General orientation of the development line is not withheld 30% The beginning of the development line 20% | The overall direction of the development line is conserved 20% General orientation of the development line is not withheld 30% Center of the development line 20% Completion of the development line 30% |

| | | |
|--------------------------------|--|--|
| Attitude to events | Value 60% Responsible 20% Rational 20% | Value 15% Responsible 5% Rational 80 % |
| Continuity of personal history | Retained 75% Situationally 20% Missing 5% | Retained 5% Situationally 30% Missing 65% |
| Author reflexive position | Holistic reflexive position 60% Situational reflexive attitude 25% Absence of a reflexive relation 10% | Holistic reflexive position 10% Situational reflexive attitude 30% Absence of a reflexive relation 60% |

In 50.7% of psychologically healthy future doctors of the highest qualification (men and women), the human life-world stability was 67.3 points. This means that there is a tendency towards the manifestation of a constructive nature of the human life-world stability. It contributes to the preservation of health, personal growth and creativity. In the life of such future doctors, the presence of prospects for further movement and a resource for success is revealed.

In 33.8% of psychologically healthy future doctors (men and women), the human life-world stability was 46.8 points. This means that there is a tendency towards the manifestation of a non-constructive nature of the human life-world stability. It reduces the productivity and optimality of human life and marks the lack of a resource (own potential, environmental conditions) for success.

In 15.5% of psychologically healthy future doctors (men and women), the human life-world stability was 36.4 points. This means that there is a tendency towards the manifestation of a stagnant nature of the human life-world stability.

Qualitative analysis showed that future doctors who are characterized by psychological health are more inclined to analyze their own life deficits "here and now". Often, such an analysis culminated in the realization of the possibility of approaching problems and difficulties, finding a different meaning.

Usually assessed as "negative" or "stressful" events (ineffectiveness, mistake, conflicts, status changes in the team) during the analysis were reformatted as events of a new experience.

They are the basis for expanding the behavioral repertoire. The presence of this trend suggests that in a similar "problem" situation, these future doctors will demonstrate increasingly effective patterns of cognitive and affective response, more adapted behavioral reactions.

6. Conclusions

We believe that our research has an indicates its suitability for use in medical practice (Sirri, Fava, 2013) and a direct access to the research of the human being that is understood as the expansion of the possibilities since it considers the problems of emerging, existing, transformation, development and self-development of a human being in their unity. In the framework of these research, there is a possibility to consider the issues of individual life strategies defining the direction vector and content of a human being life that are in their turn are defining in respect of the selected strategy for the living potential realization (Deci & Ryan, 2000). In the process of life targets realization that seemed ended, we reveal their "transition", "temporal" nature that reveals the prospects of movement to the next objective. As such, to understand a human being as the product of the human being oneself, his life, means the possibility to understand the human being itself that is the most mysterious object in the world. This is why in each single deed, action, act of vital activity and life creation a human being "feels oneself a part of this powerful life impulse" (Blauberg, 2003), personifying in the process of life the creativity, endless development, unperceivable variety that is the infinite number of freedom degrees that defines unlimited possibilities of a human being.

It has been established that a high degree of human life-world stability and its constructive nature are the psychological conditions for the optimal combination of processes to achievement consistently high sports performances and maintain psychological health by future doctors.

References

- Blauberg, I.I. (2003). *Henri Bergson*. Moscow: Progress-Traditsiya.
- Deci, E., & Ryan, R. (1986). The dynamics of self-determination in personality and development. *Self-related cognitions in anxiety and motivation*. Hillsdale. 171-194.
- Loginova, I.O. (2012). Research of stability of the vital world of the person: technique and psychometric characteristics. *Psychological Science and Education*, 3, 18-28.
- Sirri, L., Fava, G.A. (2013). Diagnostic criteria for psychosomatic research and somatic symptom disorders. *Int Rev Psychiatry*. 25(1), 19-30.

DOES THE SENSE OF RELATIONAL ENTITLEMENT MEDIATE THE ASSOCIATION BETWEEN NARCISSISM AND COUPLE CONFLICT?

Octav Sorin Candea

Department of Psychology, Faculty of Psychology and Educational Sciences, Alexandru Ioan Cuza University of Iasi (Romania)

Abstract

Previous literature pointed out that narcissism affects the quality of interpersonal relationships. It has a negative impact on the functioning of the romantic dyads, determining higher levels of conflict and the use of maladaptive conflict resolution styles. However, the mechanisms linking narcissism and couple conflict are not sufficiently explored. This study expands the literature by examining the mediating role of the sense of relational entitlement. Participants in this study were 493 individuals (52.1 % women, M age = 22.39 years old) who were in a romantic relationship during the study (M relationship length = 26 months). The results indicated that some forms of relational entitlement mediated the link between narcissism and couple conflict. A person's narcissism was related to their level of couple conflict, excessive and assertive entitlement. Both types of entitlement were related to conflict but in opposite directions. Higher excessive entitlement was associated with higher conflict, while higher assertive entitlement was associated with lower conflict. The indirect effects through both types of entitlement were significant. Restricted entitlement was not associated with narcissism or couple conflict. This study showed that although narcissism can lead to higher levels of relational entitlement and conflict, not all forms of entitlement negatively contributed to couple conflict.

Keywords: *Romantic relationships, relational entitlement, narcissism, conflict.*

1. Introduction

Previous literature linked narcissism with a slew of interpersonal difficulties. Among these, one crucial negative outcome is couple conflict (Keller et al., 2014). Narcissists feel superior, are more aggressive, and have more chances to get involved in hostile behaviors toward their partners (Keller et al., 2014). Although the level of aggression can be an important mechanism that explains this relationship, other pathways were less explored. With this study, we propose a novel mediator of the link between narcissism and couple conflict. One's sense of entitlement can be seen as a facet of narcissism but the two do not completely overlap (Campbell et al., 2004). Thus, entitlement was used as a standalone concept and in recent years, it found its application in various life domains, including the functioning of romantic relationships (Tolmacz & Mikulincer, 2011). A model by Tolmacz and Mikulincer (2011) proposes that people can show three types of a sense of relational entitlement (SRE). People with excessive SRE consider that their needs deserve to be satisfied regardless of the other's feelings. People with restricted SRE have a low sense of autonomy and prefer not to express their needs. Finally, the individuals with an assertive SRE make more realistic evaluations of what they are entitled to. Previous studies linked narcissism and SRE, and general entitlement and conflict (Harvey & Martinko, 2009; Tolmacz & Mikulincer, 2011). However, none tested these associations in a romantic domain and none used the sense of relational entitlement. In this study, we hypothesized that: (1) higher narcissism is related to higher SRE and to higher conflict; (2) higher SRE is related to higher conflict, and (3) SRE mediates the association between narcissism and conflict.

2. Method

2.1. Participants

The sample for this study consisted of 493 individuals (52.1 % women, $M_{age} = 22.39$ years old) who were in a romantic relationship during the study ($M_{relationship\ length} = 26$ months). All of them were students and were recruited by the researcher from a Romanian University. Their participation was voluntary. They completed the scales using an online platform and received course credit for their participation.

2.2. Instruments

Single-Item Narcissism Scale (SINS; Konrath, Meier, & Bushman, 2014). The scale was used to globally self-evaluate the level of narcissism. The single item scale (“To what extent do you agree with this statement; “I am a narcissist [Note: The word ‘narcissist’ means egotistical, self-focused, and vain]”), measured on a scale from 1 (not very true of me) to 7 (very true of me), has the advantage of being more time effective and less resource consuming for participants in large studies. Moreover, the authors showed that the scale has good convergent, discriminant and construct validity.

Sense of Relational Entitlement Scale (SRE; Tolmacz & Mikulincer, 2011). This scale was used to measure the level of relational entitlement. The Romanian version of the scale (Candel, 2018) contains 18 items scored from 1 (not at all) to 7 (very much). Eight items measure excessive entitlement (for the present study, $\alpha = .84$), seven items measure assertive entitlement ($\alpha = .73$) and 3 items measure restricted entitlement ($\alpha = .76$).

Conflict scale (Gordon & Chan, 2016). To assess couple conflict, we used an instrument containing six items, rated on a 7-point scale (1 - strongly disagree, 7 - strongly agree). For this study, $\alpha = .85$.

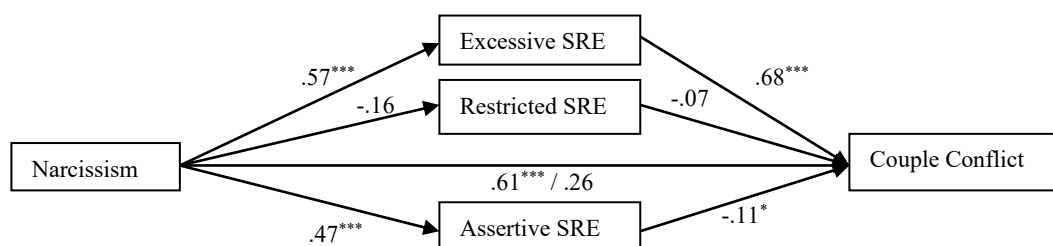
2.3. Statistical analyses

The preliminary and correlational analyses were computed using the IBM SPSS 21 software. The hypotheses were verified using the Process macro. Narcissism was introduced as the predictor, couple conflict as the outcome and the three dimensions of relational entitlement were used as parallel mediators. The software allows calculating both direct and indirect effects. Bootstrapped confidence intervals were used to empirically validate the indirect effects. In order to be significant at a $p < .005$, the CI must not include 0.

3. Results

A series of Independent-sample T tests showed that women, compared to men, have higher scores at excessive ($t = -4.74, p < .001$) and assertive SRE ($t = -4.87, p < .001$). The age of the participants significantly and negatively correlated with their level of restricted entitlement ($r = -.10, p = .028$). The length of the relationships did not correlate significantly with the variables of interest. Narcissism correlated significantly and positively with excessive SRE ($r = .14, p = .002$), assertive SRE ($r = .15, p = .001$) and conflict ($r = .15, p = .001$). Also, conflict correlated significantly and positively with excessive ($r = .62, p < .001$) and assertive SRE ($r = .14, p = .001$). We found significant correlations between excessive SRE ($r = .18, p < .001$) and the other forms of SRE, restricted and assertive ($r = .35, p < .001$).

Figure 1. Mediation model. On the path between Narcissism and Couple Conflict, the first value represents the total effect and the second value represents the direct effect. Note. *** $p < .001$; ** $p < .01$; * $p < .05$.



Although restricted entitlement did not correlate significantly with the predictor or the outcome, we decided to keep it in the model in order to test the hypothesized model as we predicted it. We also included the participants' sex and the length of the relationship as control variables. The model explained 40 % of the variation in couple conflict ($R^2_{adj} = .40$). We found that both excessive and assertive SRE mediated the relationship between narcissism and couple conflict. More information about the total and direct effects can be found in Figure 1. The indirect effects from narcissism on couple conflict, through excessive SRE ($b = .39, 95\% \text{ CI } [.19; .63]$) and assertive SRE ($b = -.05, 95\% \text{ CI } [-.11; -.01]$) were significant, but in opposite directions.

4. Discussion

Firstly, the role of narcissism in interpersonal conflict is well established in the literature and this study only confirms previous findings showing the maladaptive contribution of narcissism (Keller et al.,

2014). Also, the link between narcissism and entitlement was previously explored (Campbell et al., 2004; Tolmacz & Mikulincer, 2011). This study adds to the existing literature by confirming that narcissism predicts higher levels of excessive and assertive SRE, but is unrelated to restricted SRE. Individuals with high levels of restricted SRE are shy, cautious, and introverted. However, their limited entitlement does not necessarily come from a lack of narcissism. On the contrary, narcissistic individuals seem to show higher levels of excessive and assertive SRE. Narcissists usually put themselves first and consider they are more important than others, and this attitude might also translate into the romantic domain by determining higher levels of SRE. However, it is important how people report to and transmit their expectations to their partners. While individuals with excessive SRE might be unapologetically self-centered and extremely sensible to every transgression, a more assertive type of SRE might determine individuals to be more attentive when expressing their needs. Assertive SRE was related to higher consciousness and self-esteem and not related to attachment issues (Tolmacz & Mikulincer, 2011). The differences in how these categories of entitled individuals treat their partners might also explain the different ways in which they link narcissism and couple conflict. On the one hand, the narcissists with high levels of excessive SRE demand everything from their partners and respond very negatively when their partners do not respond as they wish. Thus, their excessive needs and expectations can lead to conflicts. On the other hand, the narcissists that are more assertively entitled might express their needs in an adaptive manner, without hurting their partner. Thus, the way they communicate their needs can determine more caring responses from their partners, which might reduce the conflict when it appears.

This study is important in showing the pathways that link narcissism and conflict in romantic couples. However, it is not without its limitations. Firstly, we used a single item to assess narcissism, and although the scale is psychometrically sound, a more complex measure might have provided a more complex view on narcissism. Secondly, the participants were relatively young and their relationships were relatively new. Thus, some of them might still be in the “honeymoon” period, when their satisfaction is high and their conflict is low. A more experienced sample would probably report higher levels of conflict and other relationships might also be different.

With this research, we should that narcissists are generally more entitled to good results in their relationship. Their personality might also lead to more frequent and intense conflicts. However, expressing their needs and expectation from the partners is not inherently bad. When they communicate their needs in a more assertive and adequate way, they might even reduce their level of conflict.

Acknowledgements

This work was supported by a grant of the "Alexandru Ioan Cuza" University of Iasi, within the Research Grants program, Grant UAIC, code GI-UAIC-2020-01.

References

- Campbell, W. K., Bonacci, A. M., Shelton, J., Exline, J. J., & Bushman, B. J. (2004). Psychological entitlement: Interpersonal consequences and validation of a self-report measure. *Journal of personality assessment*, 83(1), 29-45.
- Candel, O.S. (2018). Sense of Relational Entitlement – Romanian version. Factor structure and associations with romantic attachment and dyadic satisfaction. In R. Ungureanu & M. Mocanu (Eds.), *Proceedings of CIEA 2018. The Fifth International Conference on Adult Education. Education for values - continuity and context (Iasi, 2018)* (79-86). Bologna, Italy: EDlearning.
- Gordon, A. M., & Chen, S. (2016). Do you get where I'm coming from?: Perceived understanding buffers against the negative impact of conflict on relationship satisfaction. *Journal of personality and social psychology*, 110(2), 239-260.
- Harvey, P., & Martinko, M. J. (2009). An empirical examination of the role of attributions in psychological entitlement and its outcomes. *Journal of organizational behavior*, 30(4), 459-476.
- Keller, P. S., Blincoe, S., Gilbert, L. R., Dewall, C. N., Haak, E. A., & Widiger, T. (2014). Narcissism in romantic relationships: A dyadic perspective. *Journal of social and clinical psychology*, 33(1), 25-50.
- Konrath, S., Meier, B. P., & Bushman, B. J. (2014). Development and validation of the single item narcissism scale (SINS). *PLOS one*, 9(8), e103469.
- Tolmacz, R., & Mikulincer, M. (2011). The sense of entitlement in romantic relationships—Scale construction, factor structure, construct validity, and its associations with attachment orientations. *Psychoanalytic psychology*, 28(1), 75-94.

MUSIC AS A TREATMENT FOR BORDERLINE PERSONALITY DISORDER SUFFERERS WHO HAVE DEVELOPED CARDIOMETABOLIC SYNDROME

Esther Hunter

Southern Cross University (Australia)

Abstract

Research demonstrating the ability of music to reach the older parts of the brain responsible for emotional processing make a case for utilising specific musical compositions to deliver treatment to people with Borderline Personality Disorder. BPD has been linked to an increased risk of Cardiometabolic Syndrome (CMS), as traumatic experiences in childhood predict adverse mental and physical health in adulthood including Personality Disorders. BPD sufferers who develop CMS as a result of impulsive lifestyle choices may have their recovery inhibited by the effects of CMS. Dieting may be particularly difficult for people with BPD as food serves as a way to soothe emotional pain and depression. Emotional pain leads to making choices which increase the chances of developing health conditions which research has shown negatively affect mood and memory function. Remission of BPD requires maintaining a reduction in impulsive lifestyle choices. Traditional treatments such as CBT require the patient to utilise their own degree of cognitive abilities (willpower), which may not be functioning well due to poor health. A direct line to brain areas such as the amygdala could circumnavigate the necessity to use slower cortical areas when reprogramming the patient towards healthier decision-making. This presentation will provide suggestions for how to integrate therapy into tailored songs.

Keywords: *Borderline personality disorder, memory, decision making, music therapy, CBT.*

1. Introduction

Borderline Personality Disorder (BPD) has received the most attention from researchers due to its clinical difficulties (Paris, 2019). BPD is associated with higher rates of Cardiometabolic Syndrome (CMS), which negatively affects cognitive functioning. Cognitive function is required for traditional treatments such as DBT and CBT to be effective. Trait impulsivity can result in making poor health decisions and increased substance abuse, which negatively impact cognitive functioning and as such may decrease the effectiveness of treatments such as CBT. Listening to music has been shown to release dopamine (Koelsch et al., 2006), which is a neurotransmitter that reinforces learning by connecting reward and motivation. Providing pleasurable treatment in the form of entertainment by composing songs specifically tailored to people with BPD aims to provide constructive assistance within the music.

2. The music

Music can be manipulated to induce physiological changes because of a phenomenon called entrainment, whereby respiration and heart rate synchronise to rhythm (Stegemoller, 2014). It was first discovered in 1666 that two pendulum clocks set on a flexible surface would always eventually start to synchronise (Rosenblum & Pikovsky, 2003). This phenomenon can also be observed in organisms. Autonomous oscillating systems within the human body, for example cardiac and respiratory functions, menstrual cycles, and the firing of neurons are all capable of moving around on their own or interacting with others (Trost, Labbé & Grandjean, 2017). The term *entrainment* has been used to describe this process by which the autonomous oscillating systems within the body synchronise to music. A state of relaxation can be produced in the body by reducing the BPM (beats per minute) of a song to 60 (equivalent to one beat per second) which is the average healthy resting heart rate for an adult (Ellis & Thayer, 2010). Therefore, the songs written for people with BPD aim to reach 60-80BPM to ensure listeners achieve this benefit. Fear, emotional turmoil, depression and impulsivity are traits which people with BPD exhibit. The composition process of the songs for people with BPD draws on research which indicates that mental and physical health are supported by the nervous system being in a calm state, and that music is a tool which can be utilised to reduce an organism's respiration and heart rate.

3. The physiology

The vagus nerve connects the brain to the heart, and is often called the pacemaker (Cyranowski et al., 2011). Its electrical signal delivery is protected by a layer of fatty tissue, the production and strengthening of which is achieved by adapting to a stable environment. The name given to the level of protection and effectiveness of the vagal nerve is called vagal tone. Low vagal tone contributes to how childhood trauma can be associated with adverse mental and physical health in adulthood. Low vagal tone may result in many of the same illnesses which commonly result from trauma and are associated with personality disorders. Slow-paced breathing is required to practice as a technique to strengthen vagal tone which improves overall health (Lehrer & Gevirtz, 2014). Infants who have been raised in a stable environment have learnt to breathe slowly and have good control over their Autonomic Nervous System (ANS) due to the human body's ability to match respiration and other automatic functions to other people around them. By utilising the body's natural proclivity to synchronise respiration to the beat in music, strategic compositions may strengthen vagal tone in listeners by setting the final tempo to a BPM of 60-80.

Entrainment may then serve as an important part of regulating emotions as well as supporting health (homeostasis within the organism) because of its ability to control the heart, and the heart's connection to the brain via the vagus nerve which improves cognitive functioning in preparation for any further psychological cognitive therapies. One must not separate the health of the body from the health of the mind. Instead, we should take advantage of their interconnectedness to better serve BPD sufferers. Music's connection to the amygdala is the mechanism by which the message inside a song is able to be more easily delivered to the listener.

4. Song content

Compositions specifically for people with BPD seek to bring awareness and understanding to sufferers about why they struggle to make healthy decisions, and then provide self-regulation advice. BPD sufferers are extremely sensitive to perceiving danger where there is not any because of their past history of trauma. Their hostile reactions in response to non-threatening situations stem from the psychological damage to their decision making processes. Humans make decisions by predicting future projections for the end result of each choice, which is calibrated based upon past experiences. For example, if you had your hand forced onto a hot stove every time you answered a maths question wrong as a child, you may feel physically nauseous at the sight of a math textbook as an adult. Your inappropriate recoiling or avoidance of equations would seem confusing to an outsider. Similarly, when soldiers return from combat they may recoil at the sound of a car exhaust pipe backfiring. When faced with a situation a healthy person may regard as normal, BPD sufferers may explode with a range of categorizable reactions due to their faulty decision-making process 'informing' their body that some form of danger is imminent when in fact it may not be (LeGris, 2018; Sobhani & Bechara, 2011). The early childhood experiences which have shaped the BPD sufferer's decision-making processes creates a subconscious paradigm which tells them the 'wrong' results to expect as an outcome of events and choices in adult life. Therapists are recommended to use songs to bring awareness to this mechanism by which the person with BPD is triggered and then reacts inappropriately. Specific examples may be drawn from the patient's recounted experiences. Research into brain function has given way to treatments which teach self-regulation by being aware of one's physiological reactions (van der Kolk, 2014; Axmacher et al., 2010; Chiesa & Serretti, 2011; Goodman & Calderon, 2012). Self-regulation will be a key skill to be included in the songs. Personality disorders are an example of maladaptive strategies; adaptations to a dysfunctional early environment which became static personality traits of the individual into adulthood.

5. Conclusion

Patients with BPD who suffer from CMS as a result of their impulsive lifestyle decisions may benefit from therapy being delivered in the form of music which connects to areas of the brain responsible for emotional processing. This method may be beneficial for use with patients diagnosed with other Personality Disorders. Therapists with an ability to compose music can compose simple songs to act as a carrier to deliver advice to BPD patients' emotional processing centers of the brain without needing to rely on healthy cognitive processing abilities. The lyrics should raise awareness to the listener about how to make healthier decisions and how to self-regulate their behaviour and emotions. These can be personal and specific to each client depending on their life experiences which brought them in for treatment. The music must be a tempo between 60-80BPM so that the listener's nervous system is brought into a relaxed state. Recommendations for future research include patients taking part in the composition process.

References

- Axmacher, N., Do Lam, A. T. A., Kessler, H., Fell, J. (2010). Natural Memory Beyond the Storage Model: Repression, Trauma, and the Construction of a Personal Past. *Frontiers in Human Neuroscience*, 4. doi:10.3389/fnhum.2010.00211
- Chiesa, A., Serretti, A. (2011). Mindfulness based cognitive therapy for psychiatric disorders: A systematic review and meta-analysis. *Psychiatry Research*, 187(3), 441–453. doi:10.1016/j.psychres.2010.08.011
- Cyranowski, J. M., Hofkens, T. L., Swartz, H. A., Gianaros, P. J. (2011). Thinking about a close relationship differentially impacts cardiovascular stress responses among depressed and nondepressed women. *Health Psychology*, 30(3), 276–284. doi.org/10.1037/a0023005
- Goodman, R., Calderon, A. (2012). The Use of Mindfulness in Trauma Counseling. *Journal of Mental Health Counseling*, 34(3), 254–268. doi:10.17744/mehc.34.3.930020422n168322
- Koelsch, S., Fritz, T., v. Cramon, D. Y., Müller, K., Friederici, A. D. (2006). Investigating emotion with music: An fMRI study. *Human Brain Mapping*, 27(3), 239–250. doi:10.1002/hbm.20180
- LeGris, J. (2018). Rapid emotional response and disadvantageous Iowa gambling task performance in women with borderline personality disorder. *Borderline Personality Disorder and Emotion Dysregulation*, 5(1). doi:10.1186/s40479-018-0092-x
- Lehrer, P. M., Gevirtz, R. (2014). Heart rate variability biofeedback: how and why does it work?. *Frontiers in psychology*, 5, 756. doi.org/10.3389/fpsyg.2014.00756
- Paris, J. (2019). Suicidality in Borderline Personality Disorder. *Medicina*, 55(6), 223. doi:10.3390/medicina55060223
- Rosenblum, M., Pikovsky, A. (2003). Synchronization: From pendulum clocks to chaotic lasers and chemical oscillators. *Contemporary Physics*, 44(5), 401–416. doi:10.1080/00107510310001603129
- Sobhani, M., Bechara, A. (2011). A somatic marker perspective of immoral and corrupt behavior. *Social Neuroscience*, 6(5-6), 640–652. doi:10.1080/17470919.2011.605592
- Stegemoller, E. L. (2014). Exploring a Neuroplasticity Model of Music Therapy. *Journal of Music Therapy*, 51(3), 211–227. doi:10.1093/jmt/thu023
- Trost, W. J., Labbé, C., Grandjean, D. (2017). Rhythmic entrainment as a musical affect induction mechanism. *Neuropsychologia*, 96, 96–110. doi:10.1016/j.neuropsychologia.2017.01.004
- van der Kolk, B. A. (2014). *The body keeps the score: Brain, mind, and body in the healing of trauma*. New York: Viking.

‘I AM NOT A MONSTER’: THE LINGUISTIC STIGMA OF BORDERLINE PERSONALITY DISORDER

Kaja Widuch

University College London (UK)

Abstract

Borderline Personality Disorder is arguably the most distressing disorder amongst the DSM diagnoses for all involved. Although psychiatric labelling can be validating it is often stigmatising. Due to the nature of BPD, people living with the disorder (PBPD) tend to be marginalized and discriminated against. A quick and random review of the World Wide Web (including a selection of popular social media platforms) reveals a common linguistic theme in describing BPD. PBPD are ‘toxic’, ‘difficult’ and ‘manipulative. Other labels, more diagnostically - oriented see PBPD as the ‘PDs’ or ‘the borderlines’. These also carry negative connotations of the inner and outer groups - ‘us’ vs ‘them’. Given the nature of the labels, recovery for PBPD is often dubious. One might think - ‘I am a monster anyway’, a classic example of cognitive dissonance. The language used in clinical practice as well as out of it is a powerful weapon. Some might poetically describe BPD as a lethal cocktail of blended psychopathologies with the ingredients including chronic suicidality, abandonment and intermittent lucidity to name a few. Of note, externalising such pathologies in an adaptive way is almost a fantasy for the therapy team. A more user friendly descriptive diagnosis is ‘difficulty in emotion regulation’. However, probably the most accurate ‘label’ of BPD for PBPD is ‘living in acute pain’. The current climate and the uncertainty surrounded the ongoing COVID-19 pandemic has meant a significantly increased risk not only in symptoms remission but also in the increase in cyber-bullying and suicidality rate. The pandemic has also put a halt to the Participant and Public Involvement in the evidence based practice. Linguistic shift in reducing stigma is essential and of immediate need.

Keywords: *Borderline personality disorder, BPD, stigma, linguistic-labelling, linguistic-shift.*

1. Introduction

Borderline Personality Disorder (BPD) is a disorder of chronic instability, impulsivity and hypersensitivity to possible rejection and abandonment (American Psychiatric Association, 2013). A key to understanding BPD is recognizing its ‘socio-emotional’ vulnerability is organic, with most symptoms triggered, exacerbated and perpetuated by intimate relationships. Evidence to date attributes the aetiology of BPD to early developmental traumas, experienced pathologies and caregiver neglect (e.g. Zanarini et al., 1997). The inherent emotional dysregulation means PBPD are particularly vulnerable to harm from self and others through maladaptive coping behaviors or stigma (e.g. suicidal attempts, ‘trolling’).

Historically, BPD has been highly stigmatized, predominantly due to its complex nature and poor patient outcomes (Aviram et al., 2006). Linguistically, BPD stigma has formed through language evolution i.e, when a denotative meaning adopted a new negative connotative meaning (e.g. evil) The ‘border line’ label itself was first originated by Adolph Stern (1938) a pioneer psychoanalyst who described PBPD as ‘extremely difficult to handle’. Ever since, BPD stigma advanced beyond ‘difficult’. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013) for instance openly refers to individuals with BPD as ‘manipulative’. Stigmatising labels of BPD can lead to ‘spoilt identity’ (Goffman, 1963) or self-inflicted via cognitive dissonance (Festinger, 1962).

Functionally, stigma itself has a segregative nature (Tajfel & Turner, 1986). Literature suggests there is a particular ‘splitting’ jargon used to speak of PBPD. Although little is known of linguistic-stigma of BPD, Interdisciplinary literature on negativity bias (Rozin & Royzman, 2001) effects of hurtful words (Vangelisti & Young 2000) and toxic speech (Tirrell, 2018) suggest language is a powerful and destructive tool. Crocker & Smith (2019) previously pointed out the existing need of linguistic-shift in current mental health practice and disabilities care.

As linguistic-stigma is a novel concept this project aimed to explore the semantic profile associated with BPD stigma. Data gathered was interpreted using qualitative methodology from linguistic standpoint and discussed in terms of BPD vulnerability and existing cross-disciplinary knowledge.

2. Methods

2.1. Literature review

To establish a stereotypical profile of a person living with BPD, peer-reviewed publications were reviewed for content. The review was initiated with a keyword search using Boolean operators followed by a backward and forward citation search. The desired key terms were 'borderline personality disorder' AND 'stigma' OR 'stereotype'.

2.2. Autocomplete engine search

Three top search engines were used to examine trends. (Google, Bing and Yahoo). Search suggestions were tested for the following search string variations: 'borderline personality disorder is', 'borderline(s) is/are' and 'BPD(s) is/are'. To avoid bias, the researcher's browsing history was cleared prior to each search and all search activities were carried out in the Incognito mode.

2.3. Social media review

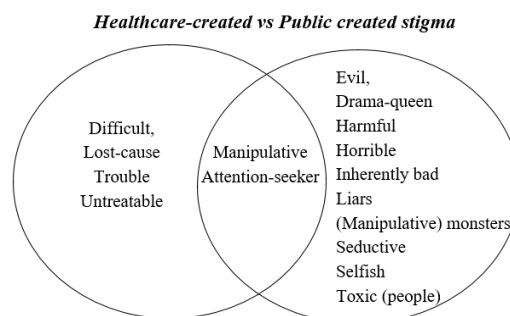
Tweets, posts and comments were scrutinized for stigmatizing content across the three popular social media platforms (Twitter, Facebook and Instagram) targeting 'Borderline Personality Disorder', 'BPD(s)' and 'borderline(s)' keywords and hashtags. Snowballing method was applied to the primary search results.

3. Results

The results suggest the linguistic-stigma of BPD is multidimensional:

1. Dehumanizing via diagnostic labelling
2. Out-casting via antagonistic lexemes (and diagnostic labelling)
3. Entrenched via semantic shift
4. Intensified via figurative speech
5. Via BPD analogy

Figure 1. Linguistic profile of a person living with Borderline Personality Disorder.



4. Discussions and conclusions

The results of this pilot project provide preliminary evidence of a distinctive, multidimensional linguistic profile of BPD stigma. Although plausible, it should be noted the results are presumptive and a mere snapshot of current lexicalization patterns. It should also be acknowledged, it was not possible to extrapolate demographic characteristics of the data collected. Age, educational level and lived experience of BPD may be important predictors of semantic-shift in stigmatisation process.

There are evident disparities in the linguistic focus of BPD across therapeutic and public settings. While diagnostic labels lead the psychiatric medical model, psychological therapies prefer phenomenologically oriented descriptive case-conceptualization approach. Functionally, diagnostic labelling does aid evidence-base-practice and thus the choice of therapeutic intervention. BPD 'membership' on the other hand allows the coalition of support groups and networking among PBPD. Yet, these labels are still a powerful tool used to segregate psychiatric from non-psychiatric populations

(Goffman, 1963 Paradoxically, there is an analogy between the BPD and labelling – labels are ‘splitting’ (they either good or bad).

The cluster of lexemes used to describe PBPD available in the public domain appears to be more antagonistic and critical compared to statements reported by healthcare professionals reported through research publications. Intersecting labels across the two domains seems to be minimal and these tend to be stereotypical (e.g. attention-seeker, manipulative). The public tend to be rather liberal in BPD lexicalisation and depict PBPD as malevolent individuals while healthcare professionals see these clients as inconvenience, a hopeless case or a nuisance. However, it cannot be concluded the derogatory statements, available in the virtual public domain do not belong to healthcare professionals (e.g. tweets).

The diversity of lexical variation in English language enabled linguistic stigma of BPD to evolve and ingrain further through semantic shift - the adjective ‘toxic’ is now commonly associated with BPD or BPD relationships. Moreover, BPD lexicalisation seems to be intensified via sophisticated epithets (toxic people) metaphors (evil, monsters) or alliterations (manipulative monster). Though, it was not the primary focus of this project, it was noted during data collection the stigmatizing lexemes evoke feelings of rejection, anger, hurt and frustration among PBPD. Such reaction to hate speech is congruent with Vangelisti & Young (2000) notion ‘words hurt’ and ‘us/them dichotomization’ (Tajfel & Turner 1986; Tirrell, 2018). The power of stigma seems to have also resulted ‘spoilt identities’ (Goffman, 1963) with many PBPD identifying as ‘toxic’. Others might defend and excuse their BPD labels through cognitive dissonance mechanism (Festinger, 1962) - ‘I am incurable anyway so therapy is pointless’.

Endorsing the antagonistic language towards people living with BPD appears to contribute to maintaining mental health stigma, social isolation and barrier to therapy. Eliminating social stigma should be shared responsibility among service users, public and professionals alike. Given the hypersensitive nature of BPD public health policy makers should consider implementing stern boundaries across social media platforms, search engines and professional resources to protect this particularly vulnerable group who are at significant risk to own’s safety, especially now during current pandemic climate. Universal linguistic-shift of compassion, empathy, mindfulness and respect would be a significant step in eradicating the use of dehumanizing and prejudicial statements towards PBPD.

The follow up study will seek to develop a standardized reliable instrument to measure the psychological effects of linguistic-stigma in people living with Borderline Personality Disorder.

References

- American Psychiatric Association (2013) *Diagnostic and Statistical Manual of Mental Disorders: Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition. Arlington, VA: American Psychiatric Association
- Aviram RB, Brodsky BS, Stanley B. (2006) Borderline personality disorder, stigma, and treatment implications. *Harvard Review of Psychiatry*, 14(5)249–21.
- Crocker, A.F., Smith, S.N. (2019). Person-first language: are we practicing what we preach? *Journal of Multidisciplinary Healthcare*, 12: 125–129.
- Festinger, L. (1962). Cognitive dissonance. *Scientific American*, 207(4): 93–107.
- Goffman E. (1963) *Stigma: Notes on the management of spoiled identity*. Prentice-Hall; Englewood Cliffs
- Rozin, P., Royzman, Edward B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and Social Psychology Review*, 5 (4): 296–320.
- Stern A. (1938) Psychoanalytic investigation of and therapy in the borderline group of neuroses. *Psychoanalysis Quarterly*, 7:467–489.
- Tajfel, H. & Turner, J. C. (1986). The social identity theory of inter-group behavior. In S. Worchel & W. G. Austin (Eds.), *Psychology of Intergroup Relations*. Chicago: Nelson-Hall.
- Tirrell, L., (2018) Toxic speech: Inoculations and antidotes. *The Southern Journal of Philosophy* 56, 116-144, 2018. 9,
- Vangelisti, A. L., & Young, S. L. (2000). When words hurt: The effects of perceived intentionality on interpersonal relationships. *Journal of Social and Personal Relationships*, 17(3), 393–424.
- Zanarini, M. C., et al. (1997). Reported pathological childhood experiences associated with the development of borderline personality disorder. *The American Journal of Psychiatry*, 154(8), 1101–1106.

CHARACTERISTICS OF RESILIENCE IN HONG KONG OLDER ADULTS: A QUALITATIVE STUDY

Pak Kwong Chung^{1,3,*}, Chun Hu^{2,4}, & Chun-Qing Zhang^{2,5}

¹DPE.

²Ph.D

³Department of Sport, Physical Education and Health, Hong Kong Baptist University, Hong Kong (China)

⁴Student Mental Health Education Center, Northwestern Polytechnical University, Xi'an (China)

⁵Department of Psychology, Sun Yat-sen University, Guangzhou (China)

Abstract

Introduction: Resilience, which is defined as the process of adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress, is important for older adults to maintain a healthy life. This qualitative study aimed to identify the characteristics that contribute to resilience among a group of community-dwelling older adults in Hong Kong.

Methods: Individual and focus group interviews were conducted to collect information on life adverse events, attitudes towards adversity, and beliefs underlying the approaches to overcoming adversity among 25 Chinese older adults (2M and 23F) aged 69 to 100 years old (M=80.00, SD=39.08). The transcripts were analyzed using qualitative content analysis.

Results: Seven characteristics were emerged under the three factors, including equanimity, positive attitudes towards life, meaningfulness, and self-reliance (internal factor), social support and environmental support (external factor), and spirituality and faith (existential factor).

Conclusion: In addition to identifying the seven characteristics that contribute to resilience, this study also identified “taking part in physical activity” as an individual resource contributing to resilience. The study also found “government support” is an important environmental factor contributing to positive adaptation to stressful life of the elderly in Hong Kong. The results and findings may facilitate the development of interventions on enhancing older adults’ resilience.

Keywords: Resilience, adversity, older adults, qualitative study.

1. Introduction

When older adults face adversity, it is sometimes difficult for them to bounce back (Hildon, Smith, Netuveli, & Blane, 2008). Under these circumstances, resilience is a particularly important resource for the elderly people to encounter adversity. There is no uniform definition of resilience. It was initially considered as an ability to bounce back or cope successfully despite substantial adversity (Rutter, 1985). Other researchers have defined resilience as the outcome of successful adaptation in spite of threatening or challenging environment (Masten, Best, & Garmezy, 1990), as well as the process of adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress (Tugade & Fredrickson, 2004). Although there is substantial evidence that resilience is a synthesis of a variety of resources, the knowledge of resilience in older adults in a Chinese cultural context such as Hong Kong is insufficient (Cheung & Kam, 2012). This qualitative study aimed to identify the characteristics that contribute to resilience among a group of community-dwelling older adults in Hong Kong.

2. Methods

Convenience sampling was used to recruit older adults from the community senior centres in Hong Kong, with the following criteria: (a) Hong Kong Chinese older adults who were at least 65 years old; (b) able to speak Cantonese; and (c) had good visual or auditory acuity or fundamental literacy. A total of 25 older adults (2M and 23F) aged 69 to 100 years old (M=80.00, SD=39.08). The participants were recruited according to the principle of voluntariness and their data were kept confidential. Informed

*Corresponding author: pkchung@hkbu.edu.hk

consent letters were signed before the interviews. The semi-structured individual interviews and focus groups were subsequently conducted in the centres. The interview recordings were transcribed verbatim and the transcripts of the interviews were analyzed using qualitative content analysis. The analytic induction to describe the perceptions of participants' perspectives (Elo & Kyngäs, 2008) was adopted. Data was analyzed independently by two coders with psychology background and expertise in resilience. Consensus were reached after discussion between the two coders. Remained discrepancies were resolved by consulting a third coder who is a psychology professor with expertise in resilience.

3. Results

As reflected by the interviewees, resilience was a dynamic process that occurs over time and that involved different factors of resilience that could be internal, external or existential ones. Accordingly, seven themes were identified, including equanimity, positive attitudes towards life, meaningfulness, self-reliance, social support, environmental support, spirituality and faith.

4. Discussion

The current qualitative study has developed systematic descriptions of sources of resilience from the perspective of older adults in Hong Kong. For example, 'contentment is happiness' and 'live in the moment' could be considered specific instances of the source described in the literature as 'focus on the present' (Lopez-Fuentes & Calvete, 2015). In addition, it is found that spirituality and faith are an existential source of resilience, which has been discussed in the literature as a helpful factor in coping with diseases (Pentz, 2005). Another contributor to resilience identified was 'taking part in physical activity', which has also been found in a previous study (Takahashi et al., 2016), although it has sometimes been classified as an individual resource (Lopez-Fuentes & Calvete, 2015). Lastly, it should be emphasized that the current study is the first that identifies government support as an important factor in environmental support, which contributes to positive adaptation to the stressful life of the elderly in Hong Kong.

5. Conclusion

The current study identifies seven characteristics that contribute to resilience, including equanimity, positive attitudes towards life, meaningfulness, self-reliance, social support, environmental support, spirituality and faith. The findings may facilitate the development of interventions on enhancing older adults' resilience in Hong Kong or other places.

References

- Cheung, C., & Kam, P. K. (2012). Resiliency in older Hong Kong Chinese: Using the grounded theory approach to reveal social and spiritual conditions. *Journal of Aging Studies, 26*(3), 355–367.
- Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing, 62*(1), 107–115.
- Hildon, Z., Smith, G., Netuveli, G., & Blane, D. (2008). Understanding adversity and resilience at older ages. *Sociology of Health & Illness, 30*(5), 726–740.
- Lopez-Fuentes, I., & Calvete, E. (2015). Building resilience: A qualitative study of Spanish women who have suffered intimate partner violence. *American Journal of Orthopsychiatry, 85*(4), 339–351.
- Masten, A. S., Best, K. M., & Garmezy, N. (1990). Resilience and development: Contributions from the study of children who overcome adversity. *Development and Psychopathology, 2*, 425–444.
- Pentz, M. (2005). Resilience among older adults with cancer and the importance of social support and spirituality-faith. *Journal of Gerontological Social Work, 44*(3–4), 3–22.
- Rutter, M. (1985). Resilience in the face of diversity: protective factors and resistance to psychiatric disturbance. *British Journal of Psychiatry, 147*, 598–611.
- Takahashi, K., Sase, E., Kato, A., Igari, T., Kikuchi, K., & Jimba, M. (2016). Psychological resilience and active social participation among older adults with incontinence: A qualitative study. *Aging & Mental Health, 20*(11), 1167–1173.
- Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology, 86*(2), 320–333.

LONGITUDINAL EFFECT OF THE PUNAV PREVENTION PROGRAM ON NORMATIVE BELIEFS AND ALCOHOL USE AMONG UNIVERSITY STUDENTS

Ondrej Kalina, Lucia Barbierik, & Jozef Benka

Department of Educational Psychology & Health Psychology, Faculty of Arts, P.J. Safarik University in Kosice (Slovakia)

Abstract

The universal Prevention Program of Substance Use among University Students (PUNAV) is based on the strategy of correcting normative beliefs (NBs) regarding alcohol use. The current research shown that NBs are a significant factor in relation to alcohol consumption. This study has explored whether a change of NBs is associated with a decrease of alcohol use among university students.

The data used in this study were collected before the implementation of PUNAV in September 2018 (N=137, Mage = 21.9, 77% women) and 18 months later after the implementation of the program in March 2020 (N=54, 77% women). Participants provided information on alcohol consumption, alcohol dependence, alcohol harmful use and descriptive NBs regarding alcohol consumption. The level of NBs at T2 was subtracted from level of NB at T1 (T1 – T2) to identify changes in NBs over time. Using SPSS 21, a linear regression model which controlled for the level of the outcome variables at T1 and observed changes in NBs were used to predict the outcome variables measured at T2.

Alcohol consumption and NBs after PUNAV decreased alcohol consumption but increased the dependence and alcohol harmful consequences. The regression model, which controlled for alcohol use at T1, showed that a significant change in NBs was negatively associated with alcohol consumption at T2. The findings have in general shown that the observed changes in NBs (corrected NBs) were more likely to decrease alcohol consumption among university students.

Keywords: *Prevention, university students, alcohol use, normative beliefs.*

1. Introduction

The Universal Prevention of Substance and AIDS Prevention Program (PUNAV) among University Students is a 24-hour experiential learning course, primarily aimed at developing the competencies of future prevention trainers. The program uses a strategy of disseminating information, developing life skills and resisting social impact. Strategy of disseminating information is based on workshops with professionals in psychological, pedagogical, medical and legal-criminal aspects of prevention. Strategy of social influence and development of life skills are normally experienced as 12 two-hour long interactive lectures in three-day long training. The training is realized under the supervision of experienced lecturers and includes topics as normative beliefs, refusal skills, assertiveness, decision-making, coping strategies, goal setting. It has been found that after the implementation of the program a significant change in perceived lecturer competencies occurred at the level of overall capabilities as well as at the level of individual competences. Participants who had completed the program considered themselves to be more capable of realizing experiential group activities, promoting assertiveness in students, creative thinking, critical thinking, self-control and expressing emotions but also of providing information on different types of addictive substances (Dobrowolska Kulanová, Štefaňáková, & Orosová, 2019). Thus, it might help future teachers, social workers, school psychologists or prevention co-ordinators to improve their skills in prevention of risk behavior. Another perspective of effectiveness of the PUNAV program lies in its effect on risk behavior of students themselves. One of the basic strategies used in the program is to try to correct normative beliefs about risky behavior. Normative beliefs about risky behavior, when overestimated, might predict risky behavior (Stone et al, 2012; Brutovská, Orosová, Kalina, 2016). It has been shown that there is a lower level of normative beliefs concerning several forms of risk behavior among those who completed the PUNAV program (Kulanová et al., 2018). It has also been found that the risk behavior regarding alcohol use has been decreased among men instantly after the participation on the

program (Dobrowolska-Kulanová, Štefaňáková, Orosová, 2019). The importance of the level of normative beliefs about alcohol use in the alcohol consumption has been also outlined by the previously mentioned research study. The current study however addresses the longitudinal effect of the PUNAV program on risk behavior (alcohol use, alcohol dependence and alcohol harmful consequences) with the specific role of normative beliefs change overtime. Therefore, this study aims to explore whether a change of NBs (T1 –T2) is associated with a decrease of alcohol use among university students.

2. Methods

2.1. Sample

We compared students who complete and did not complete PUNAV prevention program. The total number of involved students was 249 (Mage = 21.66, SD = 2.12), of which 137 students (Mage = 21.9, 77% women) completed the PUNAV (experimental group) and 112 students (control group), (Mage = 22.17, SD = 2.48). Online data collection was used. The first data collection (T1) for both groups started before the implementation of PUNAV in September 2018 and second data collection (T2) took place 18 months later after the implementation of the program in March 2020.

2.2. Measures

Descriptive normative beliefs regarding alcohol use were measured by the question: "How many students at your university do you think drink alcohol regularly?" Four-point scale was used (from 1-nobody to 4-most of them). The level of NBs at T2 was subtracted from level of NB at T1 (T1 – T2) to identify changes in NBs over time. The Cronbach's alpha was 0.66.

Alcohol consumption was measured by the Alcohol Use Disorders Identification Test (AUDIT) AUDIT (Babor, Eiddle, Saunders, & Monteiro, 2001). This is a 10-item alcohol screening test which detects risky drinking. Three types of outcome measures were used as proposed in AUDIT: (1) hazardous alcohol use (conceptualized in the current study as alcohol consumption); (2) dependence symptoms and (3) harmful alcohol use. Hazardous alcohol use - 3 items (frequency of drinking, typical quantity, frequency of heavy drinking) was evaluated on a 5-point scale from 0 to 4; Dependence symptoms – 3 items (impaired control over drinking, increased salience of drinking, morning drinking) evaluated on a 5-point scale from 0 to 4; Harmful alcohol use – 4 items (guilt after drinking, blackouts, alcohol-related injuries, others concerned about drinking). The sum score ranges from 0-12 for hazardous alcohol use and for dependency symptoms and from 0-16 for harmful alcohol use. A higher value in each domain represents a higher level of use or symptoms. Cronbach's alphas ranged from 0.67 to 0.72.

2.3. Statistical analyses

Firstly, we selected only those respondents which completely answered the questionnaire regarding problem behavior and other explored variables at T1 and T2. After that using regression models we explored whether a change of NBs (T1 –T2) is associated with a decrease of alcohol use among university students in three different alcohol use patterns – (1) alcohol consumption; (2) dependence symptoms and (3) harmful alcohol use.

3. Results

As shown in Table 1, alcohol consumption and normative beliefs decreased in experimental group. Interestingly, dependence symptoms and harmful alcohol use after 18 months increased. We may assume that those students which initially drinks more due to several reasons (e.g. no parental supervision, overestimated peers drinking etc.) are more likely to be prone to alcohol norms correction program that those which are more likely to be prone to dependence and harmful use. As it was expected the levels of normative beliefs decreased in experimental group – Table 2. The amount of such decline was significantly associated with decrease of alcohol use in experimental group but not in control group.

4. Discussion and conclusion

The results of this study indicate that norms correction may have a significant impact on alcohol use among young students. Our results are in line with previous studies (Brutovska, Orosova, Kalina, & Sebená, 2015; Helmer et al., 2016) which supports the protective effects of alcohol norms correction on actual alcohol use. The research findings can also be used by the developing the prevention and intervention programs. It is well-known that descriptive normative beliefs largely contribute to alcohol use (Stone et al., 2012) and that making descriptive normative beliefs more accurate lead to a decrease in alcohol use (Moreira et al., 2010).

Table 1. Descriptive characteristic of alcohol use and normative beliefs.

| | Alcohol consumption | | Dependence | | Harmful use | | Normative beliefs | |
|------------------|---------------------|-----------|------------|-----------|-------------|-----------|-------------------|-----------|
| | M(SD) | | M(SD) | | M(SD) | | M(SD) | |
| | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 |
| Experiment group | 7.1(2.24) | 6.6(2.11) | 3.5(1.15) | 4.1(2.01) | 5.2(1.61) | 5.4(2.22) | 3.5(0.68) | 3.1(0.68) |
| Control group | 7.3(2.35) | 7.1(2.61) | 3.6(1.39) | 3.8(1.30) | 5.4(2.38) | 5.8(2.03) | 3.2(0.78) | 3.2(0.75) |

Table 2. Regression models predicting harmful alcohol consumption.

| | | Alcohol consumption at T2 | |
|--------------------|---------------------------|---------------------------|--------|
| | | β | t |
| Experimental group | Alcohol consumption at T1 | ***0.746 | 6.24 |
| | NBs (T1-T2) | *-0.275 | -2.304 |
| Control group | Alcohol consumption at T1 | ***0.721 | 4.661 |
| | NBs (T1-T2) | 0.268 | 1.733 |
| | | Dependence at T2 | |
| Experimental group | Dependence at T1 | **0.597 | 3.769 |
| | NBs (T1-T2) | -0.145 | -0.915 |
| Control group | Dependence at T1 | **0.559 | 2.633 |
| | NBs (T1-T2) | 0.11 | 0.518 |
| | | Harmful use at T2 | |
| Experimental group | Harmful use at T1 | ***0.802 | 6.512 |
| | NBs (T1-T2) | -0.027 | -0.222 |
| Control group | Harmful use at T1 | ***0.901 | 8.016 |
| | NBs (T1-T2) | 0.014 | 0.122 |

*p <.05, **p<.01, ***p<.001

Acknowledgements

This work was supported by the scientific grant agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic and of Slovak Academy of Sciences under contract no. VEGA 1/0371/20 and by the Slovak Research and Development Agency under the contract no. APVV-15-0662.

References

- Babor, T., Eiddle, J.H., Saunders, J., & Monteiro M. (2001). The alcohol use disorders identification test – Guidelines for use in primary care – Second Edition. World Health Organization: Department of Mental Health and Substance Dependence.
- Brutovská, M., Orosová, O., & Kalina, O. (2016). Normatívne presvedčenia ako moderátor vzťahu postoja a konzumácie alkoholu u slovenských vysokoškolákov. *Československá psychologie*, 60, 266-277.
- Dobrowolska-Kulanová, M., Štefaňáková, M., & Orosová, O. (2019). Lektorské kompetencie vysokoškolákov v programe PUNAV. In: Šejvl, J. (Ed.) Kvalita v prevencii je nejlepší investicí do budoucnosti: Reflexe tvorby a vývoje politiky kvality. http://www.pprch.cz/d/doc_file_428_a7d1e139dd622bc2b5854714f9695a8a__pdf/Sbornik-konference-2019.pdf
- Dobrowolska-Kulanová, M., Štefaňáková, M., & Orosová, O. (2019). Effectiveness of the universal substance use prevention program on alcohol consumption among adults. *European Journal of Public Health*, 29, 554.
- Helmer, S.M., Sebena, R., McAlaney, J., Petkeviciene, J., Salonna, F., Lukács, A., & Mikolajczyk, R.T. (2016). Perception of High Alcohol Use of Peers Is Associated With High Personal Alcohol Use in First-Year University Students in Three Central and Eastern European Countries. *Substance Use & Misuse*, 51(9), 1224-1231. <https://doi.org/10.3109/10826084.2016.1162810>
- Kulanová, M., Štefaňáková, M., Orosová, O., & Hricová, L. (2018). Vzdelávanie v prevencii medzi vysokoškolákmi. *Adiktologie v preventívni a léčebné praxi*, 1, 201.
- Moreira, M.T., Smith, L., & Foxcroft, D. (2010). Social norms interventions to reduce alcohol misuse in University or College students. Retrieved from <http://summaries.cochrane.org/CD006748/social-norms-interventions-to-reduce-alcohol-misuse-in-university-and-college-students>.
- Stone, A., Becker, L. G., Huber, A. M., & Catalano, R. F. (2012). Review of risk and protective factors of substance use and problem use in emerging adulthood. *Addictive Behaviors*, 37, 747-775.

A STUDY OF THE EFFECTIVENESS OF A MUTUAL EXCHANGE SUPPORT PROGRAM FOR PARENTS OF CHILDREN WITH DEVELOPMENTAL DISORDERS

Yutaro Hirata¹, Yutaka Haramaki², & Yasuyo Takano³

¹Kagoshima University (Japan)

²Hiroshima University (Japan)

³Aichi Shukutoku University (Japan)

Abstract

There is an urgent need to support families of children with developmental disorders, especially when it is necessary for such families to help each other. However, practice and research related to support systems for families have begun only recently in Japan. Considering these issues, the authors developed a program to support mutual exchanges among parents of children with developmental disorders. This study aimed to verify the program's effectiveness and to examine the relationship between participants' program experience and its effectiveness. Participants included 21 male and female parents of children with developmental disorders. The parents were in their 30s to 50s (4 in their 30s, 14 in their 40s, and 3 in their 50s) (1 male, 20 females). Effectiveness indicators included the Profile of Mood States 2nd Edition-Adult Short (POMS2-A Short) (before and after implementation), Session Impact Scale (SIS), and Mutual Exchange Support Experience Rating Scale. t-tests were conducted on the pre- and post-program results of the POMS2-A short. Results showed that scores on Anger-Hostility ($t=4.77$, $df=20$, $p<.01$, $d=1.04$), Confusion-Bewilderment ($t=4.31$, $df=20$, $p<.01$, $d=.94$), Depression-Dejection ($t=2.88$, $df=20$, $p<.01$, $d=.63$), Fatigue-Inertia ($t=3.63$, $df=20$, $p<.01$, $d=.79$), and Tension-Anxiety ($t=3.61$, $df=20$, $p<.01$, $d=.79$) in the POMS2-A Short decreased significantly after the implementation of the program. These results evidence the effectiveness of the program in improving several mood states, especially anger-hostility, tension-anxiety, depression-depression, and fatigue.

Keywords: *Developmental disorder, family support, interaction support, program development, profile of mood states 2nd edition.*

1. Introduction

Support for families of children with developmental disorders has been attracting attention. The Law for Supporting Persons with Developmental Disabilities, amended in 2008 and revised 2016, requires direct support for parents and the development of support necessary for the families of persons with developmental disorders to help each other. Accordingly, there is an urgent need to establish a system to facilitate mutual support among persons with developmental disorders and their families.

The importance of support and connection among parents has been demonstrated by numerous practices and initiatives in Japan and abroad, such as the Parent Mentor Program (Haraguchi, Kato, and Inoue, 2015; Inoue, 2008; Santelli, Turnbull, Marquis, et al., 1995). Such activities are not limited to developmental disorders. They have been implemented in several initiatives in Japan and abroad. By participating in such activities, parents can alleviate loneliness in child-rearing. Further, they can gain a sense of security (Ainbinder et al., 1998), and be empowered (Law et al., 2002). In addition to positive psychological changes, such as the improvement of skills (Law et al., 2002), parent can gain valuable skills and knowledge about parenting in real life. These previous studies suggest that parents who share common or similar experiences can benefit from mutual interactions on an equal footing in a diverse and multilayered way.

Against this background, the Ministry of Health, Labor and Welfare (2019) has proposed the creation and expansion of a new menu of family support services. However, even the Parent Mentor program, which is currently the most systematic program of its kind in Japan, has commenced only recently. The need for further discussion on effective activities and support systems is thus evident (Haraguchi, Kato, and Inoue, 2015).

2. Objectives

The authors developed a program to support mutual interaction among parents of children with developmental disorders based on the awareness of the above problem. In this study, we will examine the program's effectiveness using the Profile of Mood States 2nd Edition-Adult Short (POMS2-A Short), which has been used to explore the effectiveness of a wide range of clinical interventions. This study investigated the relationship between the program experience's evaluation and its effects and clarifies the program's mechanism.

3. Methods

3.1. The program

Detailed objectives of the program were to enable parents: 1) to learn about other parents' experiences of raising children with developmental disorders, 2) to learn about the meaning of mutual support among parents, 3) to identify their and their children's strengths, and 4) to learn to listen effectively when supporting each other. The program structure included the following elements: (1) mini-lectures on common experiences, (2) reflection on their children's and own strengths and efforts, (3) listening training, (4) group work using psycho-educational methods, and (5) question and answer sessions and free talk.

3.2. Target group

Participants included 21 male and female parents of children with developmental disorders. They were in their 30s to 50s (4 in their 30s, 14 in their 40s, and 3 in their 50s). The demographics of the children were as follows: 3 preschoolers, 3 in the first or second year of elementary school, 5 in the third or fourth year of elementary school, 1 in the upper grades of elementary school, 2 in junior high school, and 7 in high school or older (including siblings). The children's diagnoses were as follows: Autism spectrum disorder (ASD) : 13 (including one suspected case), ASD + Attention deficit hyperactivity disorder (ADHD) + Learning Disorders (LD) : 3, ASD + Intellectual disability (ID) : 1, DD+ADHD+ Developmental Coordination Disorder (DC): 1, None: 1, Not reported: 2.

3.3. Effect index

POMS2-A Short (before and after the intervention), Impact of Session Scale (IS; Elliot & Wexler, 1994; 9 items), and Interaction Experience Rating Scale (5 items) were used to assess the effectiveness of the program. The POMS2-A comprises six mood clusters, Anger-Hostility (AH), Confusion-Bewilderment (CB), Depression-Dejection (DD), Fatigue-Inertia (FI), Tension-Anxiety (TA), and Vigor-Activity (VA). It provides scale scores on Friendliness (F) and Total Mood Disturbance (TMD). It comprises 35 items in which the respondent's mood "state" is graded on a 5-point scale from "not at all (0)" to "very much (4)" (Heuchert & McNair, 2016)

4. Result and discussion

4.1. Changes in POMS2 before and after the implementation of the program

IBM SPSS Statics 27 was used to analyze the data, and a t-test was performed on to examine the POMS2-A scores before and after the program implementation (Table 1). Findings revealed that scores on AH, CB, DD, FI, and TA decreased significantly after the intervention. No significant differences were observed in VA, F, and TMD scores. These results suggest that the program had a positive impact on several mood states. The opportunity to interact with other parents with similar experiences in a safe and structured learning environment, and the experience of reflecting on their children together, may have helped alleviate feelings of loneliness and gain a sense of security (Ainbinder et al., 1998), even for parents meeting others for the first time. However, the program did not affect positive mood states such as friendship and vitality. This highlights the need to further examine the program's content, structure, and frequency to improve its effectiveness in supporting mutual interaction among parents.

4.2. Relationship between program evaluation and the amount of change in POMS2-A

To identify the relationship between participants' evaluation of the interaction support program and its effect on mood states, we compared their pre-post differences scores on the POMS2-A with their scores on the Interaction Experience Rating Scale items. A Spearman's rank correlation analysis showed that the item "It gave me an opportunity to reflect on my child," was positively correlated with reduction in scores on CB ($r(21)=.589, p<0.01$), DD ($r(21)=.436, p<0.05$), FI ($r(21)=.435, p<0.05$), TA ($r(21)=.530, p<0.05$) and TMD ($r(21)=.611, p<0.01$). The item "It gave me an opportunity to reflect on

myself” had a positive correlation with reduction in scores on CB ($r(21)=.598, p<0.01$). Further, the items “It gave me an opportunity to interact with other parents” and “I would like to have more opportunities to interact with other parents in the future” had a positive correlation with increase in scores on F ($r(21)=.471, p<0.05$ and $r(21)=.728, p<0.01$, respectively). These findings suggest that mutual interaction among parents, especially “opportunities to reflect on their children,” may be associated with positive changes in various mood states and it may be an important factor in the implementation of the program.

Table 1. *t*-test on the POMS2-A Short before and after the intervention.

| Variable | Time 1 | | Time 2 | | <i>t</i> (21) | <i>p</i> | 95% CI | | Cohen's <i>d</i> |
|----------|----------|-----------|----------|-----------|---------------|----------|-----------|-----------|------------------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | | | <i>LL</i> | <i>UL</i> | |
| AH | 49.00 | 9.31 | 40.90 | 4.55 | 4.77 | <.001 | 4.56 | 11.63 | 1.04 |
| CB | 53.90 | 9.68 | 46.38 | 7.21 | 4.31 | <.001 | 3.88 | 11.16 | 0.94 |
| DD | 51.24 | 9.16 | 46.62 | 7.23 | 2.88 | .009 | 1.28 | 7.96 | 0.63 |
| FI | 48.76 | 14.30 | 38.67 | 5.94 | 3.63 | .002 | 4.29 | 15.90 | 0.79 |
| TA | 52.76 | 12.13 | 44.62 | 8.47 | 3.61 | .002 | 3.43 | 12.85 | 0.79 |
| VA | 52.57 | 8.66 | 55.05 | 10.23 | -1.75 | .095 | -5.42 | 0.47 | -0.38 |
| F | 55.00 | 8.25 | 57.71 | 12.12 | -1.72 | .100 | -6.00 | 0.57 | -0.38 |
| TMD | 50.58 | 11.10 | 47.09 | 7.07 | 1.72 | .101 | -7.39 | 7.69 | 0.38 |

Note. CI = confidence interval; LL lower limit; UL upper limit; AH = Anger-Hostility; CB = Confusion-Bewilderment; DD = Depression-Dejection; FI = Fatigue-Inertia; TA = Tension-Anxiety; VA = Vigor-Activity; F = Friendliness; TMD = Total Mood Disturbance.

5. Conclusions

The program was effective in alleviating negative mood states; however, the positive effects were weak. Nevertheless, this study confirms the short-term effects of the program. In future, it is necessary to further evaluate the long-term effects of the program. Additionally, the relationship between the participants' evaluation of the program and the change in their POMS2-A scores following intervention should be examined with a larger sample.

Acknowledgments

Funding: This research was funded by JSPS KAKENHI Grant Number 19K13976.

References

- Ainbinder, L. G., Blanchard, L. W., Singer, G.H., Sullivan, M., Powers, L. K., Marquis, J. G., Santelli, B., and the Consortium to Evaluate Parent to Parent. (1998). A Qualitative Study of Parent to Parent Support for Parents of Children With Special Needs. *Journal of Pediatric Psychology*, 23(2), 99-109. Retrieved from <https://kopernio.com/viewer?doi=10.1093/jpepsy/23.2.99&route=6>
- Elliot, R., & Wexler, M. M. (1994). Measuring the Impact of Sessions in Process-Experiential Therapy of Depression: The Session Impacts Scale. *Journal of Counseling Psychology*, 41. Retrieved from file:///Users/hiratayutarou/Downloads/Measuring_the_Impact_of_Sessions_in_Process-Experi.pdf
- Haraguch, H., Kato, K., & Inoue, M. (2015). Current Issues of parent mentor training program in Japan. *The Japanese Journal of Autistic Spectrum: Practice and Clinical Reports*, 12(2), 63-67. Retrieved from <https://ci.nii.ac.jp/naid/40020441297/>
- Heuchert, P. J., McNair, M. D., Yokoyama, K., supervisor of translation (2015). *Manual about Profile of Mood States Second Edition*. Kaneko Syobo
- Law, M., King, S., Stewart, D., & King, G. (2002). The Perceived Effects of Parent-Led Support Groups for Parents of Children with Disabilities. *Physical & Occupational Therapy In Pediatrics*, 21(2-3), 29-48. doi:10.1080/J006v21n02_03
- Ministry of Health, Labor and Welfare. (2019). *Policies to Support People with Developmental Disabilities*. Retrieved March 30, 2021, from <https://www.mhlw.go.jp/topics/2005/04/tp0412-1.html>
- Santelli, B., Turnbull, A., Marquis, J., & Lerner, E. (1995). Parent to Parent programs: A unique form of mutual support. *Infants and Young Children*, 8(2), 48-57.

EFFECT OF MINDFULNESS MEDITATION AND COPING STRATEGIES ON AFFECT AND DEPRESSION SYMPTOMATOLOGY AMONG MEDICAL STUDENTS DURING NATIONAL LOCKDOWN - A PROSPECTIVE, NON-RANDOMISED CONTROLLED TRIAL

Thomas Khan-White

Faculty of Medicine, Imperial College London (UK)

Abstract

This prospective, non-randomised controlled trial aimed to investigate the effects of brief app-based sessions of mindfulness meditation (MM) and utilisation of either problem-focused (PFC) or emotion-focused coping (EFC) styles on positive affect (PA), negative affect (NA) and depression symptomatology during nationwide lockdown due to coronavirus disease 2019 (COVID-19). This study enrolled 19 medical students to undergo a 10-minute MM intervention. These same students were also divided into either PFC or EFC groups. Affect was measured using the positive and negative affect schedule (PANAS), depression symptomatology was measured using the centre for epidemiological studies-depression (CES-D) scale and the brief COPE survey was used to categorise individuals as either PFC or EFC. Analysis showed no significant between-subject interaction for MM on PA, NA or CES-D score. Analysis of coping styles showed no significant between-subject interactions in relation to PA or NA, though CES-D scores approached significance ($p=0.057$) and PFC scored significantly lower than EFC at baseline ($p=0.02$). Significant within-subject effect of time found for PA and NA across both analyses ($p<0.05$). 61.1% of cohort scored above CES-D cut-off for being considered at risk of depression. These results identify a need for further work into more intensive MM interventions with larger sample sizes as well as study into stressors associated with lockdown to more fully establish whether PFC strategies are the most beneficial. In addition, a clearly high level of psychological distress has been implicated in this study population, which may have implications for student pastoral care during this period.

Keywords: *COVID-19, mindfulness, coping strategies, depression, affect.*

1. Introduction

Whilst widespread quarantine measures have proven invaluable in slowing the global spread of COVID-19, they do also present unique challenges. It is well-documented in the literature that quarantine can have detrimental psychological impacts and can worsen pre-existing mental illness (Hawryluck *et al.*, 2004). Therefore, the challenges to come demand an intervention that is widely accessible to the population. Online mindfulness meditation (MM) has been shown in to be effective in reducing stress, irritability, depression and anxiety (Khouri *et al.*, 2015). One population group that has received less focus in the literature is medical students. The interplay of coping strategies may also be an area of relevance. Two broad classifications of coping, problem-focused (PFC) and emotion-focused coping (EFC) have been identified, and their role along with the potential benefit of MM interventions among a cohort of medical students during national lockdown is the subject of this study.

2. Objectives & hypotheses

This study aims to meet the need for research into widely-accessible mental health interventions during the current pandemic and proposes to investigate the effects of a brief MM intervention using *Headspace* on daily affect and symptoms of depression amongst medical students during lockdown. In addition, this study shall also seek to explore the ability of PFC and EFC styles to predict psychological outcomes of affect and depression symptomatology.

Hypothesis 1 (H_1) - The meditation intervention group will experience improved affect and a lower frequency of symptoms associated with depression.

Hypothesis 2 (H₂) - Coping style (PFC or EFC) will predict affect and frequency of symptoms associated with depression.

3. Methods

3.1. Participants

After applying inclusion and exclusion criteria, 19 medical students were assigned to either a MM intervention or passive control group. Additionally, daily brief COPE survey scores were used to allocate individuals to either PFC or EFC groups.

3.2. Procedure

This study was granted ethical approval by the Imperial College Joint Research Compliance Office. All study subjects were asked by email to read through a participant information sheet and then to complete a consent form. Upon receipt of consent forms, participant numbers were issued to preserve anonymity. Baseline questionnaires (Day 1) were then administered. The following day once all baseline questionnaires had been completed the first daily questionnaires were administered along with the first weekly questionnaires. Daily questionnaires were administered every day up until and including Day 16 and weekly questionnaires were administered on Day 2, Day 9 and Day 15. This study ran for a period of 16 days. All questionnaires were conducted online using Qualtrics.

3.3. MM Intervention & control

The intervention consisted of a daily group video call via Microsoft Teams using 10-minute sessions from Headspace’s “basics” section. The control group were then instructed not to practice MM during the study period. 9 individuals were allocated to MM intervention and 10 to control group.

3.4. Measures

Affect was assessed using the Positive and Negative Affect Scale (PANAS) and was issued in the baseline survey and on each daily survey. Scores for PA and NA were then summed and averaged to give group daily mean scores. The Brief COPE survey was used to assess each individual’s daily coping strategies and was issued in the daily surveys. 9 individuals were allocated to EFC and 10 to PFC groups. Centre for Epidemiological Studies Depression Scale (CES-D) scale issued in weekly questionnaires and used to assess presence and frequency of depressive symptoms.

3.5. Statistical analysis plan

All statistical analyses were conducted using SPSS Version 21. A p-value of less than 0.05 was considered significant.

4. Results

H₁ - Baseline independent t-tests revealed no significant differences in any of the measures (PA, NA or CES-D) at baseline. No between-subjects effects observed for PA, NA or CES-D scores. Significant within-subject effect of time was observed for both PA and NA (figure 1), with scores generally decreasing over time.

Table 1. Shows p-values for between-subjects (MM intervention) and within-subjects effects (time) for all three study measures.

| Measure | Between-subjects effects (MM intervention) | Within-subjects effects (Time) |
|-----------------|--|--------------------------------|
| | P-value (p) | P-value (p) |
| Positive Affect | 0.997 | 0.002* |
| Negative Affect | 0.358 | 0.036* |
| CES-D | 0.399 | 0.995 |

H₂ - Baseline independent T-tests revealed no significant differences between EFC and PFC groups on PA and NA measures. However, significant baseline difference was observed between EFC and PFC groups for CES-D score (p=0.02*), with PFCs scoring a mean of 14.8±6.5 and EFCs scoring a mean of 24.3±9.1. No significant between-subject effects of coping style observed for PA, NA or CES-D scores, however CES-D scores approached significance (p=0.057). Significant within-subject effect of time was observed for both PA and NA (figure 2), with scores generally decreasing over time.

Table 2. Shows p-values for between-subjects (coping style) and within-subjects effects (time) for all three study measures.

| Measure | Between-subjects effects (Coping style) | Within-subjects effects (Time) |
|-----------------|---|--------------------------------|
| | P value (p) | P value (p) |
| Positive Affect | 0.952 | 0.001* |
| Negative Affect | 0.104 | 0.034* |
| CES-D | 0.057 | 0.994 |

5. Discussion

H₁ – Hypothesis 1 rejected and null hypothesis accepted. Lack of significant between-subject effects for all measures (PA, NA and CES-D) between meditation and control group could relate to the intensity of the MM intervention, as this study used only 10-minute sessions over a two-week period. Other studies demonstrating significance between affect and MM usually use significantly longer and more intense guided MM interventions typically with larger study cohorts (Sears *et al.*, 2009).

H₂ – Hypothesis 2 rejected and null hypothesis accepted. No significant between-subject effects of coping style on PA, NA or CES-D during study period. T-testing revealed significant difference at baseline in CES-D scores, with PFCs scoring significantly lower than EFCs. These findings align with those found in isolated, confined and extreme (ICE) environments such as polar or submarine settings, where PFC strategies are often the most commonly used and are most effective in dealing with stressors (Sandal *et al.*, 2003). Given the parallels of quarantine with ICE environments, it may be appropriate to consider methods for dealing with isolation used by those operating in ICE settings.

Within-subject effects – Significant main effect of time observed for PA and NA scores in both H₁ and H₂ analyses. In both analyses, scores for PA and NA generally decreased in both groups. This may have occurred due to affective blunting, which has been identified as a depressive symptom (Loas *et al.*, 1994). This is supported by relatively high group mean CES-D scores by the same cohorts over the study period.

Other effects – Notable are the relatively high scores on CES-D surveys amongst this cohort, with 61.1% scoring above cut-off to be considered at-risk for clinical depression. As surveys were completed under condition of anonymity, diagnostic interviews were not possible as part of any follow-up. This finding has implications for student pastoral care during the pandemic.

6. Conclusion

The findings of the present study suggest that brief, app-based MM conducted via video conferencing is not effective in influencing affect or depression symptomatology in medical students. In addition, despite significant baseline differences, it cannot be said definitively that coping style influenced these variables either. However, these findings do justify further work with ideally larger sample sizes to more definitively determine whether different coping styles or MM help in weathering lockdown. What the present study has identified however is a clear psychological burden on medical students as evidenced by the high CES-D scores in all groups. It is clear therefore that easily accessible interventions that do not violate the rules of lockdown are required to meet the clear mental health demands the current pandemic places on this population.

References

- Hawryluck L, Gold WL, Robinson S, Pogorski S, Galea S, Styra R. SARS control and psychological effects of quarantine, Toronto, Canada. *Emerging Infectious Diseases*. 2004 Jul;10(7):1206.
- Khoury B, Sharma M, Rush SE, Fournier C. Mindfulness-based stress reduction for healthy individuals: A meta-analysis. *Journal of psychosomatic research*. 2015 Jun 1;78(6):519-28.
- Loas G, Salinas E, Pierson A, Guelfi JD, Samuel-Lajeunesse B. Anhedonia and blunted affect in major depressive disorder. *Comprehensive psychiatry*. 1994 Sep 1;35(5):366-72.
- Sandal GM, Endresen IM, Vaernes R, Ursin H. Personality and coping strategies during submarine missions. *Journal of Human Performance in Extreme Environments*. 2003;7(1):5.
- Sears S, Kraus S. I think therefore I am: Cognitive distortions and coping style as mediators for the effects of mindfulness meditation on anxiety, positive and negative affect, and hope. *Journal of clinical psychology*. 2009 Jun;65(6):561-73.

THE IMPORTANCE OF UNDERSTANDING METAPHORS WORKING WITH FIGURATIVE LANGUAGE: SOME TOOLS

Ana Paula Couceiro Figueira¹, Sofia Campos², & Célia Ribeiro³

¹Universidade de Coimbra, Faculdade de Psicologia e de Ciências da Educação (Portugal)

²Instituto politécnico de Viseu (Portugal)

³Universidade Católica Portuguesa, Pólo de Viseu (Portugal)

Abstract

We present two versions of assessment/intervention tools for metaphors awareness or their comprehension: the TCM, Metaphor Comprehension Test, for children aged 9 to 14, or elementary school (Portugal), and the junior TCM, for children aged 4 to 6 years, or preschool age. They are versions/adaptations for European Portuguese of existing tools in Italian. The authors of the Italian versions are professors at the University of Sapienza, Rome, Italy, with internationally recognized work, presenting the original versions with good psychometric qualities. At the moment, the two instruments are already adapted for Portuguese, in the process of being applied in order to obtain the normative data and their validation. We expect, similar to what happens with the Italian versions, to obtain valid tools, with triple instrumentality: psychometric assessment and dynamic assessment and intervention resource, for various stages of development.

Keywords: *Metaphors comprehension, figurative language, assessment, intervention, tools.*

1. Introduction

The metaphor is seen as a form of semantic conflict induced by the anomalous combination of the conventional meanings of its main constituents - content (content) and vehicle - and the understanding of the metaphor is framed as a meta semantic ability from the analysis of these meanings (Gombert 1990, in Pinto et al., 2006).

In a metaphor, the vehicle is the linguistic figure itself, that is, the immediate image that incorporates or "carries" the tenor (the theme or content of the metaphor). The interaction of the vehicle results and the content gives meaning to the metaphor.

The authors propose a Piagetian functionalist framework, based on Piaget's last equilibrium model (1975), to analyze how this semantic conflict can be faced and resolved by children in the considered development period.

Is understanding metaphors a "thing for children" or not? The authors believe so, provided that metaphors similar to those that children of that age spontaneously produce and that a "game" is established with them. Understanding and knowing how to explain the meaning of metaphors is a complex skill, whose relevance was perceived by various sectors of psychology (cognitive psychology, psycholinguistics, developmental psychology, psychoanalysis and other theoretical currents of clinical psychology, social psychology, sports psychology, etc.), generating, for over forty years, a vast scientific literature.

2. Methodology and instruments

2.1. The TCM

It is a paper and pencil instrument, consisting of 12 items subdivided into 2 groups of metaphors:

From a structural point of view, the TCM is composed of two parts, corresponding to two different types of metaphors, called "physical-psychological" and "conceptual".

The distinction is based on certain semantic characteristics of the two main components of the metaphor that we presented earlier, the "tenor" and the "vehicle", T and V, and the different relationships that are established between them. In physical-psychological metaphors, the two terms belong to different semantic-conceptual domains: one is taken from the universe of human beings, while the other derives from the inanimate universe of physical objects. An example of this is the phrase "The prison guard is a stone" which, expressed to convey information about a psychological quality, establishes a connection between the physical domain (hard stones) and the domain of psychological traits (lack of obstinate feeling). In conceptual metaphors, however, certain concepts or ideas are linked to a concrete object, as in the example "Memory is a sieve", through which we want to express some functional (in this case, dysfunctional) aspects of the memory process. However, the limits are not always so clear, so it can be difficult to decide when a metaphor is unmistakably physical-psychological or conceptual (Winner, 1988).

Were constructed 12 items, divided symmetrically into 6 items containing physical-psychological metaphors and 6 items containing conceptual metaphors.

Examples

Physical-psychological metaphors

1. The prison guard is a rock (adapted from Winner, Rosentiel, & Gardner, 1976, in Pinto et al., 2006);

Conceptual metaphors

1. The family is an umbrella (adapted from Evans, & Gamble, 1988, in Pinto et al., 2006).

2.2. The TCM Junior

It is a paper and pencil test, consisting of 25 items, presented in a playful manner, with 12 sentences and 4 short stories (for each story, there are between 3 to 4 questions).

As an example, we have:

Phrases:

1. "The moon is a lamp.";

Brief history:

"Once upon a time there was a boy named Philip. One morning, Philip flew with his father to the basement of the house. The father opens the cellar door and Philip sees the night and begins to be afraid. So he decides to run and runs away. The father says to the mother: "Philip is a train".

Questions:

a) What do you think "Philip ran away with his father" means;

b) What do you think "Philip sees the night and begins to be afraid" means?

c) What do you think "Philip is a train" means?

The junior TCM allows to apprehend the typical characteristics from the point of view of reasoning and lexical skills of the age group targeted by the test.

3. Conclusion and recommendations

In addition to being able to function as an assessment tool, psychometric and/or dynamic assessment, it will be a useful intervention tool for the educator.

References

- Figueira, A. P. C. (2019). *Consciência metalinguística e linguagem conotativa/figurativa*. ed. 1, Novas edições académicas - <https://www.morebooks.de/store>. <https://my.nea-edicoes.com/extern/li>. 2019
- Figueira, A. P. C., & Pinto, M. A. (2018). *Consciência Metalinguística. teoria, desenvolvimento e instrumentos de avaliação*. Lisboa: Psiclínica, <https://www.wook.pt/ebook/consciencia-metalinguistica-maria-antonietta-pinto/21847204>.
- Figueira, A. P. C., Bastos, L., Pinto, M. A., Melogno, S., & Iliceto, P. (sd). *TCM junior. Teste de compreensão de metáforas. Para crianças dos 4-6 anos de idade*.

- Figueira, A. P. C., Bastos, L., Pinto, M. A., Melogno, S., & Iliceto, P. (sd). *TCM. Teste de compreensão de metáforas. Para crianças dos 9-14 anos de idade.*
- Figueira, A. P. C., Ribeiro, C., Gameiro, P. (2020). Meta-linguistic awareness in 9 year-old Portuguese children: a pilot study with the Portuguese THAM-2. *Rivista di Psicolinguistica Applicata/Journal of Applied Psycholinguistics*, XX, 1, 45-62:
<https://www.libraweb.net/riviste.php?chiave=77&h=461&w=300>.
<https://www.facebook.com/MATEL-LLP-European-project-1593940834180210/>
<https://www.pintomatel.com/>
- Pinto, M. A., Melogno, S., & Iliceto, P. (2006). *TCM. Test di comprensione delle metafore. Scuola elementare e scuola media.* Roma. Carocci editora.
- Pinto, M. A., Melogno, S., & Iliceto, P. (2008). *TCM Junior. Test di comprensione delle metafore. Scuola dell'infanzia e scuola primaria.* Roma. Carocci editora.

COMMUNICATION SKILLS, MORAL DEVELOPMENT, AND GENDER DIFFERENCES BETWEEN ELEMENTARY AND MIDDLE SCHOOL STUDENTS

Aya Fujisawa

Department of Child Studies, Kamakura Women's University (Japan)

Abstract

Since 2018, moral education has changed in Japan. Specifically, the focus has shifted from emotional understanding, to thinking and deliberating. Consequently, it is important to consider the development of morality as well as the development of the ability to deliberate and think. However, in Japan, not many studies have been conducted on the development of the ability to think and deliberate among the elementary and junior high school students. Therefore, the purpose of this study was to examine communication skills and moral development in elementary and middle school students. The results revealed that while communication skills decreased as the students got older, their morality increased. No gender differences in moral development between males and females from the sixth grade of elementary school to the ninth grade of middle school. Based on these results, the implications for moral lessons that focus on thinking and deliberating are provided.

Keywords: *Ability to deliberate, social perspective-taking, development, gender differences, Japan.*

1. Introduction

Since 2018, the teaching method employed in moral education in elementary and junior high schools in Japan has changed. Specifically, moral lessons no longer focus on emotional understanding but on thinking and deliberating. Consequently, it is imperative to consider the development of children's morality as well as the development of their ability to think and deliberate. Although studies on the development of morality in elementary and junior high school students in Japan have been conducted, there is no research on the development of the ability to think and deliberate. Accordingly, the purpose of this study was to examine communication skills and moral development in elementary and junior high school students.

The Defining Issues Test, which is based on Kohlberg's stages of moral development, has often been employed to measure moral development among children in Japan (e.g., Sakurai, 2011). It has been shown that as children age, they advance through stages of moral development. Furthermore, there are differences in moral development between males and females from the fifth grade of elementary school to university (Sakurai, 2011). Sugawara et al. (2006) also developed a behavioral standard scale. This scale, which has been shown to correlate with Kohlberg's stages of moral development (Fujisawa et al., 2006), comprises of five factors. The first factor, egocentric, involves pursuing one's own profit and freedom without displaying any concern for the impression it creates on others. Peer-standards, the second factor, entail placing importance on aligning with one's peers. The third factor, regional-standards, occurs when importance is placed on local community approval. The fourth factor, care about others, involves recognizing the importance of caring for others who are unrelated. Finally, public values, the fifth factor, entail showing concern for public values and fairness in society as a whole. Previous studies have revealed that third-year junior high school students, high school students, and university students are more selfish than first-year junior high school students (Fujisawa, 2019). Furthermore, 12–15-year-olds admitted to welfare facilities scored higher on the egocentric and peer-standards factors than 16–18-year-olds. Furthermore, both groups had low scores for care about others and public values (Nagafusa et al., 2012). Subsequently, Araki and Matsuo (2017) revised the social perspective-taking test, which corresponds to one of Kohlberg's moral development stages. However, in relation to the latter, no studies have been conducted on elementary school students or compared the social perspective-taking ability of students in different grades. Therefore, in this study, it was considered meaningful to clarify the development of social perspective-taking ability among elementary and junior high school students.

However, in relation to communication skills, Syoji et al. (2012) conducted a review of communication skills scales. An examination thereof revealed the following terms were important: related, non-verbal communication, self-assertion, and emotional expression. Syoji et al. (2012) noted that although communication has been related to a substantial number of interpersonal relationships, it has rarely been associated with behavioral and cognitive elements, including thinking and deliberating. Although *communication with peers* is not directly related to thinking and deliberating, Iida and Ishikuma (2002) found that eighth grade students had higher scores in this area than ninth graders. Finally, Ueno and Okada (2006) developed a communication skills scale that comprises the following four subscales: listening/speaking, non-verbal skills, assertion, and deliberating. This scale was employed in this study to examine the development of communication skills.

Accordingly, the purpose of this study was to clarify the development of morality and communication skills in elementary and junior high school students, and apply them in moral lessons in which the focus was on thinking and deliberating.

2. Methods

Participants: The participants included 76 sixth graders in the elementary school, and 120 seventh graders, 153 eighth graders, and 112 ninth graders in the middle school who were enrolled in public schools in the Tokyo metropolitan area of Japan.

Procedure: The participants completed a questionnaire survey after consent from the principal, the students' parents, and students had been obtained.

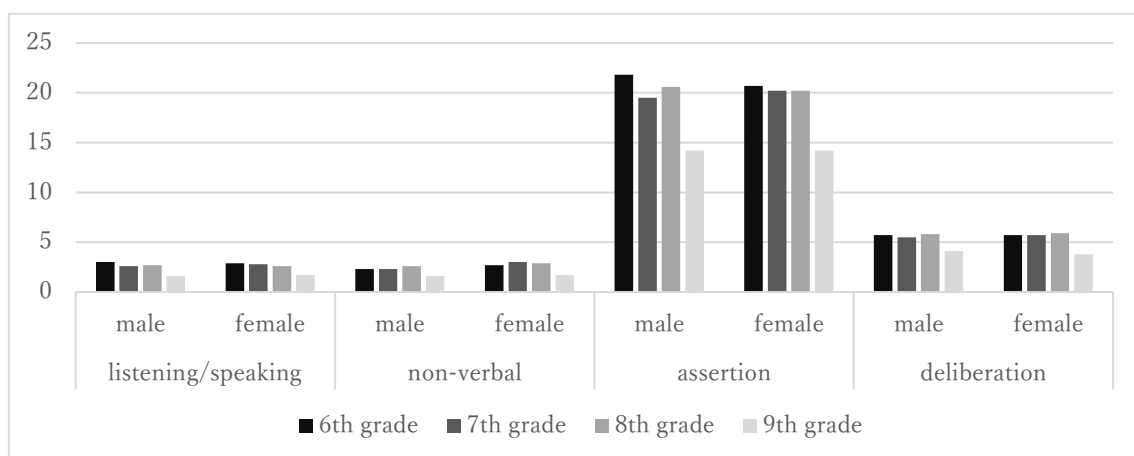
Survey content: In relation to morality, Araki and Matsuo's (2017) social perspective-taking test, which had been developed with reference to Kohlberg was employed. Furthermore, Okado et al.'s (2006) communication skills scale, which comprised four factors, namely, listening/speaking, non-verbal skills, assertions, and deliberation, was also administered.

Scoring: The manual was employed to calculate the developmental stage score in the social perspective-taking test (Araki and Matsuo, 2017). The higher the score, the higher the participant's social perspective. The relevant manual was also utilized to calculate each subscale score of the communication skills scale. High scores in each subscale indicated a high degree of the particular factor.

3. Results and discussion

In relation to communication skills, an analysis of variance was performed on each subscale score as the dependent variable, and grade and gender as two factors. The results revealed all grades had significant scores (listening/speaking: $F(3) = 64.4, p < .001$; non-verbal: $F(3) = 43.3, p < .001$; assertion: $F(3) = 78.7, p < .001$; deliberation: $F(3) = 56.6, p < .001$) (Figure 1). In relation to non-verbal communication, the interaction between grade and gender was significant. No gender differences were found. When multiple comparisons were performed using the Bonferroni method for all variables, other than non-verbal communication, listening/speaking, assertions, and discussions were higher in the sixth, seventh, and eighth grades than in ninth grade ($p < .001$).

Figure 1. Subscale scores of communication skills for each grade.



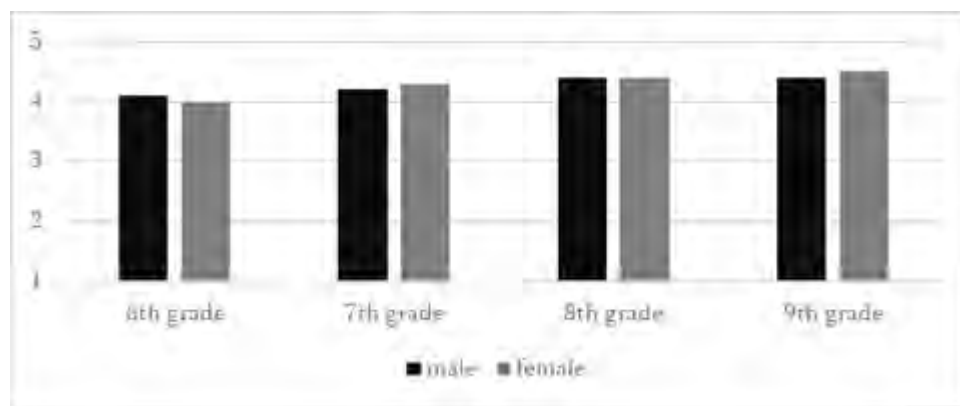
With regard to social perspective-taking, an analysis of variance was performed with each subscale score as the dependent variable, and grade and gender as two factors. The results revealed all grades had significant scores ($F(3) = 11.9, p < .001$) (Figure 2). Furthermore, multiple comparisons were performed

using the Bonferroni method. The social perspective-taking scores were higher in the seventh than in the sixth grade ($p < .001$), higher in ninth than the seventh grade ($p < .05$), higher in the eighth than in the sixth grade ($p < .001$), and higher in the ninth than in the sixth grade ($p < .001$). No gender differences were found.

These results revealed that the ability to acquire a social perspective generally increased from the sixth to the ninth grade and communication skills decreased from the ninth grade. Therefore, one may deduce that the ability to acquire social perspective-taking increases with age. Furthermore, with age, one becomes aware of various roles and can make decisions in relation to them. It was also clarified that communication skills generally declined with age. However, it is unclear from this result whether communication skills decline with increasing age, or whether refraining from mentioning because they can consider the feelings and position of others as they get older seems to reduce their communication skills.

It is also uncertain from this study whether communication skills decrease as one ages or whether one refrains from considering the feelings and position of others as one gets older. Therefore, it may play a role in having older students express their opinions in combination with worksheets rather than having them express their opinions directly in front of others. Simultaneously, it is also meaningful in moral lessons to not only refrain oneself from expressing one's opinion in front of people who have different views but also incorporate training that enables oneself to express thoughts after careful contemplation on a daily basis.

Figure 2. The scores of the social perspective-taking test.



References

- Araki, N. & Matsuo, H. (2017). Simplified version Junior high school / high school student version Social perspective-taking inspection. Fukuoka: Toyo Physical. (In Japanese)
- Fujisawa, A., Azami, R., Nagafusa, N., Sugawara, K., & Sasaki, J., (2006). A Study on Behavioral Standards in Public Scenes (2)—Relationship between Action Criteria Scale and University's Morality --*The 70th Annual Meeting of the Japanese Psychology Association*. pp.148 (In Japanese)
- Fujisawa, A. (2019). Developmental change of social capacity related to morality: behavioral standards and multidimensional empathy of junior high school, high school and university students. *The Japanese journal of educational practices on moral development*, 13, 22–27.
- Iida, J. & Ishikuma, T. (2002). School-life skills scale: development of a junior high school student form. *Japanese Journal of Educational Psychology*, 50 (2), 225–236. (In Japanese with English abstract)
- Nagafusa, N., Sugawara, K., Sasaki, J., Fujisawa, A., & Azami, R. (2012). Behavior standards for public situations of children in reformatory institutions. *Japanese journal of psychology*, 83, 470-478. (In Japanese with English abstract)
- Sakurai, I. (2011) Using Defining Issues Tests to analyze the development of moral development. *Japanese journal of educational psychology*, 55, 156-167. (In Japanese with English abstract)
- Sugawara, K., Nagafusa, N., Sasaki, J., Fujisawa, A., & Azami, R. (2006). Deviant behavior and shame in Japanese adolescents: Five behavioral standards for public space. *Seishin Studies*, 107, 160 -178. (In Japanese with English abstract)
- Syoji, W., Adachi, T., Takahashi, K., & Mifune, N. 2012. Development of a basic communication skills scale for junior high school students. *Japanese Journal of Educational Psychology*, 60 (2), 137–152. (In Japanese with English abstract)
- Ueno, K. & Okada, T. (2006) Special Supports Education Practical Social Skills Manual (pp.146-147). Tokyo: Meiji Tosho. (In Japanese).

EFFECTIVENESS OF THE PROGRAMS UNPLUGGED AND UNPLUGGED 2 ON ALCOHOL USE AND SMOKING AMONG SCHOOLCHILDREN

Viera Čurová¹, Oľga Orosová², Lenka Abrinková¹, & Marcela Štefaňáková²

¹*Department of Psychology, PJ Safarik University in Kosice (Slovakia)*

²*Department of Educational Psychology and Psychology of Health, PJ Safarik University in Kosice (Slovakia)*

Abstract

Objectives: The aim of the study is to examine the long-term effectiveness of the school-based drug prevention programs Unplugged and Unplugged2 using a Solomon design and supplemented with n-Prevention booster sessions on the cumulative index (CI) of reported alcohol use (AU) and smoking. **Methods:** In 2013/2014, Unplugged was implemented during 12 consecutive weeks in Slovak primary schools. A sample of 744 (M=12.5; 58.72% girls) was collected before program implementation (T1) and 12 months later (T3). In 2017/2018, Unplugged2 was implemented by each school over 6 months. A sample of 408 (M=14.48; 51.96% girls) was collected before program implementation (T1), immediately after implementation (T2) and 12 months later (T3). Participation in Unplugged was divided into control and experimental groups and Unplugged2 into control, experimental and experimental groups with n-Prevention, a pre-test and post-test or with post-test only. CI in the past 30 days was dichotomized (0-not used, 1-AU, smoking or both). Binary logistic regressions were used to analyze the data at every measurement point. The moderation effect of gender was examined. The CI at T1 in Unplugged and Unplugged2 with a pre-test and post-test, and CI at T2 in Unplugged2 with a post-test were used as the control variables.

Results: There was no significant effect of Unplugged and Unplugged2 with the pre-test and post-test. Unplugged2 with a post-test was significantly associated with CI at T3. The experimental group with n-Prevention was less likely to use alcohol and/or smoke. There was no significant effect or moderation effect of gender.

Conclusions: The results show the long-term effectiveness of a preventive program is more pronounced with booster sessions, specifically with the post-test design.

Keywords: *Alcohol use, smoking, drug prevention, schoolchildren.*

1. Introduction

Early adolescence is a crucial period for using drugs that can continue into adulthood and dramatically increase lifelong substance use (Jordan & Andersen, 2017). Despite primary prevention generally being considered one of the most appropriate strategies, Faggiano et al. (2007) have pointed out that empirical evidence has shown the insufficient effectiveness of school programs. In Slovakia, evaluating the effectiveness of drug substance prevention programs and data-based drug use prevention among schoolchildren is still infrequent (Gabrhelík et al., 2014). Thus, the current study aims to explore effectiveness of prevention programs over long-term periods.

2. Design

The universal substance prevention Unplugged program is part of the project EU-DAP “The European Drug Addiction Prevention Trial.” Unplugged is designed for schoolchildren aged 12 to 14 and consists of 12 lessons. The program is based on two principles. The first principle is the Comprehensive social influence model where the purpose is to build specific skills to manage social impact and deconstruct normative beliefs (Kreeft et al., 2009). The second principle is the Knowledge-attitude-behaviour model is focused on providing information about drugs and their consequences. A combination of these two principles has an impact on the use of alcohol, tobacco and illicit drugs (Širůčková et al., 2012). The goal of the Unplugged program is to reduce the number of schoolchildren who start using addictive substances and delay the first contact with drugs as well as to delaying the transition from experimentation to regular use (Charvát, Jurystová & Gabrhelík, 2012). In 2013/2014, Unplugged was implemented during 12 consecutive weeks in Slovak primary schools. The program was carried out by teachers, special educators and psychologists who had undergone a training course. In 2017/2018, Unplugged 2 (a follow-up to Unplugged) with a Solomon design was implemented by each school over 6

months. In addition, Unplugged 2 program was extended by the follow-up program “n-Prevention”. This a series of so-called “booster sessions”, which aim to contribute to the effectiveness of the program. They consist of a series of 4 lectures focused on social norms and normative beliefs, refusal skills, differences between genders and the current neurological knowledge that provides information on the influence of drug use on brain functioning (Gabrhelík, Orosová & Miovský, 2014). This study has an experimental design.

Table 1. Group design of Unplugged and Solomon four design of Unplugged 2 with n-Prevention.

| | | | | | | Data collected |
|-----------------------------|--------------------|----------|-------------|--------------|-----------|---|
| <i>Experimental group</i> | Unplugged | Pre-test | Unplugged | - | Post-test | before program implementation(T1), 12 months later(T3) |
| <i>Control group</i> | | Pre-test | - | - | Post-test | before program implementation(T1), 12 months later(T3) |
| <i>Experimental group 2</i> | Unplugged 2 | Pre-test | Unplugged 2 | n-Prevention | Post-test | before program implementation(T1), 12 months later(T3) |
| | Unplugged 2 | Pre-test | Unplugged 2 | - | Post-test | before program implementation(T1), 12 months later(T3) |
| <i>Control group 2</i> | | Pre-test | - | - | Post-test | before program implementation(T1), 12 months later(T3) |
| <i>Experimental group 3</i> | Unplugged 2 | - | Unplugged 2 | n-Prevention | Post-test | immediately after program implementation(T2), 12 months later(T3) |
| | Unplugged 2 | - | Unplugged 2 | - | Post-test | immediately after program implementation(T2), 12 months later(T3) |
| <i>Control group 3</i> | | - | - | - | Post-test | immediately after program implementation(T2), 12 months later(T3) |

3. Objectives

The objective of this study was to examine the long-term effects of the school-based drug prevention programs Unplugged and Unplugged 2, supplemented with n-Prevention booster sessions, on the cumulative index of reported alcohol use and reported smoking in the past 30 days among schoolchildren.

4. Methods

4.1. Sample and procedure

In Unplugged, the sample consisted of 744 (M = 12.5 years; 58% girls) Slovak schoolchildren. In Unplugged 2 the sample consisted of 408 (M = 14.48 years; 51,96% girls) Slovak schoolchildren. For more details about the data collected see Table 1.

4.2. Measures

The schoolchildren were asked to fill in a paper version of an anonymous questionnaire administrated in the class. Reported alcohol use and reported smoking in the past 30 days were explored by the questions: “On how many occasions (if any) have you had an alcoholic beverage to drink during the last 30 days?”, and “On how many occasions (if any) have you smoked a cigarette during the last 30 days?” The possible answers were: 0, 1-2, 3-5, 6-9, 10-19, 20-39, 40 or more. In Unplugged 2, alcohol and smoking were also explored by the questions: “On how many occasions (if any) have you had an alcoholic beverage to drink during the last 30 days?”, and “On how many occasions (if any) have you smoked a cigarette during the last 30 days?” The possible answers were: 0, 1, 2-4, 5 or more. The cumulative index of reported alcohol use and smoking was dichotomized: 0-not used,1- alcohol use, smoking or both.

4.3. Statistical analyses

Binary logistic regressions were used to analyze the data at every measurement point. The cumulative index of reported alcohol use and reported smoking in the past 30 days served as the dependent variable while participation in the program Unplugged or Unplugged 2 served as independent variable. The effect of gender was analyzed as an independent variable and the moderation effect of gender was also explored. The cumulative index of reported alcohol use and smoking at T1 in Unplugged and Unplugged2 with a pre-test and post-test, and cumulative index of reported alcohol use and smoking at T2 in Unplugged2 with a post-test were used as the control variables.

4.4. Results

The binary logistic regression revealed that there was no significant effect of either Unplugged or gender on the cumulative index of reported alcohol use and reported smoking at T3. There was also no

significant effect of Unplugged 2 with a pre-test and post-test or gender on the cumulative index of reported alcohol use and reported smoking at T3. There was no moderation effect of gender in any of the measurements. However, Unplugged 2 with a post-test was significantly associated with the cumulative index of reported alcohol use and reported smoking at T3 in the experimental group with n-Prevention. Schoolchildren in the experimental group with n-Prevention were less likely to report alcohol use and/or smoking. For more details see Table 2. This regression model explained 16.9% of the variance and correctly classified 75.0% of cases.

Table 2. Regression models for CI of alcohol use in and smoking among early adolescents.

| T3 in Unplugged 2 with post-test | | | | | | | | |
|----------------------------------|---------|------|----------|---------|----------------|------|----------|--|
| | OR | | 95% C. I | | OR | | 95% C. I | |
| Gender* | 1.33 | 0.57 | 2.24 | Gender* | 0.85 | 0.54 | 1.35 | |
| EG1** | 0.72 | 0.33 | 1.58 | EG1** | 0.58 | 0.32 | 1.03 | |
| EG2** | 0.53 | 0.25 | 2.24 | EG2** | 0.41*** | 0.23 | 0.70 | |
| CI T2 | 0.12*** | 0.07 | 0.21 | CI T2 | 0.13*** | 0.08 | 0.21 | |
| EG1*Gender | 0.62 | 0.19 | 2.01 | - | | | | |
| EG2*Gender | 0.57 | 0.19 | 1.68 | - | | | | |

Note: *boys as a reference group; **control group as a reference group; EG1=experimental group; EG2=experimental group with n-Prevention; CI=cumulative index; p<0.001***

5. Discussion and conclusion

The results show that the long-term effectiveness of the program Unplugged was not confirmed. Gabrhelik, et. al. (2014) found the same results regarding alcohol use among schoolchildren. The effect of Unplugged 2 with a pre-test and post-test was not confirmed although the results show the significant effect of Unplugged 2 with a post-test design in the experimental group with n-Prevention on the cumulative index of reported alcohol use and reported smoking. These findings highlight the importance of booster sessions in enhancing the effectiveness of school-based preventive programs (Botvin & Griffin, 2003; Skara & Sussman, 2003). In further studies looking at the effectiveness of preventive programs, it would be desirable to include methods for detecting fidelity components.

Acknowledgements

This work was supported by Research and Development support Agency under the contract No. APVV-15-0662 and VEGA 1/0371/20.

References

- Botvin, G. J., & Griffin, K. W. (2003). Drug Abuse Prevention in Schools. In Z. Sloda & W. J. Bukoski (Eds.), *Handbook of Drug Prevention: Theory, Science, and Practice* (pp. 45-74). New York: Kluwer Academic/Plenum Publishers.
- Charvát, M., Jurystová, L. & Gabrhelik, R. 2012. Metodika prevence užívání návykových látek Unplugged [Methodology of prevention of the use of addictive substances Unplugged]. In Širůčková, M., Miovský, M., & Skácelová, L. (Eds.) *Příklady dobré praxe programů školní prevence rizikového chování*, (pp.27-37). Univerzita Karlova v Praze, 1. Lékařská fakulta, Klinika adiktologie I. LF a VFN v Praze.
- Faggiano, F., Richardson, C., Bohrn, K., Galanti, M. R., & EU-Dap Study Group. (2007). A cluster randomized controlled trial of school-based prevention of tobacco, alcohol and drug use: the EU-Dap design and study population. *Preventive medicine*, 44(2), 170-173.
- Gabrhelik, R., Orosová, O., Miovský, M., Vořková, H., Berništerová, M., Minaščík, J. (2014). Studying the Effectiveness of School-based Universal Prevention Interventions in the Czech Republic and Slovakia. *Adiktologie*, 14(4), 402–408.
- Jordan, C. J., & Andersen, S. L. (2017). Sensitive periods of substance abuse: Early risk for the transition to dependence. *Developmental Cognitive Neuroscience*, 25, 29–44.
- Kreeft PVD, Wiborg G, Galanti MR, Siliquini R, Bohrn K, Scatigna M, Lindahl A-M, Melero JC, Vassara M, Faggiano F. 2009. 'Unplugged': A new European school programme against substance abuse. *Drugs: Education, Prevention, and Policy*. 2009, 16, 2, 167–81.
- Širůčková, M., Miovský, M., Skácelová L., Gabrhelik R. et al. (2012). *Příklady dobré praxe programů školní prevence rizikového chování*. Praha: Univerzita Karlova v Praze, 1. Lékařská fakulta, Klinika adiktologie I. LF a VFN v Praze.
- Skara, S., & Sussman, S. (2003). A review of 25 long-term adolescent tobacco and other drug use prevention program evaluations. *Preventive Medicine*, 37, 451-474.

LOCALIZED REVISION OF THE EPISTEMIC CURIOSITY SCALE FOR CHINESE SENIOR HIGH SCHOOL STUDENTS¹

Wenwu Dai, Yuxin Xia, & Ning Jia
College of education, Hebei Normal University (China)

Abstract

Objective: The goal of this research was to revise Litman's Epistemic Curiosity Scale (ECS), so that it can be applied to the evaluation of the developmental characteristics among Chinese senior high school students. **Methods:** 25 senior high school students were first invited to a trial test for confirming the item comprehensibility, after then 602 senior high students were enrolled to the formal testing for the item analysis and exploratory factor analysis. And 533 Chinese high school students responding ECS were submitted to test the construct validity of the localized Chinese-version ECS. Then the scale was applied to 366 subjects to test the internal consistency indices and criteria correlation validity. Finally, 153 senior high school students were used to test test-retest reliability of the ECS. **Results:** All of the 10 items were retained, through exploratory factor analysis and confirmatory factor analysis, the two-factor model which was consistent with the original scale proved to be the most appropriate, its main goodness of fit indices were: $\chi^2/df=2.68$, CFI=0.93, NFI=0.93, TLI=0.90, GFI=0.97, AGFI=0.95, and RMSEA=0.06. The study found internal consistency indices (Cronbach's alpha) from 0.73 to 0.78 in the first three samples. In addition, the ECS had a high correlation with Chinese version of Trait Curiosity Scale ($r=0.53$, $p<0.001$), test-retest reliability over 2-month interval was 0.54 to 0.56 for each of the 2 sub-scale and 0.64 for the total ECS. **Conclusion:** Findings in these studies support the cross-cultural validity of the ECS in Chinese senior high school students.

Keywords: Epistemic curiosity scale, reliability, validity, senior high school student.

1. Introduction

Curiosity is the innate aspect of human nature, which refers to the motivation to seek new knowledge and experience and better understand the world (Litman & Pezzo, 2005; Loewenstein, 1994). Epistemic curiosity (EC) specifically refers to the motivation that motivates individuals to devote themselves to acquiring new information, filling knowledge gaps, solving problems, learning new ideas or concepts (Berlyne, 1966; Litman, 2008). Based on the interest-deprivation (I/D) theory of curiosity (Litman, 2005; Litman & Silvia, 2006), EC includes interest type epistemic curiosity (I-type EC) and deprivation type epistemic curiosity (D-type EC) (Litman & Jimerson, 2004; Mussel, 2010).

In order to effectively evaluate different types of epistemic curiosity, Litman (2008) developed a 10-item ECS scale (10-item I/D Epistemic Curiosity Scale). The scale has been proved to have a good reliability and validity in multiple test groups such as college students and professional groups. And the scale also has been proved to have cross-cultural consistency (Litman & Mussel, 2013; Piotrowski, Litman, Valkenburg, 2014; Piotrowski, Litman, Valkenburg P, 2014; Karandika, Kapoor, Litman, 2020).

Therefore, this study verified the 10-item ECS scale among Chinese senior high school students, and examined whether its measurement indicators can be used to measure the epistemic curiosity level of Chinese senior high school students.

2. Objectives

Using convenient cluster sampling for the participants who were recruited from Gansu Province and Hebei Province. These data were accumulated in 5 waves. Summary information for the participants in each study is reported in Table 1.

¹This work was supported by Humanities and Social Science Research Project of Hebei Education Department (ZD202109).

Table 1. Summary for data for participants in each study.

| Sample | N | | | Age | | | Purpose |
|--------|-------|-------|------|-------|-------|------|---|
| | Total | Girls | Boys | Range | M | SD | |
| 1 | 25 | 12 | 13 | 15-16 | 15.75 | 0.3 | the item comprehensibility |
| 2 | 602 | 302 | 300 | 14-18 | 15.63 | 0.82 | the item analysis and exploratory factor analysis |
| 3 | 533 | 281 | 252 | 13-18 | 16.03 | 0.86 | confirmatory factor analysis |
| 4 | 366 | 197 | 169 | 14-18 | 16.11 | 0.8 | the criteria correlation validity |
| 5 | 153 | 104 | 49 | 15-18 | 16.08 | 0.79 | the test-retest reliability |

3. Methods

3.1. Scale translation and determination process

The study adopted standard translation and back-translation procedures to develop the Chinese version of the ECS.

3.2. Instruments

I- and D- type ECS (Litman, 2008) includes two dimensions, a 5-item I-type scale ("I enjoy exploring new ideas"), and a 5-item D-type scale ("I can spend hours on a single problem because I just can't rest without knowing the answer"). The scale uses a four-level scoring. Participants use a 4-point scale (1="almost never", 4="almost always") to assess how well each item fits their own situation. The higher the total score, the higher the individual's epistemic curiosity.

Trait Curiosity Inventory: The scale was revised by Chen, Cai, Zhang, etc. (2017) based on Naylor's STCI scale to investigate the characteristics of college students' curiosity. Participants assessed the extent to which each item fits their own conditions on a 4-point scale (1="none or almost no", 4="almost always"). In this study, the trait curiosity inventory was used as an evaluation tool to examine the criteria correlation validity of the ECS.

4. Results

4.1. Item analysis

Sample 2 was used for item analysis using the critical ratio method. The results are shown in Table 2.

Table 2. Item analysis results.

| Item | t | r | Item | t | r |
|------|----------|---------|------|----------|---------|
| 1 | 13.29*** | 0.55*** | 6 | 13.15*** | 0.54*** |
| 2 | 10.29*** | 0.45*** | 7 | 10.87*** | 0.47*** |
| 3 | 14.15*** | 0.56*** | 8 | 13.12*** | 0.55*** |
| 4 | 15.17*** | 0.58*** | 9 | 15.18*** | 0.57*** |
| 5 | 11.95*** | 0.49*** | 10 | 16.63*** | 0.64*** |

4.2. Exploratory Factor Analysis of the ECS

An exploratory factor analysis (EFA) with principal components analysis and a promax oblique rotation were used in sample 2 to examine the structure of the ECS. The Kaiser–Meyer–Olkin (KMO) score for the Chinese version of the ECS was 0.80 and the Bartlett's test for sphericity was significant ($P < 0.001$), suggesting that the ECS was suitable for EFA. As a result, two factors were extracted and 10 items ultimately retained. The results are shown in Table 3.

Table 3. Exploratory factor analysis results.

| Items | Factors | |
|---|---------|--------|
| | I-type | D-type |
| 1 Enjoy exploring new ideas. | 0.76 | |
| 2 Enjoy learning about subjects that are unfamiliar to me. | 0.52 | |
| 3 Find it fascinating to learn new information. | 0.41 | |
| 4 Learn something new, like to find out more about it. | 0.61 | |
| 5 Enjoy discussing abstract concepts. | 0.76 | |
| 6 Hours on a problem because I can't rest without answer. | | 0.61 |
| 7 Conceptual problems keep me awake thinking. | | 0.62 |
| 8 Frustrated if I can't figure out problem, so I work harder. | | 0.7 |
| 9 Work like a fiend at problems that I feel must be solved. | | 0.62 |
| 10 Brood for a long time to solve problem. | | 0.63 |
| Eigenvalues | 2.99 | 1.25 |
| Variance explained (%) | 29.56% | 11.98% |

4.3. Confirmatory Factor Analysis of the ECS

Confirmatory factor analyses were then conducted on sample 3. Its main goodness of fit indices were: $\chi^2/df=2.68<3$; CFI=0.93, NFI=0.93, TLI=0.90, GFI=0.97, AGFI=0.95, all of them were greater than 0.9; the RMSEA was 0.06. The two-factor model which was consistent with the original scale proved to be the most appropriate.

4.4. Properties of the ECS

Sample 4 was used to test criteria correlation validity of the ECS. The results are shown in Table 4.

The result showed that Cronbach's α of the ECS total scale was 0.75, and Cronbach's α of every sub-scale ranged between 0.65 and 0.66. The 12-week test-retest reliability of total scale was 0.64, and the 12-week test-retest reliabilities of every sub-scale ranged between 0.54 and 0.56.

Table 4. Criteria correlation validity results.

| | EC | I-type | D-type |
|-----------------|---------|---------|---------|
| Trait Curiosity | 0.53*** | 0.51*** | 0.43*** |

5. Conclusion

In summary, this study developed a complete Chinese version of the ECS and found that it had a good reliability and validity among Chinese senior high school students.

References

- Berlyne D. E. (1966). *Curiosity and exploration*. Science (New York, N.Y.), 153(3731), 25–33.
- Karandikar, S., Kapoor, H., & Litman, J. (2020). *Why so curious? validation and cross-cultural investigation of the hindi epistemic curiosity scale*. Asian Journal of Social Psychology, 9, 1-14.
- Litman J. A. (2005). *Curiosity and the pleasure of learning: Wanting and Liking new information*. Cognition and Emotion, 19(6),793-814.
- Litman, J. A. (2008). *Interest and deprivation factors of epistemic curiosity*. Personality & Individual Differences, 44(7), 1585-1595.
- Litman, J. A., & Pezzo, M. V. (2005). *Individual differences in attitudes towards gossip*. Personality and Individual Differences, 38(4), 963–980.
- Litman, J. A., & Jimerson, T. L. (2004). *The measurement of curiosity as a feeling of deprivation*. Journal of personality assessment, 82(2), 147–157.
- Litman, Jordan & Mussel, Patrick. (2013). *Validity of the Interest- and Deprivation-Type Epistemic Curiosity Model in Germany*. Journal of Individual Differences, 34, 59-68.
- Litman, Jordan & Mussel, Patrick. (2013). *Validity of the Interest- and Deprivation-Type Epistemic Curiosity Model in Germany*. Journal of Individual Differences. 34(2), 59-68.
- Litman, Jordan & Silvia, Paul. (2006). *The Latent Structure of Trait Curiosity: Evidence for Interest and Deprivation Curiosity Dimensions*. Journal of personality assessment. 86, 318-28.
- Loewenstein, George. (1994). *The Psychology of Curiosity: A Review and Reinterpretation*. Psychological Bulletin. 116, 75-98.
- Mussel, P. (2010). *Epistemic curiosity and related constructs: Lacking evidence of discriminant validity*. Personality and Individual Differences, 49(5), 506–510.
- Piotrowski, J. T., Litman, J. A., & Valkenburg, P. (2014). *Measuring epistemic curiosity in young children*. Infant & Child Development, 60(5), 542-553.

ON-LINE LEARNING AND BURNOUT OF TEACHERS AND THE INTELLECTUAL HELPFULNESS OF STUDENTS

Aleksandra Jędrzysek-Geisler

PhD, Warsaw Management University in Warsaw, Department of Psychology (Poland)

Abstract

Introduction: The coronavirus pandemic has made a huge difference in everyday life around the world. In the education sector, there was a need to rapidly adapt teaching methods and learning to the remote system. In a short time, teachers and students had to switch to online teaching and learning.

Research purpose: *The purpose of the study is to identify (research questions):*

- 1) Does teachers' well-being and experience in on-line teaching are related to professional burnout?
- 2) Does the well-being of students and their online learning experience correlate with intellectual helplessness?
- 3) Are there any differences between teachers and students in terms of well-being during distance learning?
- 4) Are there any differences in the intensity of teachers 'professional burnout and students' intellectual helplessness due to the duration of on-line learning?

Material and methods: 1000 people have been tested so far. By the time of the conference, the number of people surveyed is likely to increase. The variables will be measured using the Maslach Burnout Inventory and the scale of intellectual helplessness of Grzegorz Sędek and personal records.

Results: In order to obtain answers to the research questions, analysis of the correlation and differences between the studied groups will be carried out.

Keywords: *Online teaching, online learning, burnout, intellectual helplessness.*

1. Introduction

The coronavirus pandemic has made a huge difference in everyday life around the world. In the education sector, there was a need to rapidly adapt teaching methods and learning to the remote system. In a short time, teachers and students had to switch to online teaching and learning. Consequently, they had to face completely different challenges very quickly. Additionally (especially for teachers) it was a situation in which they had to deal with new technologies in a very short time and with high intensity. Students have been drastically isolated from their peers and still have to struggle with self-study to this day at home, without direct teacher support. Remote learning continues in many countries around the world with short breaks for over a year. In this situation, the author decided to conduct research among students and teachers, which has been ongoing since March 2020 and is still being continued.

2. Research purpose

The purpose of the study is to identify (research questions):

Does teachers' well-being and experience in on-line teaching are related to professional burnout?

Does the well-being of students and their online learning experience correlate with intellectual helplessness?

Are there any differences between teachers and students in terms of well-being during distance learning?

Are there any differences in the intensity of teachers 'professional burnout and students' intellectual helplessness due to the duration of on-line learning?

3. Hypotheses

1. Teachers 'well-being with online learning correlates with teachers' burnout.
2. The teachers' experience in online learning correlates with professional burnout.

3. The well-being of students in relation to on-line learning correlates with intellectual helplessness.
4. The experience of students in online learning correlates with intellectual helplessness.
5. There are no differences in how students and teachers feel about online learning.
6. There are differences in the intensity of teacher burnout due to the duration of on-line learning.
7. There are differences in the intensity of intellectual helplessness of students due to the duration of on-line learning.

4. Material and methods

The sample of respondents consisted of 1,329 people (736 students and 593 teachers). The average age in the group of teachers is 44.06 - the youngest respondent was 22 years old, the oldest was 70 years old. The average age in the group of students is 16.72 - the youngest respondent was 10 years old, the oldest was 21 years old.

Variables were measured using:

- Maslach Burnout Inventory MBI-ES, authors: Christina Maslach, Susan E. Jackson and Richard L. Schwab in the Polish adaptation of Tomasz Pasikowski (2000);
- Intellectual Helplessness Scale SBI, author Grzegorz Sędek (1995);
- Own records, which contain questions necessary to define the characteristics of the group in terms of sociodemographic and situational variables.

5. Results

1. Teachers' well-being with online learning is negatively correlated with exhaustion ($r = -.37$; $p < 0.01$) and depersonalization ($r = -.24$; $p < 0.01$), and positively with the sense of personal achievement ($r = .30$; $p < 0.01$).
2. The teachers' experience in online learning is not related to exhaustion ($r = -.97$; $p > 0.05$) and depersonalization ($r = -.09$; $p > 0.05$) and has a positive relationship with the sense of personal achievement ($r = .21$; $p < 0.01$).
3. The well-being of students in relation to on-line learning is negatively correlated with intellectual helplessness ($r = -.43$; $p < 0.01$).
4. The students' experience in on-line learning is not related to intellectual helplessness ($r = -.86$; $p > 0.05$).
5. There are differences in the well-being of students and teachers in the online learning situation ($t = -.97$; $p < 0.05$).
6. There are significant differences in the severity of exhaustion ($t = 4.79$; $p < 0.01$) and depersonalization ($t = 11.73$; $p < 0.01$) due to the duration of on-line learning (in the second semester of 2019/2020 they were significantly higher than in the first semester of 2020/2021), there are no differences due to the duration of online learning in terms of teachers' sense of personal achievement ($t = -0.79$; $p < 0.05$).
7. There are differences in the intensity of intellectual helplessness of students due to the duration of on-line learning - the longer remote learning lasts, the greater the level of helplessness ($t = -4.39$; $p < 0.01$).

Conclusions:

1. It is essential to provide teachers with the necessary equipment, training and online work conditions.
2. Teachers have seen online learning as a challenge, have developed strongly in new technologies and the more experience they have in it, the greater their sense of personal achievement.
3. In order to prevent students' intellectual helplessness, it is necessary to ensure their well-being in online learning (teachers' duty hours; individual consultations?).
4. Despite the much worse preparation of teachers to work with new technologies, they have adapted much better to the forced, new situation and cope with online learning now better (from the level of assessment of this situation) than students who, along with the longer learning time, line feel worse.
5. It is recommended to return to traditional education as soon as possible so that the intellectual helplessness of students does not increase.

Note: The above analyzes and recommendations apply primarily to primary school students and teachers.

References

- Maslach, C. (2009). Wypalenie – w perspektywie wielowymiarowej. W: H. Sęk (red.), *Wypalenie zawodowe – przyczyny i zapobieganie* (s. 13 – 32). Warszawa: PWN.
- Maslach, C., Jackson, S. (1981). The measurement of experienced burnout. *Journal of Occupational Behavior*, 81(2), 99-113.
- Maslach, C., Leiter, M.P. (2011). *Prawda o wypaleniu zawodowym*. Warszawa: PWN.
- Maslach, C., Leiter, M.P. (2015). *Pokonać wypalenie zawodowe. Sześć strategii poprawienia relacji z pracą*. Warszawa: Oficyna.
- Maslach, C., Schaufeli, W.B., Leiter, M. (2001). Job burnout. *Annual Review of Psychology*, 52, 397-422.
- Sędek, G. (1995). *Bezradność intelektualna w szkole*. Warszawa: Wydawnictwo Instytutu Psychologii PAN.
- Sędek, G., McIntosh, D. N. (1998). Intellectual helplessness: Domain specificity, teaching style, and school achievement. [W:] M. Kofta, G. Weary, G. Sędek (red.), *Personal control in action: Cognitive and motivational mechanisms* (s. 391-418). New York: Plenum Press.

PERSONAL AND ORGANIZATIONAL CHARACTERISTICS ANTECEDENTS OF MEANINGFUL WORK

Francesco Tommasi, Andrea Ceschi, & Riccardo Sartori

Department of Human Sciences, University of Verona (Italy)

Abstract

The contribution presents evidence of the role played by personal and organizational characteristics of employees in the experience of meaningful work. As referred to the individuals' experience of value and significance of their work, meaningful work is a critical working phenomenon both for individuals (e.g., individuals' well-being) and organizations (e.g., workers' productivity). Therefore, a large number of studies have tried to understand its antecedents, however, it is still not clear about how and to what extent personal and organizational characteristics are associated with meaningful work. For instance, it is unclear the roles of a higher level of education as well as financial returns or good working conditions (e.g., high level of salary and good health insurance) for the pursuit of meaningful work. The contribution considers such a need for knowledge and aims to understand the antecedent role of personal and organizational characteristics in the experience of meaningful work. 570 Italian employees participated in a cross-sectional study that comprised measures of meaningful work and related facets, as well as questions on personal and organizational characteristics. Data were analyzed via the MANOVAs and results showed significant associations with meaningful work dimensions and personal characteristics, such as education, social class and health as well as organizational characteristics, such as job contract, job sector and salary.

Keywords: *Meaningful work, personal characteristics, organizational characteristics, individual differences.*

1. Introduction

In the current turbulent time for the economy in worldwide society, an increase of interest for meaningful work construct and linked factors raised among scholars and authors (Yeoman et al., 2019). The notion of meaningful work refers to the experience and perception of one's work and actions of workers as "particularly significant and holding more positive meaning" (Rosso et al. 2010, p. 95). Therefore, the growing interest among authors from various disciplines is due to the positive implications of meaningful work for workers and organizations (just to mention a few; work engagement, motivation, human flourishing). However, although the amount of literature on meaningful work definitions and conceptualizations, prospects on meaningful work theorization seem to be characterized by an embedded nature of being contested (Yeoman et al., 2019). In the literature, it appears that certain aspects such as personal and organizational characteristics might be associated with certain experience at work, e.g., meaningful work. Indeed, in the existing literature, there is a considerable number of reviews and empirical studies on meaningful work which have expanded our knowledge offering different prospects of research. However, only a few authors have proposed an empirical examination of the antecedent role of personal and organizational characteristics for the experience of meaningful work. For instance, it is unclear the roles of a higher level of education as well as financial returns or good working conditions (e.g., high level of salary and good health insurance) for the pursuit of meaningful work (Bailey et al. 2018; Rothmann, et al., 2019).

The contribution presents evidence of the role played by personal and organizational characteristics of employees in the experience of meaningful work. We have taken into account such need for knowledge on the role of personal and organizational characteristics to understand their antecedent role in the experience of meaningful work.

2. The present study

According to the literature, we aimed to address the current gaps of knowledge on meaningful work. Then, we devised a cross-sectional study by the use of an online questionnaire with self-report

measures. It was submitted online (software *LimeSurvey*) via email which has been sent by the three researchers to a general population of employees of twelve organizations from the Veneto region, in the North of Italy. 619 emails were sent and only 570 participants voluntarily filled in the questionnaire (response rate, 92.08%). After presenting the aim of the study, participants were asked to sign the informed consent to complete the survey. The compilation of the questionnaire required a total of 5-7 minutes.

We asked participants to report their personal and organizational characteristics. In respect of the personal characteristics, participants were asked to indicate their gender, age, education, religion, marital status, social status, and perceived health status. In respect of the organizational characteristics, participants were asked to indicate their contract, collar (white-, blue- or pink-), financial returns (1 = more than 1,000 euros per month, 2 = less than 1,000 euros per month). In addition, we assessed meaningful work by the use of the second module of the modular questionnaire *Meaning in Work* (ME-Work) Inventory developed by Schnell & Hoffmann (2020) which has proven good validity in the German and Italian context (Tommasi et al. *under review*). The second ME-Work module comprises two main dimensions, meaningful work (i.e., the perception that work is meaningful, *Cronbach's* $\alpha = .857$) and meaningless work (i.e., the perception that work is meaningless comprising a sense of crisis of meaning and void, *Cronbach's* $\alpha = .887$). Both dimensions are assessed by the use of three items per dimension with a 5-points Likert scale of agreement (1 = not at all, 2 = totally agree). At the end of the data collection, data were analyzed in order to examine the antecedent role personal and organizational characteristics. We made a series of MANOVAs considering each personal and organizational variable separately per all the dimensions of meaningful work. Such analysis as well as reliability were conducted via the use of SPSS version 22.

2.1. Results

570 employees participated in the study (average age, 39.69 years old, $SD = 12.54$, 61.4%, $N = 350$ females). As reported in table 1, significant differences were found for personal demographic variables except for gender (i.e., meaningful work $F(1, 568) = .219$, $p = .64$, meaningless work, $F(1, 568) = .30$, $p = .58$), generational cohorts (i.e., meaningful work $F(3, 566) = .72$, $p = .57$, meaningless work, $F(1, 568) = 2.02$, $p = .16$), marital status (i.e., meaningful work $F(4, 566) = 1.683$, $p = .170$, meaningless work, $F(3, 566) = 2.02$, $p = .111$) and religion (i.e., meaningful work $F(3, 566) = 2.20$, $p = .08$, meaningless work, $F(3, 566) = 2.07$, $p = .103$). By contrast, each organizational characteristic showed to be significantly associated with meaningful and meaningless work.

Table 1. Significant associations of meaningful/ meaningless work with personal and organizational characteristics.

| Personal variables | Meaningful work | | Meaningless work | |
|--------------------------|-----------------|------|------------------|------|
| | $F(df1, df2)$ | p | $F(df1, df2)$ | p |
| Education | 2.106(8, 561) | .033 | 2.085(8, 561) | .035 |
| Health | 3.33(4, 565) | .01 | 5.57(4, 565) | .000 |
| Social class | 2.611(5, 564) | .004 | 3.237(5, 564) | .000 |
| Organizational variables | Meaningful work | | Meaningless work | |
| | $F(df1, df2)$ | p | $F(df1, df2)$ | p |
| Collar | 7.221(2, 567) | .001 | 3.923(2, 567) | .02 |
| Contract | 2.595(6, 563) | .017 | 2.279(6, 563) | .035 |
| Remuneration | 2.586(3, 566) | .05 | 6.692(3, 566) | .000 |
| Job Sector | 6.351(7, 562) | .026 | 1.217(7, 562) | .291 |

High educated, and individuals with a low level of perceived health reported having lower levels of meaningful work. Likewise, within the subgroups of the social class, major differences were found between those who reported being in a higher class, with higher levels of meaningless work. These results are in line with those of the organizational characteristics. White-collar resulted to have a higher level of meaningless work as well as for those who reported having a higher level of financial return, i.e., remuneration. Differences were found also in the case of job sector group where participants who reported to have a job as caregiving, craftsmen and technical protectionists, resulted to have higher levels of meaningful work.

3. Discussion

In the recent book by Yeoman et al. (2019), the role played by individual and organizational diversity in the experience of meaningful work represents one of the current theoretical boundaries as well as new frontiers of research. Indeed, Hofmeister (2019) noted that the current empirical

examinations in the field of studies on meaningful work have rarely taken into account such personal and organizational characteristics that might be associated with meaningful work experiences. In this vein, Rothmann et al (2019) proposed a map of the research frontiers on the so-called individual diversity in the experience of meaningfulness. They showed how differences among individuals in meaningful work might be related to their personal differences such as age, religion, marital status, social status and health. Likewise, organizational differences such as work contract, financial returns and occupation types might affect individual working experiences. Therefore, Rothmann et al (2019) proposed to address the current gap of knowledge regarding meaningful work and individual diversity by supporting the use of empirical examination to be used to study and examine such relations.

In the present contribution, we have tried to briefly summarize the associations between employees' personal and organizational characteristics in their experience of meaningful and meaningless work. The evidence of the present paper supports the current perspectives on individual differences in meaningful work. As noted, only a few examples of studies have proposed empirical examination of such differences while a large amount of theoretical discussion are presents. For instance, Lips-Wiersma et al (2016) have found significant differences regarding collar characteristic where pink-collar employees showed a higher level of meaningful work. Likewise, Weeks and Schaffert (2019) have proposed empirical examinations of generational differences, however, no significant differences have been found as in our study. Other authors explored the role of financial returns revealing that employees with a low paid job would find meaning beyond financial reward (Hu & Hirsh, 2017). Our results confirmed previous evidence and expand by adding information about the role of health, social status, education and contract. Indeed, in the respect of gender, generational differences, job sector and collar, our results confirm previous evidence. That is not the case of marital status and religion which are usually predictive of higher levels of meaningful work in the case of believers and partnered (Oelberger, 2019; Lips-Wiersma & Morris, 2009). In respect of health, social status, education and contract, our results offer a piece of knowledge in regard of the Rothmann et al (2019) model of individual diversity, suggesting possible further explorations.

References

- Bailey, C., Yeoman, R., Madden, A., Thompson, M., & Kerridge, G. (2019b). A Review of the Empirical Literature on Meaningful Work: Progress and Research Agenda. *Human Resource Development Review*, 18(1), 83–113.
- Hofmeister H. (2019). Work Through a Gender Lens: More Work and More Sources of Meaningfulness. In R. Yeoman, K. Bailey, A. Madden, & M. Thompson (Eds.), *The Oxford Handbook of Meaningful Work* (pp. 302-326). Oxford University Press, Corydon, UK.
- Hu, J., & Hirsh, J. B. (2017). Accepting lower salaries for meaningful work. *Frontiers in Psychology*, 8(SEP), 1–10.
- Lips-Wiersma, M., & Morris, L. (2009). Discriminating between “meaningful work” and the “management of meaning.” *Journal of Business Ethics*, 88(3), 491–511.
- Lips-Wiersma, M., Wright, S., & DIK, B. (2016). Meaningful work: differences among blue-, pink-, and white-collar occupations. *Career Development International*, 21(5), 534–551.
- Rosso, B. D., Dekas, K. H., & Wrzesniewski, A. (2010). On the meaning of work: A theoretical integration and review. *Research in Organizational Behavior*, 30(C), 91–127.
- Rothmann, S., Weiss, L. A., & Redelinguys J. J. (2019). Cultural, National, and Individual Diversity and their Relationship to the Experience of Meaningful Work. In R. Yeoman, K. Bailey, A. Madden, & M. Thompson (Eds.), *The Oxford Handbook of Meaningful Work* (pp. 429-446). Oxford University Press, Corydon, UK.
- Schnell, T., & Hoffmann, C. (2020). ME-Work: Development and Validation of a Modular Meaning in Work Inventory. *Frontiers in Psychology*, 11, 3405.
- Tommasi, F., Ceschi, A., & Sartori, R. (2020). Viewing Meaningful Work Through the Lens of Time. *Frontiers in Psychology*, 11.
- Tommasi, F., Sartori, R., Ceschi, A., & Schnell, T. (under review). The Meaning in Work Inventory: 875 Validation of the Italian Version and its Association with Sociodemographic Variables.
- Weeks, K. P., & Schaffert, C. (2019). Generational Differences in Definitions of Meaningful Work: A Mixed Methods Study. *Journal of Business Ethics*, 156(4), 1045–1061.
- Yeoman, R., Bailey, C., Madden, A., & Thompson, M. (2019). *The Oxford Handbook of Meaningful Work* (1st ed.). Oxford University Press, Corydon, UK.

WILLINGNESS TO SHARE PERSONAL INFORMATION

Lilly Elisabeth Both

Department of Psychology, University of New Brunswick (Canada)

Abstract

The purpose of this study was to examine the factors that influence an individual's choice to share personal information online. Specifically, the role of age, gender, personality, overall media exposure, and perceived risks and benefits were examined in relation to a willingness to share personal information that differed in sensitivity (high school grades, medical records, income) and differed in target audience (social media, online store, general public). A total of 202 individuals participated in this survey study. The majority were young (M age = 22.46 years, SD = 5.77), single (83.7%), women (80.7 %), with at least some post-secondary education (90.1%). A series of hierarchical regression analyses were conducted. The results indicated that willingness to share personal information on social media was predicted by having higher scores on the personality traits of extraversion, agreeableness, and negative emotionality. Higher scores on perceived purchase benefits and total media exposure also predicted willingness to share personal information on social media. In terms of willingness to share personal information with an online store, total media exposure was a significant predictor along with higher extraversion and lower conscientiousness scores. Finally, willingness to share personal information with the general public was predicted by overall media exposure. Participants generally believed that there were risks involved in sharing personal information, but these risks were considered to be slight. As well, they only slightly disagreed when asked if the internet could be trusted, and were neutral on whether there were purchase benefits to providing personal information.

Keywords: *Privacy, personal information, personality, social media use.*

1. Introduction

E-commerce transactions have become increasingly more popular during the global COVID-19 pandemic. To provide services, online stores require personal information such as credit card numbers, addresses and names. However, increasingly, people are willing to share personal information on other platforms such as social media, where access to this private information is not always necessary.

1.1. Purpose of the present study

The purpose of this study was to examine factors that influence an individual's choice to share personal information online. Specifically, the role of age, gender, personality, overall media exposure, and perceived risks and benefits were examined in relation to a willingness to share personal information that differed in sensitivity (high school grades, medical records, income) and differed in target audience (social media, online store, general public).

2. Method

2.1. Participants

The participants consisted of 202 adults between the ages of 19.0 and 54.4 years. The majority were young (M age = 22.46 years, SD = 5.77). In this sample, 80.7% identified as being women, 17.8% as men, and 1.5% as transgender. In terms of marital status, 83.7% were single, 14.8% were married or living common law, and 1.5% were divorced. Participants were mainly Caucasian (88.6%) and educated (90.1% had completed at least some university or community college courses). Participants were recruited through announcements in psychology courses at the university, and a link to the online study could be shared with others via social media.

2.2. Measures

Demographic Questionnaire. Participants were asked a series of questions regarding age, gender, marital status, education level and ethnicity.

The Big Five Inventory – 2 (BFI-2; Soto & John, 2017). The BFI-2 is commonly used to measure five personality traits: Negative Emotionality (or neuroticism), Extraversion, Open-mindedness, Agreeableness, and Conscientiousness. In this study, the internal reliability was excellent (Cronbach's $\alpha = .85$ for Extraversion; $.79$ for Agreeableness; $.87$ for Conscientiousness; $.91$ for Negative Emotionality; and $.82$ for Open-Mindedness).

Purchase Benefits Survey (Robinson, 2018). Robinson (2018) adapted this scale based on purchase benefit questions from Gupta, Iyer and Weisskirch (2010). The measure consists of five questions rated on a 7-point scale where 1 = *not at all important* to 7 = *extremely important*. An overall score was computed, and the scale had excellent internal reliability in this study (Cronbach's $\alpha = .85$).

Risk Beliefs Scale (Malhotra, Kim & Agarwal, 2004). Malhotra et al. (2004) adapted this scale from Jarvenpaa, and Tractinsky (1999). The Risk Beliefs Scale consists of four questions rated on a 7-point scale from 1 = *strongly disagree* to 7 = *strongly agree*. A total score was computed for this scale, and the internal reliability of Cronbach's $\alpha = .86$ was excellent.

Trust in the Internet (Robinson, 2018). Robinson (2018) adapted this scale based on internet trust questions from Dinev and Hart (2006). The scale consists of four questions rated on a 7-point scale where 1 = *strongly disagree* to 7 = *strongly agree*. An overall score was computed, and the scale had excellent internal reliability in this study (Cronbach's $\alpha = .82$).

Media Exposure Scale. For the purpose of this study, three questions asked participants how often they shop online, bank online and use Apps that ask for personal information. These questions were rated on a scale from 1 = *never*, 2 = *rarely*, 3 = *occasionally*, 4 = *frequently*, and 5 = *very frequently*. The scores from the three questions were summed to give an overall total score of media exposure.

Willingness to Share Information (adapted from Shubert et al., 2018). Shubert et al. (2018) examined how willing people were to share personal data. They varied the sensitivity of information (such as high school grades, medical records, last year's tax return, gender, education, ethnicity, current location, address) in three domains (a social media website, an online store, a broader public). These questions and the format were adapted for the present study. The three domains were used, but the sensitivity of information questions were broadened to include more items such as bank account balance, credit card information, phone number, drivers' license photo, etc. Participants rated how likely they would be willing to share their personal information for each of these questions in each of the three domains. The items were rated on a scale of 1 = *extremely unlikely* to 5 = *extremely likely*. In total, 24 questions were asked in each domain, and an overall average score was computed for each domain. Cronbach's $\alpha = .88$ for the 24 items comprising the willingness to share information on a social media platform like Facebook or Twitter; Cronbach's $\alpha = .88$ for sharing information with an online store; and Cronbach's $\alpha = .92$ for sharing information with the general public.

2.3. Procedure

Participants were recruited from psychology courses at the university. They read a description of the study and were directed to Qualtrics, an online survey platform. A consent form and the demographic measure were always presented first, followed by the remaining questionnaires in random order. The entire survey took about 40 minutes to complete and students could earn one bonus point toward their final grade (students had the option of earning bonus points through other means if they did not wish to participate in research). The survey link could also be shared on social media platforms. As an incentive to participate, all participants also had the option of being entered into a draw for a \$50 Amazon gift card.

3. Results

Participants only slightly agreed ($M = 5.1$ on a 7-point scale) that there were risks involved in sharing personal information. When asked if the internet could be trusted, they only slightly disagreed ($M = 3.3$ on a 7-point scale), and they were neutral on whether there were purchase benefits ($M = 4.4$ on a 7-point scale).

3.1. Hierarchical regression analyses

Three hierarchical regression analyses were conducted predicting: willingness to share personal information on social media; willingness to share personal information with an online store; and willingness to share personal information with the broader public. For each of these criterion variables, age and gender were entered on the first step. The five personality factors of Negative Emotionality, Extraversion, Open-Mindedness, Agreeableness, and Conscientiousness were added on the second step.

Finally, purchase benefits, risk beliefs, trust in the internet, and media exposure were added on the third step. For each of these hierarchical regression analyses, Tolerance and VIF were within acceptable levels.

Willingness to share personal information on social media. The overall model was statistically significant and accounted for 25% of the variance on the measure of willingness to share personal information on social media ($F(11,185) = 5.66, p < .001$, multiple $R = .50$). Age and gender were not statistically significant predictors. Significant predictors were Extraversion ($\beta = .20$), Agreeableness ($\beta = .21$), Negative Emotionality ($\beta = .21$), purchase benefits ($\beta = .17$), and media exposure ($\beta = .31$).

Willingness to share personal information with an online store. The overall model was statistically significant and accounted for 16% of the variance on the measure of willingness to share personal information with an online store ($F(11,186) = 3.17, p = .001$, multiple $R = .40$). Age and gender were not statistically significant predictors. Significant predictors were Extraversion ($\beta = .20$), and Conscientiousness ($\beta = -.19$) along with media exposure ($\beta = .22$). The adjusted R^2 value of .11 in the overall model indicates that only 11% of the variability in the willingness to share personal information with an online store was predicted by higher scores on Extraversion and media exposure, and lower scores on Conscientiousness.

Willingness to share personal information with a broader public. The overall model was statistically significant and accounted for 12% of the variance in willingness to share personal information with a broader public ($F(11,186) = 2.29, p = .012$, multiple $R = .35$). The only significant predictor was media exposure ($\beta = .16$).

4. Discussion

Age and gender did not predict willingness to share personal information; media exposure was the only consistent predictor across the different platforms. The more media exposure participants had, the more willing they were to share personal information. Although people understood there were risks involved, they felt these risks were slight. They only slightly disagreed when asked if the internet could be trusted. Participants were more willing to share information on social media than they were with an online store, and were least willing to share information with the broader public. Further research is needed to address why people would provide sensitive information to others in cases where it isn't necessary.

References

- Dinev, T., & Hart, P. (2006). An extended privacy calculus model for e-commerce transactions. *Information Systems Research, 17*(1), 61-80.
- Gupta, B., Iyer, L.S., & Weisskirch, R.S. (2010). Facilitating global e-commerce: A comparison of consumers' willingness to disclose personal information online in the US and in India. *Journal of Electronic Commerce Research, 11*(1), 41-52.
- Jarvenpaa, S.L., & Tractinsky, L.N. (1999). Consumer trust in an internet store: A cross-cultural validation. *J. Comput.-Mediated Comm., 5*(2). Retrieved November 3, 2018, from <http://www.ascosc.org/jcmc/vol5/issue2/jarvenpaa.html>
- Malhotra, N.K., Kim, S.S., & Agarwal, J. (2004). Internet Users' Information Privacy Concerns (IUIPC): The construct, the scale, and a causal model. *Information Systems Research, 15*, 336-355.
- Robinson, S.C. (2018). Factors predicting attitude toward disclosing personal data online. *Journal of Organizational Computing and Electronic Commerce, 28*(3), 214-233. doi: 10.1080/10919392.2018.1482601
- Shubert, R., Koumoutsakos, P., Arampatzis, G., Wang, Y., Hug, F., & Marinica, I. (2018). Are people willing to share their personal data? Insights from two survey studies. Working Paper No. 1. Collegium Helveticum. Retrieved November 3, 2018, from https://collegium.ethz.ch/wpcontent/uploads/2018/07/180705_are_people_willing.pdf
- Soto, C.J., & John, O.P. (2017). The next Big Five Inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of Personality and Social Psychology, 113*(1), 117-143.

THE DARKSIDE OF IDIOSYNCRATIC DEALS: HUMANISTIC VERSUS NEOLIBERAL TRENDS AND APPLICATIONS

Severin Hornung, & Thomas Höge

Institute of Psychology, University of Innsbruck (Austria)

Abstract

Theory-building on workplace flexibility is extended, based on a critical Human Resource (HR) systems framework and paradox (conflict) perspective on employee-oriented vs. capacity-oriented flexibility. Differentiated are variabilities in HR practices by: a) content (functional, temporal, spatial, numerical, financial); b) control (employer, employee); and c) creation (top-down, bottom-up). Hybrid types of bottom-up initiated and top-down authorized flexibility, idiosyncratic deals (i-deals), describe mutually beneficial, negotiated agreements on non-standard working conditions between employees and employer. If their real-world manifestations reflect idealized assumptions, however, remains obscure. Integrating institutional logics, HR systems embody values of humanistic ideals vs. neoliberal ideology: (1) individuation vs. individualism; (2) solidarity vs. competition; (3) emancipation vs. instrumentality. Reflecting these antipodes, construed ideal-type and anti-type i-deals facilitate: (a) self-actualization vs. self-reliance (needs vs. interests); (b) common good vs. tournament situations (triple-win vs. winner-take-all); (c) social transformation vs. economic rationalization (development vs. performance). In humanistic management theory, i-deals increase employee-oriented flexibility, but, in reality, risk being co-opted for economic rationalization and divisive labor-political power strategies. Antagonistic applications involve: humanization vs. rationalization goals; egalitarian vs. elitist distribution; relational vs. transactional resources; need-based vs. contribution-based authorization; procedural vs. distributive justice; supplementing vs. substituting collective HR practices. Instrumental adoption in high-performance work environments likely facilitates harmful internalizations as subjectification and self-exploitation.

Keywords: *Flexibility, HR systems, idiosyncratic deals, neoliberal ideology, humanistic management.*

1. Introduction

This contribution continues theory-building on workplace flexibility, a multifaceted and paradoxical phenomenon as complex and contradictory as the employment relationship itself (Bal & Izak, 2020; Bessa & Tomlinson, 2017; Cañibano, 2019). The suggested Human Resource (HR) systems framework conceptualizes flexibility as (interpersonal or intrapersonal) variable patterns in HR practices not attributable to (or going beyond) positional differences (job function, hierarchical status). Variabilities differ in: a) content (functional, temporal, spatial, numerical, financial); b) control (organizational employer vs. individual employee); and c) creation (top-down implementation, bottom-up emergence, hybrid). The framework adopts a paradox perspective, stressing conflicts of interests and tensions in employment (Glaser, Hornung, & Höge, 2019). Underlying employee-oriented vs. capacity-oriented flexibility, conflicts incorporate employee autonomy (over working conditions) vs. adaptivity (complying with flexibility requirements), respectively, as employer authority (over terms of employment) vs. acceptance (of flexibility constraints). Dialectic interdependencies connect functional, temporal, spatial, numerical, and financial flexibility content on the organizational level with employee influence over important aspects of their working life, demanding adaptivity to changing work tasks, working times, work locations, hours employed, and take-home pay. This inverse relationship of antagonistic tensions between employee and employer flexibility means that increases or decreases in one diminish or open up degrees of freedom for the other (Bal & Izak, 2020). Embedded in the flexibility framework is the concept of idiosyncratic deals (i-deals), defined as mutually beneficial voluntary agreements on non-standard working conditions, negotiated between individual employees and employer (supervisors, managers, HR). Authorizing personalized terms, such as customized work schedules, job tasks, learning opportunities or career support, i-deals represent hybrid types of bottom-up (employee) initiated and top-down (employer) authorized personalized workplace flexibility (Hornung, Glaser, & Rousseau, 2018). A related construct, job crafting captures unauthorized modifications employees implement to

improve their job designs and work experiences. Both are advocated as win-win” situations, increasing flexibility of organizations to change and motivate high-performance workforces by aligning jobs with employee needs and preferences, capitalizing on “high road” employment relationships. The extent to which real-world manifestations reflect idealized assumptions, however, is unclear. Based on previous research, theory development is offered regarding prerequisites and boundary conditions of mutually beneficial workplace flexibility in the context of the observed neoliberal reconfiguration of work organizations (Hornung & Höge, 2019). To reconcile assumptions on i-deals (mutual benefits) with the paradox HR framework (conflicts of interest), institutional (managerial) logics are included as meta-dimensions of HR systems, capturing higher-order values of humanistic ideals vs. neoliberal ideology: (1) individuation vs. individualism; (2) solidarity vs. competition; (3) emancipation vs. instrumentality. These three ideological antipodes offer an analytic grid to contrast the humanistic ideal of employee-oriented management practices contributing to wellbeing, health, and development, with anti-type arrangements employed as labor political power strategy within agendas of austerity, precarization, and performance pressure.

2. Flexibility as neoliberal ideology

Neoliberalism, as used here, stands for hegemony of economic interests, the “totalization” of money, markets, and management, creating excessive wealth for a small minority, and various degrees of austerity, poverty, and environmental destruction for the rest (Bal & Dóci, 2018; Beattie, 2019; Hornung & Höge, 2019). Recent debates in organizational scholarship portray neoliberal ideology as a matrix of political, social, and “fantasmatic” (subconscious) logics, orienting workplace practices and research towards individualism, competition, and instrumentality. Individualism demands self-reliance, holding individuals responsible for their life situation, wealth, health and happiness, education, and employment, without consideration of societal conditions (structural inequality), eroding collective pursuit of interests (unions, welfare), interpersonal relationships, and support. Competition on “free” markets is deemed imperative for progress and allocation of resources. In all domains of society, markets should determine values of goods and services; among the most versatile commodities are “human resources”. Instrumentality refers to “objectification” of humans as “resources”, exploited by cost-benefit, means-end or input-output calculations, absorbing their time, activities, and existence, for profit and economic goals. These tendencies manifest as employee self-reliance instead of employment security, competition on internal and external labor markets, and multitudes of interventions, from supervision and performance assessment, motivation and training, to restructuring and change management, all aimed towards objectives (profit, performance) that do not primarily benefit those “instrumentalized” for these purposes.

3. Flexibility as humanistic ideal

Humanistic ideas of individuation, solidarity, and emancipation are suggested as antagonistic counter-principles to neoliberal dogmas and utilization strategies (Bal & Dóci, 2018; Hornung & Höge, 2019). Antipode to neoliberal individualism, individuation represents the humanistic ideal of personal development, growth, and (self-)insight. Considered central to the human condition, individuation is inherent in imageries, such as existentially becoming “who one is meant to be”, becoming a fully developed or fully functioning person, self-actualization, following a calling, finding meaning, wisdom or insight. As social logic applied to workplaces, individuation converges with self-actualization, including discretion to autonomously pursue personally significant tasks satisfying higher-order needs for growth, prosocial impact, and transcendence. Antipode to competition, solidarity emphasizes collaboration, cohesion, and shared use of resources. Solidarity is directed at those in a similar or worse situation as oneself, facing struggles, adverse conditions or injustice. As a social logic, solidarity orients workplaces towards structural participation and models of common good economy and organizing (reducing differences in status, pay, and privileges). The humanistic ideal of emancipation has multiple layers of meanings, referring to “liberation” or attaining freedom, by overcoming exploitative, unjust, or limiting (coercive, manipulative) power-structures and power-dependence relationships (Huault, Perret, & Spicer, 2014). Mostly abandoning this macro-emancipatory meaning, the organizational literature has highlighted micro-emancipatory actions, through which employees increase freedom at work, for instance, by resisting pressure and avoiding control by management, or self-actualizing by crafting and creating meaning and fulfillment in their work activities. Social logics of emancipation seek to maximize employee autonomy and influence, self-determination, self-organization, and participation, including semi-autonomous work groups and organizational democracy. This counter-model to neoliberal ideology was framed as organizing for social transformation versus economic rationalization.

4. Applications of ideological antipodes

Reflecting ideological antipodes (individuation vs. individualism; solidarity vs. competition; emancipation vs. instrumentality), construed ideal-type and anti-type i-deals are theorized to diametrically orient flexible work arrangements towards: (a) self-actualization vs. self-reliance (needs vs. interests); (b) common good vs. tournament situations (triple-win vs. winner-take-all); (c) social transformation vs. economic rationalization (development vs. performance). Evaluation criteria for opposing implementation strategies of (neoliberal) individualized and humanistic (personalized) work arrangements include: a) objectives (humanization vs. rationalization goals); b) distribution (egalitarian vs. elitist distribution); c) content (relational vs. transactional resources); d) basis of authorization (need-based vs. contribution-based); e) organizational justice principles (procedural vs. distributive fairness); and f) work system embeddedness (supplementing vs. substituting collective HR practices and benefits). Under theoretical preconditions, i-deals introduce employee-oriented flexibility as a humanistic management practice, but risk being misused for economic rationalization and divisive labor-political power strategies (Hornung & Höge, 2019; Weiskopf & Loacker, 2006). Instrumental adoption in high-performance work systems further internalizes tensions as subjectification, underlying self-exploitation, marketing orientation, and governmentality. Recommended are refined conceptualizations, measures, and more comprehensive (multi-source, multi-method) research designs, to clearly differentiate i-deals from neoliberal look-alikes.

5. Conclusion

There is ongoing need to clarify the ambiguous, often misrepresented phenomenon of workplace flexibility, particularly, idiosyncratic deals. Deconstructing implied logics, applications, and ideal-types, offers critical angles for studying flexibility and individualization. Humanistic conceptions of idiosyncratic deals reflect employee-oriented workplace flexibility, but within a neoliberal paradigm they may provide vehicles for economic rationalization and divisive labor-political power tactics. Aggravating are behavioral forces in high-performance work systems, where internalized tensions emerge as self-exploitation, marketing orientation, and psychological governance. Following a paradox perspective, promoting employee-oriented flexibility means containing capacity-oriented flexibility. Application of ideological antipodes to evaluate workplace flexibility illustrates the usefulness of this model.

References

- Bal, P. M., & Dóci, E. (2018). Neoliberal ideology in work and organizational psychology. *European Journal of Work and Organizational Psychology*, 27, 536-548. doi:10.1080/1359432X.2018.1449108
- Bal, P. M., & Hornung, S. (2019). Individualization of work: From psychological contracts to ideological deals. In Y. Griep & C. L. Cooper (Eds.), *Handbook of research on the psychological contract at work* (pp. 143-163). Cheltenham, UK: Edward Elgar.
- Bal, P. M., & Izak, M. (2020). Paradigms of flexibility: a systematic review of research on workplace flexibility. *European Management Review*, in press. doi:10.1111/emre.12423
- Beattie, P. (2019). The road to psychopathology: Neoliberalism and the human mind. *Journal of Social Issues*, 75, 89-112. doi:10.1111/josi.12304
- Bessa, I., & Tomlinson, J. (2017). Established, accelerated and emergent themes in flexible work research. *Journal of Industrial Relations*, 59, 153-169. doi:10.1177/0022185616671541
- Cañibano, A. (2019). Workplace flexibility as a paradoxical phenomenon: Exploring employee experiences. *Human Relations*, 72, 444-470. doi:10.1177/0018726718769716
- Glaser, J., Hornung, S., & Höge, T. (2019). Organizational tensions, paradoxes, and contradictory demands in flexible work systems. *Journal Psychologie des Alltagshandelns / Psychology of Everyday Activity*, 12(2), 21-32.
- Hornung, S., & Höge, T. (2019). Humanization, rationalization or subjectification of work? Employee-oriented flexibility between i-deals and ideology in the neoliberal era. *Business & Management Studies: An International Journal*, 7, 3090-3119. doi:10.15295/bmij.v7i5.1384
- Hornung, S., Glaser, J., & Rousseau, D. M. (2018). Idiosyncratic deals at work: A research summary. *Journal Psychologie des Alltagshandelns / Psychology of Everyday Activity*, 11(1), 36-46.
- Huault, I., Perret, V., & Spicer, A. (2014). Beyond macro-and micro-emancipation: Rethinking emancipation in organization studies. *Organization*, 21, 22-49. doi:10.1177/1350508412461292
- Weiskopf, R. & Loacker, B. (2006). "A snake's coils are even more intricate than a mole's burrow." Individualization and subjectification in post-disciplinary regimes of work. *Management Revue*, 17, 395-419. doi:10.5771/0935-9915-2006-4-395

WORKING CONDITIONS: WHEN THE RACE FOR PERFORMANCE TURNS SELF-MEDICATION INTO DOPING BEHAVIOR

Audrey Moco-Daijardin

LAPCOS, Sophia Antipolis Nice University (France)

Abstract

The objective of this research was to better understand the link between self-medication and doping behaviors at work (Hautefeuille,2008). More precisely, we wanted to explore how individuals at work practiced self-medication (Fainzang,2012) and how contextual and individual factors could influence their consumption behaviors at workplace. We know that doping behavior could emerge when there is an objective to be achieved or an obstacle faced by the individual (Laure, 2000). To verify this assumption, we have tried to answer this question: “how self-medication could be diverted to doping purposes?”. To study this more closely, we built a methodology based on two tools. First, 17 interviews with workers were done to identify and evaluate the elements and mechanisms derived from working conditions and consumption behaviors, which may explain the consumption behavior at work and, moreover, the doping. Our results allowed us to see that the self-diagnosis phase play an important role in the consumption behavior of individuals. These initial results helped us to create an online questionnaire to which 219 participants responded. For this second tool, we applied a network analysis, using JASP 10.02 software to help us to visualize and understand the link between self-medication and doping behavior. The results of our research indicated that contextual and individual factors had an impact on the psychological state of individuals at work, leading them to develop consumption at work. We have also seen that the practice of self-medication also contributes to the establishment of consumption behavior at work.

Keywords: *Self-medication, doping behavior, performance, working conditions, consumption behavior.*

1. Introduction

Imagine yourself at work, in front of your computer. Suddenly, your manager comes at you, give you a heavy file and say: "*you have to take care of it for tomorrow 8:00 A.M, it won't take more than an hour of your time*". By reading the documents in the folder you realize that it is going to take much more time than expected. Your head start to hurt, but you continue to work on the content of this folder. You take some aspirin and drink a cup of coffee for helping you to stay awake. The time is running, and you are now realizing that you must run for catching the bus to go home. Once home, you can feel how much you are tired and stressed, you want to be sure that your manager will validate your work. Before going back at the content of this folder, you take some medicine to reduce your stress and drink again few more cups of coffee to stay awake.

After few hours, you finally finished your work, and you send it to your manager. You did not sleep at all and you already must go get ready for work. Later in the day, your direction and manager validate and congrats you for the work you did. You feel relieved. The day will occur as usual with less amount of coffee and medicine as yesterday.

This scenario deliberately cliché, aims to make it clear how the achievement of performance can lead to diverting self-medication into doping behavior.

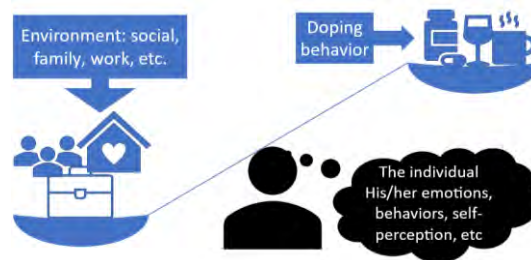
2. Objective

We live in a world where competition and performance are “raised to cult status” (Hautefeuille, 2008), the use of products is becoming more and more visible in the workplace. The objective of this poster is to present a part of the work of a thesis entitled: When self-medication becomes doping behavior in workers (A. MOCO-DAIJARDIN, 2019), but this time slightly more focus on the notion of performance. Indeed, the objective of this thesis was to understand how self-medication (Fainzang,2012) could be diverted into doping behavior (Laure,2000) with the objective to maintain or enhance performance at work.

When we focus on doping behavior at work, it can be observed as an emotional, psychological and finally physical regulator. which probably help the individuals to adapt to they work environment in which they operate. (Hautefeuille, 2008; Johnson, 2012; Loose & Siadou-Martin, 2015). To illustrate our point, we use an illustration (fig.1), which we have readapted of Johnson (2012). The author explains that the more the environmental demand of the individual will be important, the more the doping behavior, will be perceived as a strategy which will make it possible to manage this same environment.

Finally, we will present here the results of the research work of this thesis was based on the identification and evaluation of elements related to the individual's work environment and individual psychological factors.

Figure 1. Adapted and simplified figure from Johnson (2012): Impact of environmental factors and doping behaviour.



3. Methods

To obtain our results, we used two types of methods: interviews (17 participants) and questionnaire (212 participants).

Interviews

We made an interview grid made up of five parts: the practice of self-medication, the notion of values at work, the definition of doping behavior, resources at work or outside of work and the notion of performance. We also integrated the scenario method which described the behavior of fictitious characters under certain conditions and we asked the participants to judge the characters' behaviors, but they also to explain if they could replicate the same behavior under similar conditions as the characters.

Various emails were sent to firms, direct contacts with employees made it possible to find these participants.

most of our participants where employees (2 men and 15 women), from different professional backgrounds. The analysis of the interviews helped to create the questionnaire. Composed of 7 parts:

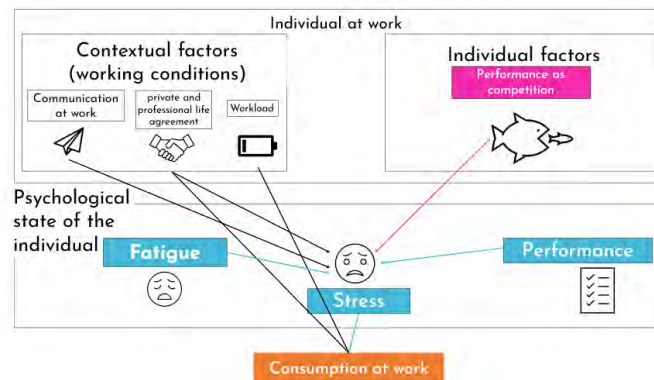
Part I: Sociodemographic data; Part II: My health and my remedies; Part III: Managing my illnesses; Part IV: My performance at work; Part V: My professional daily life; Parts VI: Work management; Parts VII: Scenario

The questionnaire was posted and posted from January to July 2019 via the Google form application. The questionnaire consisted of 45 items, i.e., 40 questions and five scenarios. Our questionnaire was able to collect data from the participants of the national ENVIE (2018) survey on cognitive aging and the environment (the participants of the survey could also reply to our questionnaire through the same platform). We also used various social networks, made direct contact with workers from different sectors of activity in mainland France and overseas.

4. Results

We present here only the results linked to performance and doping behavior (consumption at work). All the results from the interviews and the questionnaire indicate that contextual and individual factors determine the psychological state of an individual. Indeed, our results were able to show that communication at work and the reconciliation of private and professional life had an impact on the psychological state of the individual and the consumption of products at work (more coffee, tea, etc.) Then, we also could see that the mental load has a direct effect on consumption at work. Fatigue and performance at work, connected with the notion of competition or not, have a direct effect on the psychological state of the individual and also participate in consumption at work.

Figure 2. Influence of individual factors, psychological state and self-medication on consumption at work (doping behavior).



5. Discussion and conclusion

It is necessary to remember that doping behavior is not an addiction. It is a fine line that separates the abuse of products from the addiction. It differs in the fact that the objective of the individual by having recourse to doping behavior is to manage an obstacle, whether it is real or felt (Laure, 2000). Once the obstacle is cleared, consumption returns to normal. Performance is indeed found in daily need, at work, family, parenthood, etc. To be efficient in everything, the demands of the environment are greater and greater, and the obstacles are perceived as more and more impassable both emotionally, psychologically, and even physically. Doping behavior then becomes a strategy, a crutch on which the person can rely to manage requests. In view of these results, we can therefore say that the determining and contextual factors linked to the conditions of work, individual factors, participate in the development of consumption behavior at work.

These first results, from a psychological point of view, give preliminary clues to the functioning of the mechanisms which link the practice of performance and doping behavior.

References

- Fainzang, S. (2012). *L'automédication ou les mirages de l'autonomie* Paris: Press Universitaire Française.
- Favre, A., & Laure, P. (2002). Conduites dopantes: à quoi s'engage-t-on? *Psychotropes*, 8(3-4), pp. 23-29. doi:10.3917/psyt.083.0023
- Hautefeuille, M. (2008). Le dopage des cadres ou le dopage au quotidien. *L'information Psychiatrique*, 84(9), 827. doi: 10.3917/inpsy.8409.0827
- Johnson, M. (2012). A systemic social-cognitive perspective on doping. *Psychology of Sport and Exercise*, 13(3), 317-323. doi: 10.1016/j.psychsport.2011.12.007
- Laure, P. (2000). *Dopage et société*. Ellipses.
- Laure, P. (2002). Les conduites dopantes: une prévention de l'échec? *Psychotropes*, 8, pp. 31-38. doi:10.3917/psyt.. 083.0031
- Laure, P. (2006). Doit-on blâmer ou encourager les conduites dopantes ? *Ethique publique*, 8(2), pp. 1-10. doi:10.4000/ethiquepublique.1835
- Loose, F., & Siadou-Martin, B. (2015, Décembre). « C'est mauvais pour la santé, mais j'en bois quand même ! » Prédicteurs cognitifs de la consommation de boissons énergisantes chez les étudiants. *Revue française du marketing* (254), pp. 55-69.

PERSONAL GROWTH AND COVID-19 DISTRESS

**Madrudin Magomed-Eminov, Ekaterina Karacheva, Olga Kvasova,
Olga Magomed-Eminova, Ivan Prihod'ko, & Olga Savina**

Psychological Helping and resocialization Department, Moscow State University (Russian Federation)

Abstract

Various psychological reactions, found to traumatic distress, are widely known in psychological literature. Based on 30-years theoretical and empirical studies of extreme human experience, we suggested unconventional approach to differentiation of psychological reactions and human behavior in various extreme events into three groups: 1) distress, disorganization, disorders, traumatization; 2) adaptation, hardiness, resilience; 3) personal growth, transgression (Magomed-Eminov M., 1998, 2007). The proposed research is devoted to the positive psychological consequences of COVID-19 disease. Our aim was to study the positive psychological influence of COVID-19 disease for lifestyle, behavior, communication, life relationships, and well-being of people, who were ill. We suggested and checked the hypothesis, that objectively serious COVID-19 disease, carrying uncertainty, confusion, horror, for many people discover also a heroism, pride, the experience of success because of coping with disease. We collected the narratives of people, who got COVID-19, and conducted content analysis. Our study showed that after being ill COVID-19 interviewed people discovered new meanings of existence, despite the loss of loved ones, socio-economic difficulties and other hardships of COVID-19 pandemics. We conclude that COVID-19 disease as extreme situation not only becomes a test, but can also open up new perspectives, value of other people and of life in general.

Keywords: *Peritraumatic COVID-19 distress, posttraumatic growth, resilience, meaning mediation, cultural-historical activity approach, personality work.*

1. Introduction

In a stressful time, rocked by the Covid-19, this study addresses a worldwide phenomenon not only from catastrophic point of view but also from perspective of positive effects of Covid-19. Authors mainly refer to the negative side of psychological problems: traumatic stress, fear, anxiety, panic, potentially destructive maladaptive defensive responses, such as increased stigmatization and xenophobia, as well as mass panic and protest behavior (Taylor, 2019). They tend to stress health problems, depressive symptoms, insomnia, denial, anger, suicides, negative psychosocial consequences of the outbreak among affected people and the general population (Bo et al, 2020; Sher, 2020; Minihan, 2020). Special attention attracts a number of studies of positive coping strategies and resilience, social support, involvement in educational and creative process considered important in the era of Covid-19. That act as a way of positive human response to misfortune, suffering, pain, threat, which need to cultivate behavioral activation, acceptance, loving-kindness practice, aimed at reducing stress and promoting resilience and recovery (Chew et al., 2020; Polizzi et al, 2020; Prime et al. 2020).

In accordance with our cultural-historical activity approach, we interpret the COVID-19 pandemic as extreme situation (Magomed-Eminov, 1997, 1998, 2007, 2020), specifying it on basis of the triad "suffering – resilience – growth". In terms of adaptation, this triad takes the following forms: "maladaptation – adaptation – development". The adaptive role of positive emotions and their constructive role in coping with distress Bonnano demonstrated in grief studies (Bonanno et al., 2003; Keltner, Bonanno, 1997). The phenomenon of traumatic growth, including post-traumatic growth (R. G. Tedeschi and L. G. Calhoun, 1996; Garcia et al, 2017; Oginska-Bulik, N., 2016) leading to cognitive reconstruction and adaptation to the new reality. That means traumatic adaptation, resilience is not, purely restorative work, and appears as a transcendent, transgressive personality work.

2. Design

Written narratives of respondents from Russia' were collected in online survey during Pandemic – March-October 2021. 434 respondents (average age – 23.5) were asked to report their gender, age, and whether they were ill or not (women -81%, men -19%), Most of the respondents were senior students of the university. Respondents experienced contracting COVID-19 – 26% of the sample, non-sick- 74%, 52% - had family members with COVID-19, 48% had none of mentioned.

3. Methods

Peritraumatic Distress Index (CPDI) (Feng, 2020) the Posttraumatic Growth Inventory (Tedeschi, 1996), Modification of Method of motivational induction (MMI) – 12 incomplete sentences (Nuttin, 1986, Magomed-Eminov, 1997). Method of expert evaluation of narratives and incomplete sentences. Correlation analysis using the TTEST and Pearson criteria.

4. Results

In our research we got the following indicators of CPDI and PTG (Table 1.)

Table 1. Comparative analysis of indicators of CPDI and PTG in individuals who experienced contracting COVID-19 and did not experience).

| Variable | (n=414) | Experienced contracting COVID-19 (n1=108) | No experience (n2=306) | TTEST P<.05 |
|------------|---------------|--|------------------------|-------------|
| CDPI M(SD) | 25,20 (13,93) | 27,90 (15,02) | 24,17 (13,41) | 0,02* |
| PTG M (SD) | 43,86 (24,28) | 43,98 (22,33) | 43,81 (24,99) | 0,95 |

CPDI in those who experienced contracting COVID-19 is significantly higher ($p=0.02$), than in those subjects who did not experienced contracting. The results of the correlation analysis of the by groups according to the TTEST showed statistically significant differences ($p=0.02$). PTG has approximately equal indicators in the group of patients with COVID-19 and non-patients (without COVID-19 contamination). The analysis of the correlation between CPDI and PTG shows a significant relationship (Pearson's $r= 0.23$, $p<0.01$) between these indicators only in the group of respondents who had experienced COVID-19. The correlation between these indicators in the group of non-ill patients is insignificant (Pearson's $r=0.04$).

5. Discussion

The data show that the very fact of contamination with Covid-19 is distressing (CPD significance level). This data is consistent with a variety of relevant studies (Bo et al, 2020; Brooks, 2000; Minihan, 2020; Sher, 2020). Comparing these data with the differences in PTG, we do not find significant differences. However, if we correlate with that data the relationship found between the CPD index and PTG, the presence of significant correlation between CPDI and contamination could suggest that more severe distress is associated with higher PTG. However, we believe, based on a qualitative analysis of additional data (narratives and incomplete sentences), that those who have a higher level of PTG and the CPDI have qualitative differences in the existential evaluation of their life situation and personal meaning of their experience (Magomed-Eminov, 1997). The narratives were divided into 3 groups from the point of view of the personal working model cultural-historical activity theory: a) suffering, b) adaptation, coping, resilience, c) personal development. We looked at various types of individual experience, including traditionally studied negative distressing experiences, and also from the point of view of action theory and the specifics of the life tasks people solve, personal meaning of the most specific situation in their lives. The statements that attributed to suffering, feeling powerless to change anything (10% of categories) have following features: "I absolutely don't know how to force myself to increase my activity and interest in what is happening". The second category - attributed to adaptation actions (75%), ("I find it very difficult to immediately switch to online training. You have to force yourself to focus on lectures, to be fully involved in work"). The third group concerns personal growth, intrinsic motivation (15%). The statements demonstrate efforts for self-development ("In the absence of control from the coach, I am

guided by my own internal motivation and can give more"; "Now I can devote more time to self-development: reading books, studying interesting topics, deepening into the study of languages").

Content analysis of incomplete sentences demonstrates qualitative difference between the statements of sick and non-sick respondents in terms of meaning orientation. The completion of the phrase "I want..." showed: an equal percentage of statements focused on negation, rejection and also on "desire for peace" (19%), those who were ill had more discourses about development, activity, and prospects (52%), compared to those who were not ill (45%). The statements classified as neutral aimed at preserving and restoring what was lost: 29% of the respondents who were ill and 35% of the respondents who were not ill. Noteworthy are the narratives of those who have been contracted COVID-19, which indicate the desire for personal growth: to learn to live in harmony with oneself and the world, to learn more and successfully cope with life; to realize oneself in future profession; to become stronger, kinder and better. Non-ill people have typical narratives: to end the pandemic, to have a stable job, to make life as it was before the restrictions and Covid-19.

6. Conclusion

The data demonstrate that PD is stronger in those who experienced COVID-19 contamination, which is evident from data available (Bo et al, 2020; Sher, 2020). Though there are no significant differences in PTG in people who experienced COVID-19 or not. PTG was higher in respondents with high PDI. We suggest that the significance of existential meaning of situation and solution of life tasks (beyond the ordinary experience) may result in personal growth caused by traumatic experience. The experience a person extracts from traumatic situation is mediated by personal meaning. PG is associated not only with personal proactivity, but also with solution of meaning tasks. Respondents in a pandemic situation tend to increase their self-worth, resilience and self-esteem can manage difficulties and feel stronger. In extreme situation of COVID-19 pandemic, people learned about new opportunities in their own lives; discovered new paths, developed new interests, and believed they were ready to change things, beliefs and relations. Newly evaluated coping abilities and resources can become the basis for a new life path choice. Resilience here means that a person experiences suffering, not allowing himself to take the position of victim, martyr. The COVID-19 disease imposes demands on a person that are not comparable with ordinary experiences, a person has to turn to inner resources – to conduct "internal work", support others, take care, which helps to maintain balance in distress. Life's disasters cause not only negative reactions, but also positive transformations of suffering, negativity into growth, development, and courage in personality meaning work, in which the meanings of being, life are considered in relation to the meaning of non-existence, the meaning of death.

References

- Brooks S. K., Webster R. K., Smith L. E., Woodland., Wessely S., Greenberg N., Rubin G. J. (2020) The psychological impact of quarantine and how to reduce it: rapid review of the evidence.– Rapid Review. *www.thelancet.com* Vol. 395 March 14, 2020
- Magomed-Eminov, M.S. (1997). Post-traumatic stress disorders as a loss of meaning of life // States of mind / D. Halpern & A. Voiskunsky. – Oxford University Press. 238-250.
- Magomed-Eminov, M.Sh (2006). Extreme psychology. Moscow: PARF
- Magomed-Eminov, M.Sh. et al. (2020) Cultural-historical Activity Psychology in Extreme Situation: The Pandemic Challenge / Discussion. // *Chelovec* Vol. 31, № 4. 7–40.
- Magomed-Eminov, M.Sh.(1998). Personality transformation. Moscow. Psychoanalytic association.
- Magomed-Eminov, M.Sh.(2007). Positive human psychology. Moscow: PARF.
- Minihan, E., Gavin, B., Kelly, B., & McNicholas, F. (2020) Covid-19, Mental Health and Psychological First Aid. *Irish Journal of Psychological Medicine*, 1-12 doi:10.1017/ipm.2020.41
- Ng, S. M., & Lee, T. M. C. (2019) The mediating role of hardiness in the relationship between perceived loneliness and depressive symptoms among older. *Aging & Mental Health*, 24(5), 805–810.
- Polizzi, C., Lynn, S.J., Perry, A. (2020) Stress and Coping in the Time of COVID-19: Pathways to Resilience and Recovery. *Clinical Neuropsychiatry*, 17 (2), 59-62.24.
- Prime, H., Wade, M., & Browne, D. T. (2020) Risk and resilience in family well-being during the COVID-19 pandemic. *American Psychologist*, 75(5), 631–643. doi: 10.1037/amp0000660
- Sher L. (2020) Are COVID-19 survivors at increased risk for suicide? *Acta Neuropsychiatrica* 1–1. doi: 10.1017/
- Taylor, S. (2019) *The Psychology of Pandemics: Preparing for the Next Global Outbreak of Infectious Disease*. Cambridge Scholars Publishing, Cambridge.

THE INFLUENCE OF POWER AND SOCIAL DISTANCE ON FAIRNESS PERCEPTION IN THE MULTIPLAYER ECONOMIC GAME

Xueying Li, Xilei Wang, Wenwu Dai, & Ning Jia
College of education, Hebei Normal University (China)

Abstract

Objective: The goal of this research was to explore the influence of power and social distance on individual fair perception in the context of income. **Methods:** College students were selected to investigate and 197 answers, including 58 boys and 139 girls. Average age was 22.01 years (SD=2.52). The subjects were randomly divided into different groups, including 62 mothers, 75 friends and 60 strangers. The experimental design was 2[power: low power (be a responder), high power (be an allocator)] \times 3[social distance: near (mother), middle (friend), far (stranger)] mixed experimental design. There is one allocator and two responders in the game. The experiment was divided into two subtasks according to the role of the participants: Subtask 1, stranger A is allocator, the participant is one responder, and the other responder is Mother/Friend/Stranger B. Subtask 2, the participant is allocator, stranger A is one responder, the other responder is still Mother/Friend/Stranger B. **Results:** (1) The participants had a lower sense of fairness to the same distribution scheme when their role changed from responder to allocator. (2) When friends and strangers got more money than themselves, the participants had a lower sense of fairness. (3) No matter what kind of distribution scheme, as long as the sum of the amount of money received by the participant and his mother is the same, he had the same fairness perception. **Conclusion:** First, the change of power will affect the individual's fair perception, and the higher demand for fairness after the power increases; Second, the influence of social distance reflects the characteristics of the Chinese self, that is, the self of Chinese people contains his/her mother.

Keywords: Power, social distance, fairness perception.

1. Introduction

Fairness is an important code of conduct of people's lives. Since ancient times, China has said that "Inequality rather than want is the cause of trouble", and fairness has always been concerned by economists, sociologists and psychologists. Generally, people regard fairness as the rule in the process of material wealth distribution, which refers to the investment that people want in economic interaction is proportional to the result (Dijk & Vermunt, 2000). In the field of psychology, researchers usually use the paradigm of economic game to explore the fairness perception when people face the problem of economic distribution. Previous studies have focused on single factors that affect fairness perception, such as subjects being less likely to accept unfair solutions at high power (Hu, Cao, Blue & Zhou, 2014), or the fair perception of the subjects at low power is influenced by social distance from the allocator (Wu, Leliveld & Zhou, 2011) and so on. So, what is the change in the fair perception of individuals in the face of different social distance from their peers under different power? Therefore, this study aims to explore the influence of power and social distance on individual fair perception in the context of income.

2. Method

The experiment uses the questionnaire method, uses the ultimatum game variant to carry on the research. There were three participants in the game, subjects, strangers A with their mother / friend / stranger B. The experimental procedure is as follows: in the first stage, the stranger A become the distributor, while the subjects become the responder together with their mother / friend / stranger B, and the three people share 100 yuan. After defining the distribution scheme proposed by the stranger A (actually, the experiment has set the distribution scheme), the subjects need to judge the fairness grade of the scheme, and adopt the 7-point scoring method, from 1 "very unfair" to 7 "very fair". The second stage, the subjects became allocators, strangers A responders with their mother / friend / stranger B, and the three still owned 100 yuan together. The subjects needed to evaluate the fairness of a series of distribution scheme as allocators. It's still a 7-point score.

The questionnaire star was used to carry out the online survey. First, the guide and the rules of the game were presented to the subjects to ensure that they understood the content of the game, and then the questionnaire was recovered after the completion of the answer. The whole process were about 5 minutes.

3. Results

3.1. Power perception differences in different roles

Table 1. Power perception differences in different roles.

| | low power | | high power | |
|----------------|-----------|-------|------------|-------|
| | M | SD | M | SD |
| Mother Group | 3.35 | 1.344 | 5.40 | 1.166 |
| Friends Group | 3.80 | 1.461 | 5.52 | 1.319 |
| Stranger Group | 3.60 | 1.575 | 5.77 | 1.212 |

The difference of power perception under different roles was significant, $F(1,194)=180.153$, $p<0.001$, $\eta_p^2=0.481$. The main effect of social distance is not significant. The interaction between role and social distance is not significant. Demonstrate that power manipulation is effective.

3.2. Perceptual differences in different schemes that get the same amount of money

Table 2. Perceived differences in getting the same amount.

| | low power | | | | high power | | | |
|----------------|-----------|-------|----------|-------|------------|-------|----------|-------|
| | 40-30-30 | | 60-30-10 | | 30-40-30 | | 30-60-10 | |
| | M | SD | M | SD | M | SD | M | SD |
| Mother Group | 4.68 | 1.423 | 2.71 | 1.298 | 4.15 | 1.213 | 2.63 | 1.218 |
| Friends Group | 4.49 | 1.178 | 2.59 | 1.128 | 4.36 | 1.311 | 2.40 | 1.040 |
| Stranger Group | 4.68 | 1.501 | 2.87 | 1.741 | 4.05 | 1.651 | 2.60 | 1.749 |

With low power, the main effect of social distance is not significant. The main effect of the scheme is significant, $F(1,194)=247.990$, $p<0.001$, $\eta_p^2=0.561$. The interaction between the program and the social distance is not significant.

With high power, the main effect of social distance is not significant. The main effect of the scheme are significant, $F(1,194)=171.461$, $p<0.001$, $\eta_p^2=0.469$. The interaction between the program and the social distance is not significant.

3.3. Fair perception differences in different schemes that receive less money than peers

Table 3. Fair perception of schemes that receive less money than their peers.

| | low power | | | | high power | | | |
|----------------|-----------|-------|----------|-------|------------|-------|----------|-------|
| | 40-20-40 | | 60-10-30 | | 20-40-40 | | 10-60-30 | |
| | M | SD | M | SD | M | SD | M | SD |
| Mother Group | 4.50 | 1.434 | 2.87 | 1.531 | 3.82 | 1.261 | 2.74 | 1.342 |
| Friends Group | 3.25 | 1.560 | 2.44 | 1.287 | 3.49 | 1.408 | 2.57 | 1.508 |
| Stranger Group | 2.85 | 1.745 | 2.27 | 1.849 | 3.12 | 1.748 | 2.28 | 1.658 |

With low power, the main effect of social distance are significant, $F(2,194)=11.137$, $p<0.001$, $\eta_p^2=0.103$. The main effect of the scheme are significant, $F(1,194)=90.712$, $p<0.001$, $\eta_p^2=0.319$. The interaction between the program and the social distance are significant, $F(2,194)=8.584$, $p<0.001$, $\eta_p^2=0.081$.

With high power, the main effect of social distance is significant, $F(2,194)=3.039$, $p=0.050$, $\eta_p^2=0.030$. The main effect of the scheme is significant, $F(1,194)=84.347$, $p<0.001$, $\eta_p^2=0.303$. The interaction between the program and the social distance is not significant.

3.4. Fair perception differences in different schemes that receive more money than peers

Table 4. Fair perception of schemes that receive more money than their peers.

| | low power | | | | high power | | | |
|----------------|-----------|-------|----------|-------|------------|-------|----------|-------|
| | 40-40-20 | | 60-30-10 | | 40-40-20 | | 30-60-10 | |
| | M | SD | M | SD | M | SD | M | SD |
| Mother Group | 4.35 | 1.356 | 2.71 | 1.298 | 3.77 | 1.151 | 2.63 | 1.218 |
| Friends Group | 3.76 | 1.364 | 2.59 | 1.128 | 3.41 | 1.316 | 2.40 | 1.040 |
| Stranger Group | 4.00 | 1.697 | 2.87 | 1.741 | 3.65 | 1.538 | 2.60 | 1.749 |

With low power, the main effect of social distance are not significant. The main effect of the scheme are significant, $F(1,194)=136.298$, $p<0.001$, $\eta_p^2=0.413$. The interaction between the program and the social distance is not significant.

With high power, the main effect of social distance are not significant. The main effect of the scheme are significant, $F(1,194)=108.363, p<0.001, \eta_p^2=0.358$. The interaction between the program and the social distance is not significant.

3.5. Differences in Fair Perception of Different Programs Consistent with the Summaries of Companion

Table 5. Fair perception of a scheme for a total of 60 yuan.

| | low power | | | | | | high power | | | | | |
|----------------|-----------|-------|----------|-------|----------|-------|------------|-------|----------|-------|----------|-------|
| | 40-30-30 | | 40-20-40 | | 40-40-20 | | 30-40-30 | | 20-40-40 | | 40-40-20 | |
| | M | SD | M | SD | M | SD | M | SD | M | SD | M | SD |
| Mother Group | 4.68 | 1.423 | 4.50 | 1.434 | 4.35 | 1.356 | 4.15 | 1.213 | 3.82 | 1.261 | 3.77 | 1.151 |
| Friends Group | 4.49 | 1.178 | 3.25 | 1.560 | 3.76 | 1.364 | 4.36 | 1.311 | 3.49 | 1.408 | 3.41 | 1.316 |
| Stranger Group | 4.68 | 1.501 | 2.85 | 1.745 | 4.00 | 1.697 | 4.05 | 1.651 | 3.12 | 1.748 | 3.65 | 1.538 |

With low power, the main effect of social distance are significant, $F(2,194)=7.264, p=0.001, \eta_p^2=0.070$. The main effect of the scheme are significant, $F(2,193)=44.170, p<0.001, \eta_p^2=0.314$. The interaction between the program and the social distance is significant, $F(2,194)=20.175, p<0.001, \eta_p^2=0.172$.

With high power, the main effect of social distance are not significant. The main effect of the scheme is significant, $F(2,193)=27.809, p<0.001, \eta_p^2=0.224$. The interaction between the program and the social distance is significant, $F(2,194)=3.887, p=0.022, \eta_p^2=0.039$.

3.6. Differences in fair perception of the same scheme after power increases

Table 6 Fair perception of 40-20-40 programmed when power increases.

| | low power 40-20-40 | | high power 20-40-40 | |
|----------------|--------------------|-------|---------------------|-------|
| | M | SD | M | SD |
| Mother Group | 4.50 | 1.434 | 3.82 | 1.261 |
| Friends Group | 3.25 | 1.560 | 3.49 | 1.408 |
| Stranger Group | 2.85 | 1.745 | 3.12 | 1.748 |

The main effect of social distance are significant, $F(2,194)=13.276, p<0.001, \eta_p^2=0.120$. The main effect of the scheme are not significant. The interaction between the program and the social distance is significant, $F(2,194)=6.810, p=0.001, \eta_p^2=0.066$.

4. Conclusion

First, the change of power will affect the individual's fair perception, and the higher demand for fairness after the power increases; Second, the influence of social distance reflects the characteristics of the Chinese self, that is, the self of Chinese people contains his/her mother.

References

- Dijk, E. V., & Vermunt, R. (2000). *Strategy and fairness in social decision making: sometimes it pays to be powerless*. Journal of Experimental Social Psychology, 36(1), 1-25.
- Hu, J., Cao, Y., Blue, P. R., & Zhou, X. (2014). *Low social status decreases the neural salience of unfairness*. Frontiers in Behavioral Neuroscience, 8, 40.
- Wu, Y., Leliveld, M. C., & Zhou, X. (2011). *Social distance modulates recipient's fairness consideration in the dictator game: An ERP study*. Biological psychology, 88(2), 253-262.

FEATURES OF VIRTUAL SELF-PRESENTATION OF YOUTH IN THE MODERN TECHNOLOGICAL SOCIETY

Natalia Golubeva^{1,2}, Anna Ayanyan^{1,2}, & Svetlana Preobrazhenskaya¹

¹*Institute of psychology, Russian State university for the humanities, 125993, Miuskaya square 6,
Moscow (Russia)*

²*Psychological Institute RAE, 125009 Mochovaya 9, Moscow (Russia)*

Abstract

The article provides an overview of current research on the problem of digital socialization, as well as the features of constructing a virtual self-presentation. The proposed problem is up-to-date due to the fact that digital environment and social networks in particular, become more and more integrated into the process of socialization. The questions of how a person develops, lives and realizes his or her needs in digital environment turn out to be more and more significant. This article highlights the features of virtual self-presentation built by modern adolescents and young men (n=144). The obtained data show the features of creating a virtual self-presentation as well as internal and external factors affecting the characteristics and content of digital identity, which is mostly relevant for teenagers and youths. It was also found the relation between the level of social self-control and construction of self-presentation in social networks.

Keywords: *Digital identity, virtual self-presentation, information socialization, social networks.*

1. Introduction

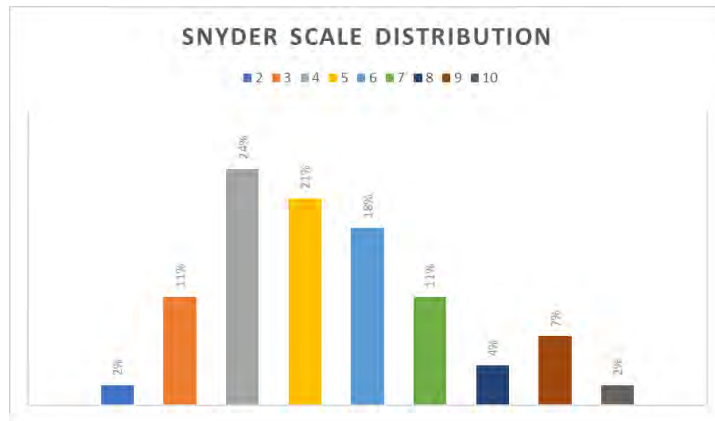
Modern researches prove that mass media and mass communication are becoming one of the important institutions of socialization (Ayanyan, Martsinkovskaya, 2016). The majority of communications today take place in social networks, which have become widespread in modern society. Such Internet communications form new features of social perception and self-presentations (Belinskaya, 2018). Modern young people pay a great attention for self-presentation in the process of communication. At the same time, creation of the ideal "self-image" in virtual environment is easier than in real one and gives the possible to change the existing image. Such transformation of a virtual identity is explained by a desire to make the most attractive impression in the process of Internet communication. At the same time, recent studies have shown an increase of true personal information provided by users in social networks. It claims that today social networks have become an effective resource for expressing the real identity of the user in most cases. People construct not the identity itself, but rather its "virtual shell", a projection of the real identity (Belinskaya, Martsinkovskaya 2018), (Back et al., 2010).

In modern society, social networks have turned into a widespread, complex and multi-level phenomenon. Social networks form their own unique culture, standards and traditions. Thus, the virtual space of Internet communication creates new opportunities for self-presentation: everyone is able to find a circle of interests, friends, learning or creativity opportunities faster and easier than in a real context (Golubeva, 2020). The focus on self-disclosure can be a consequence of the fact that any social networks user, who can view the content of someone else's profile, can be considered a potential audience. Even if a person hides a profile from public, he or she still has an audience of "friends" and subscribers. The presence of a large audience has a positive relationship with the level of self-disclosure, which is determined both by the amount of published posts and the presence of personal information contained in it (Rui, Stefanone, 2013).

2. Design, method, participants

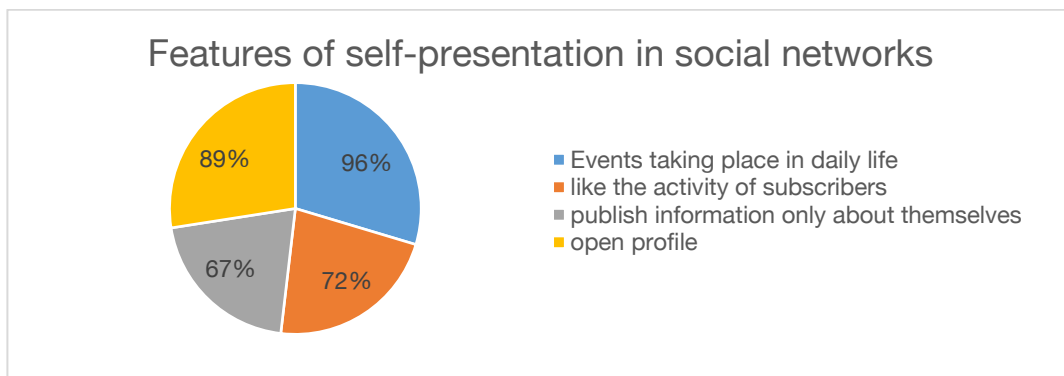
The aim of the study was to compare the features of self-presentation in social networks created by people with low and high levels of social self-control. Our sample included 35% of respondents with a low level of self-control (from 1 to 4) and 24% of respondents with a high level of self-control (from 7 to 10). The level of social self-control of the remaining respondents is in the range from 5 to 6 (figure 1).

Figure 1. Snyder Social Self-Control Scale.



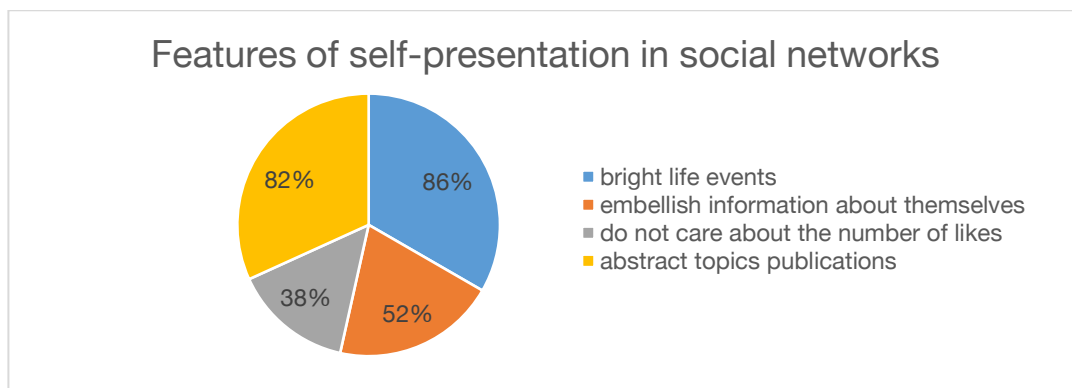
People with a low level of social self-control make posts in social networks based on their own feelings and events from their lives. They publish content about their daily life and bright life events, not paying attention to the activity of other users under their publications and not trying to become popular on social networks. However, the majority of respondents (72%) like when other users are active on their page. 67% try to fill their pages with information about themselves without details and not trying to embellish their own lives. Most profiles of such people are open (89%). Respondents with a low level of social self-control believe that the opinion, which is formed about them by other users corresponds to the real image of respondents (figure 2).

Figure 2. Features of self-presentation in social networks.



People with a high level of social self-control are also used to publish content related to events of their own lives, but most of them prefer to highlight bright life events, rather than everyday reality. Half of the respondents with a high level of self-control embellish information about themselves. They also do not care about the number of likes and comments, and they do not seek popularity on social networks (figure 3).

Figure 3. Features of self-presentation in social networks.



Publications on the page of such users are devoted to more abstract topics, rather than information about themselves. They describe their own lives in general using a few sentences. Respondents with a high level of social self-control also believe that other people's opinions about them correspond to reality. They do not emphasize their belonging to any social group. We assume that due to a large audience, a person may be anxious about a negative assessment of other people, which can lead to defensive tactics of self-presentation and increase control over the degree of one's openness when publishing content.

The common for all our users is the fact that the most preferred type of content for publishing is photos and videos. This may be due to a general trend which makes publishing texts unpopular. However, the presence of a photo can lead to bias in further communication. It is worth noting that when we asked respondents about a relation between the amount of personal information and the level of trust in him or her, the majority replied that these two facts are not related in any way. On the one hand, it may indicate that the respondents are not aware of this connection, and, on the other, that communication with a person is much more important than the content of one's profile. The same is true with the number of friends and subscribers: most respondents do not believe that photos can reflect one's social status or it can be a key to comfortable communication with a person.

3. Conclusions

1. For the majority of respondents, the activity of other people under their own publications is not important, that is, when publishing content, they are guided by their own feelings and meanings, and not by the desire to collect as many likes as possible.

2. The optimal periodicity of publications in this sample is several times per month. By posting publications several times a month, people maintain interest to their person and their audience does not get bored with a constant stream of weak content.

3. When evaluating other people's profiles, the presence of a photo is an important factor for most respondents. This may indicate that people feel more trust to the person, as they see his or her face, which can be a factor of openness.

4. People with a high level of self-control prefer publications that reflect bright events of their lives, while people with a low level of social self-control focus on everyday life.

5. People with a high level of self-control publish content on abstract topics, and not information about themselves, as people with a low level of self-control do. At the same time, people with a high level of self-control tend to embellish information about their lives.

Acknowledgments

This work was supported by the Russian Science Foundation, project 19-18-00516 “Transitive and virtual spaces - commonality and differences”.

References

- Ayanyan, A. N., Martsinkovskaya, T. D. (2016). Socialization of adolescents in the information space. *Psychological research*, 9 (46), 8. <http://psystudy.ru>
- Back, M. D., Stopfer, J. M. & others (2010). Facebook profiles reflect actual personality, not self-idealization. *Psychological Science*, 21 (3), 372-374.
- Belinskaya, E. P. (2018). Accuracy of interpersonal perception in social networks. *Digital society as a cultural and historical context of human development*. State Social and Humanitarian University, Kolomna, 48-52.
- Belinskaya, E. P., Martsinkovskaya, T. D. (2018). Identity in a transitive society: virtuality and reality. *Digital society as a cultural and historical context of human development*. State Social and Humanitarian University, Kolomna, 43-48.
- Golubeva, N. A. (2020). Features of digital identity of teenagers and youth in the modern technological society. *Vestnik RSUH. Series: Psychology. Pedagogy. Education*. 1, 130-150. DOI: 10.28995/2073-6398-2020-1-130-150
- Rui, J., Stefanone, M.A. (2013). Strategic self-presentation online: a cross-culture study. *Computer in Human Behavior*, 29 (1): 110-118, doi: 10.1016/j.chb.2012.07.022

THE IMPACT OF FEEDBACK AND WARNING ON RETRIEVAL-ENHANCED SUGGESTIBILITY

Xilei Wang, Xueying Li, Wenwu Dai, & Ning Jia
Hebei Normal University (China)

Abstract

Retrieval practice can exacerbate eyewitness' susceptibility to subsequent misinformation and then produces more false memories is known as Retrieval-Enhanced Suggestibility (RES). In the field of judicial psychology, eyewitness testimony plays a crucial role, and even directly affects the judgment of the suspect. The eyewitnesses may be interfered with by other irrelevant information or repeated inquiries by the police, thus causing misinformation interference from the original information. In all three experiments, this study uses pictures of Chinese criminal investigation dramas as experimental materials. This study examines the mechanism of RES effect by manipulating the feedback from retrieval and warning. The results show that: (1) There is still a significant RES effect on the Chinese context; (2) Both feedback and warning play an important role in the generation of RES. Among them, the feedback enhanced the participant' memory of the original information and reduced the credibility of misinformation. Thus, the RES effect is reduced; (3) Warnings reduce the credibility of all narrative information, thereby reducing the RES effect. In short, both feedback and warning can reduce the RES effect, but the effect of feedback is more positive and precise.

Keywords: *Retrieval-enhanced suggestibility, feedback, warning.*

1. Introduction

Witnesses are sometimes more susceptible to misinformation if their memory for the witnessed event had been tested prior to misinformation exposure. Retrieval practice can exacerbate eyewitness' susceptibility to subsequent misinformation and then produces more false memories is known as Retrieval-Enhanced Suggestibility (RES effect) (Chan, Thomas, & Bulevich, 2009). Factors that affect discrepancy detection include memory strength for the original event, the elapsed time between viewing the original event and the memory test, the subtlety of the misinformation, and warnings about misinformation (Leding & Antonio, 2019). So, study the impact of feedback and warning on the RES effect. Summarizing the previous literature, it is found that warning can effectively reduce the RES effect (Anna, Melanie & Harald, 2018; Thomas, Bulevich & Chan, 2010; Manley & Chan, 2019). Feedback is a kind of information that allows learners to determine, add, rewrite, adjust, or reconstruct the information about their memory (Hattie & Timperley, 2007). Many studies have found that feedback has an impact on misleading information and feedback can improve the learning effect of learners (Merckelbach, Dalsklev, Daniël, Boskovic, & Otgaar, 2018; Nicklin & Williams, 2011).

2. Experiment 1

This research used pictures of Chinese criminal investigation dramas as experimental materials. Based on the classic RES paradigm, the overall credibility of the narrative information is judged. The credibility of the narrative information is judged after the end of the final memory test stage, and the subjects are required to judge the credibility of the narrative information. This experiment had 2 (Group: tested participants vs. control participants) \times 3 (Item type: consistent items, neutral items, misled items) mixed design. There were 22 participants in the tested condition and 22 in the control condition. For misinformation recall, an independent samples *t*-test showed that the between-subjects RES effect was significant, $t = -3.52$, $p = 0.001$, $d = 1.068$. For correct recall, a 2 (Group: tested participants vs. control participants) \times 3 (Item type: consistent items, neutral items, misled items) ANOVA yielded significant main effects for Item Type, $F(2, 41) = 17.068$, $p < 0.001$, $\eta_p^2 = 0.454$, and the interaction between these variables, $F(2, 41) = 8.126$, $p = 0.001$, $\eta_p^2 = 0.284$. The interaction showed that tested participants were more likely to recall correct for consistent items than control participants, $F(1, 42) = 8.687$, $p = 0.005$, $\eta_p^2 = 0.171$,

there was a testing effect; control participants were more likely to recall correct for misled items than tested participants, $F(1, 42)=7.827, p=0.008, \eta_p^2=0.157$. Tested participants were more recalling the correct event details for neutral items than for misled items, $p<0.001$. Tested participants were more recalling the correct event details for consistent items than for misled items, $p<0.001$. Tested participants were more recalling the correct event details for consistent items than for neutral items, $p=0.001$. Control participants were not significant. For credibility ratings, an independent samples t -test showed that there is no significant difference in credibility ratings between the tested participants and the control participants. This may be due to the participants' insufficient learning of the picture information, so that the participants did not realize the inconsistency between the narrative information and the picture information.

3. Experiment 2

This experiment studies the overall credibility of misleading information and narrative information by manipulating feedback. Experiment had 2 (Group: feedback participants vs. control participants) \times 3 (Item type: consistent items, neutral items, misled items) mixed design. There were 22 participants in the feedback condition and 22 in the control condition. The procedure was basically the same as Experiment 1, except that the feedback stage was added. Positive and negative feedback was given after the retrieval practice. Give feedback question by question. For misinformation recall, an independent samples t -test showed that the feedback participants were significantly lower than control participants, $p<0.001, d=1.427$, this indicates that feedback can improve the learning level of the subjects on the original information, and thus can better reduce the influence of misleading information on themselves. For correct recall, a 2 (Group: feedback participants vs. control participants) \times 3 (Item: consistent items, neutral items, misled items) ANOVA yielded significant main effects for Group, $F(1, 42)=7.929, p=0.007, \eta_p^2=0.15$. Feedback participants out-performed the control participants. For credibility ratings, an independent samples t -test showed that feedback participants more less than control participants, $p=0.012, d=0.790$. That this research not only found that feedback can reduce RES effect, but also found that feedback can improve the participant's learning level of the original information, so that the participant can find the difference between the original information and the narrative information, thereby reducing the credibility of the narrative information.

4. Experiment 3

The experiment explored the impact of changing the overall credibility of the participants' narrative information through warnings on recalling misleading information. Experiment had 2 (Group: warning participants vs. control participants) \times 3 (Item type: consistent items, neutral items, misled items) mixed design. There were 22 participants in the warning condition and 22 in the control condition. The experiment procedure was basically the same as Experiment 1, except that the warning stage was added. Before the narrative information stage, the subjects were randomly assigned to the warning group or the control group. For misinformation recall, an independent samples t -test showed that the warning participants were significantly lower than control participants, $p<0.001, d=1.169$. For correct recall, a 2 (Group: tested participants vs. control participants) \times 3 (Item type: consistent items, neutral items, misled items) ANOVA yielded significant main effects for Item Type, $F(2, 41)=30.116, p<0.001, \eta_p^2=0.595$, and the interaction between these variables, $F(2, 41)=10.546, p<0.001, \eta_p^2=0.340$. The interaction showed that warning participants were more likely to recall correct for misled items than control participants, $F(1, 42)=14.779, p<0.001, \eta_p^2=0.260$, control participants were more likely to recall correct for consistent items than warning participants, $F(1, 42)=6.505, p=0.014, \eta_p^2=0.134$, this shows that because the credibility of the narrative information is manipulated through warnings, the subjects can reject the misleading information and respond according to the original information they remember. Warning participants were more recalling the correct event details for consistent items than for misled items, $p=0.020$. there were no significant differences between the other items. control participants were more recalling the correct event details for neutral, $p<0.001$, and consistent, $p<0.001$, items than for misled items. control participants were more recalling the correct event details for consistent items than for misled items, $p=0.001$. For credibility ratings, an independent samples t -test showed that warning participants more less than control participants, $p=0.003, d=0.939$. Warnings can reduce the credibility of the narrative information, this shows that the warning will make subjects suspicious whether the information is correct or misleading.

5. Conclusions

First, the RES effect is stable in Chinese materials. Then, both feedback and warning can reduce the recall of misleading information and the RES effect. However, their processing mechanism is different. Feedback reduces the credibility of the narrative information by discovering the difference between the original information and the narrative information, thereby reducing the RES effect. However, warning reduces the learning of narrative information by completely questioning the narrative information, thereby reducing the RES effect.

References

- Anna, S., Melanie, S., & Harald, M. (2018). Warnings to counter choice blindness for identification decisions: warnings offer an advantage in time but not in rate of detection. *Frontiers in Psychology, 9*, 981.
- Chan, J. C. K., Thomas, A. K., & Bulevich, J. B. (2009). Recalling a witnessed event increases eyewitness suggestibility: The reversed testing effect. *Psychological Science, 20*(1), 66-73.
- Hattie, J., & Timperley, H. (2007). The Power of Feedback. *Review of Educational Research, 77*(1), 81-112.
- Leding, J. K., & Antonio, L. (2019). Need for cognition and discrepancy detection in the misinformation effect. *Journal of Cognitive Psychology, 31*(4), 409-415.
- Manley, K. D., & Chan, J. C. K. (2019). Does retrieval enhance suggestibility because it increases perceived credibility of the postevent information?. *Journal of Applied Research in Memory and Cognition, 8*(3), 355-366.
- Merckelbach, H., Dalsklev, M., Daniël van Helvoort, Boskovic, I., & Otgaar, H. (2018). Symptom self-reports are susceptible to misinformation. *Psychology of Consciousness: Theory, Research, and Practice, 36*(3), 604-616.
- Nicklin, J. M., & Williams, K. J. (2011). Self-regulation of goals and performance: effects of discrepancy feedback, regulatory focus, and self-efficacy. *Psychology, 2*(3), 187-201.
- Thomas, A. K., Bulevich, J. B., & Chan, J. C. K. (2010). Testing promotes eyewitness accuracy with a warning: implications for retrieval enhanced suggestibility. *Journal of Memory and Language, 63*(2), 149-157.

DETERMINATION OF CORRELATIONS BETWEEN SUBJECTS' PSYCHOPHYSIOLOGICAL PARAMETERS AND THE RESULTS OF THE PERCEPTUAL EXPERIMENT

Aleksey Grigorev, & Viktor Gorodnyi

Department of Higher nervous activity and Psychophysiology, St Petersburg University (Russia)

Abstract

Nowadays in Russia, there are insufficient systematized data on the degree of preparedness of medical students and graduates to interact with children with atypical development (AD). We have developed a methodological approach to assess the interaction of medical students with AD children. The work uses a perceptual experiment during which students are presented with test sequences containing speech signals of children with typical development (TD) and AD (Down syndrome, autism spectrum disorders). During the perceptual experiment, the listeners' behavior was being video-recorded in parallel to verify their answers using the FaceReader software determining the true emotional state by their facial expression. The students' psycho-emotional status was evaluated using a battery of psychological tests before and after the perceptual experiment. Additionally, the subjects' psychophysiological and physiological parameters were determined. At the first stage of the work, the speech of 16 TD and AD children (11 boys and 5 girls) was used, the listeners were 25 1st-year pediatric students and 5 experts in the field of child speech. The statistical analysis revealed correlations between the listeners' psychophysiological characteristics (Russian-native speakers): the profile of functional lateral asymmetry, formation indicators of the phonemic hearing, the coefficient of lateral preference by speech and the success in recognizing the children's gender, age, psychoneurological state (TD – developmental disorders), and the severity of disorders in AD children. The acoustic parameters of words classified by experts as “legible” and “illegible” were determined.

The work is financially supported by the Russian Science Foundation (project 19–78–00057).

Keywords: *Perceptual experiment, atypical development, speech.*

1. Introduction

The method of perceptual experiment is widely used to study various aspects of speech perception in adults and children, for example, to study the influence of the speaker's accent or fuzzy articulation on the perception of a speech message (Liu, Jaeger, 2018); to assess gender differences by voice features (Amir et al., 2012); to assess the speech development during ontogenesis in typical and atypical development (Lyakso, Frolova, & Grigorev, 2016, 2017; Lyakso et al., 2019). Yet, there has been much less focus on identifying the correlations between the psychophysiological characteristics of listeners participating in the perceptual experiment and the success of recognizing various speaker's parameters (Lyakso et al., 2019). The goal of this study was to study the correlations between the listeners' psychophysiological characteristics and the success of assignments of the perceptual experiment.

The research is carried out within the framework of studies of the Child Speech Research Group of St Petersburg University aimed at studying the speech formation in ontogenesis in typical and atypical development.

2. Materials and methods

The research object is words cut from the speech of 5-7-year-old children with autism spectrum disorders (ASD), Down syndrome (DS), and typically developing (TD). The study recruited 11 boys and 5 girls. The speech material was selected from the “AD_Child.Ru” database (Lyakso, Frolova, & Karpov, 2019), recordings were made under standardized conditions. To conduct the perceptual experiment, a test sequence containing 30 speech signals was created. Listeners were adult Russian-native speakers (n=25, age 18.2±0.9 years; 4 men and 21 women), 1st-year students of the St Petersburg State Pediatric Medical

University. The test sequence was presented in an open field. All the listeners were checked for hearing thresholds and the formation of phonemic hearing, the coefficient of lateral preference (CLP) by speech and the profile of functional lateral asymmetry (PFLA) were determined. The listeners were given a task to determine the child's gender, age, the presence or absence of developmental disorders, and, if any, the severity of disorders.

To identify correlations between the listeners' psychophysiological indicators and the success of their assignments of the perceptual experiment, statistical analysis was conducted in the STATISTICA 10.0 program using the Mann-Whitney U-test, correlation, regression, multiple regression, discriminant, and factor analyses.

Additionally, we conducted a study in which 5 experts took part (3 men and 2 women, age 29.2 ± 6.5 years, experience in the field of child speech 8.6 ± 7.4 years). The experts listened to the test sequence used in the previous study and determined the intelligibility of the speech signals. Spectrographic analysis of words identified by the experts as legible (with probability higher than 0.75) and illegible (the probability of determining as legible less than 0.25), regardless of which children pronounced them (TD, ASD, or DS), was carried out in the Cool Edit Pro 2.1 sound editor.

3. Results

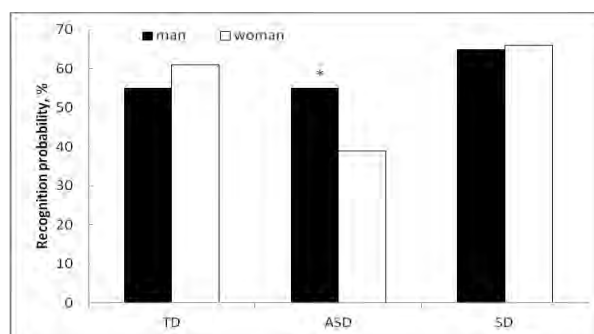
The perceptual experiment showed that the listeners indicated the age of children close to the real one. According to median values, the age indicated by adults for children of all groups is 6 years old. When determining the speaker's gender, the listeners better recognize the male gender than the female one (72.7% of correct answers and 32.7%, respectively).

The correlation analysis (Spearman, $p < 0.05$) revealed a correlation between the listener's hearing thresholds (audiometry – left ear) and female gender recognition in TD children ($r = 0.74$), PFLA of listeners and male gender recognition in TD children (0.70), the listeners' age and male gender recognition in children with DS (-0.53). The multiple regression analysis showed that the indicators of phonemic hearing are associated $F(7,8) = 1.5111$ $p < 0.28682$ with the male gender recognition in TD children (Beta=0.738 $R^2 = 0.569$).

When determining the child's state, the listeners had to indicate the severity of developmental disorders: norm (TD) – mild disorders (ASD) – severe disorders (DS).

The listeners most often classified children in the appropriate group: children with typical development – in the group of norm, children with ASD – in the group of mild disorders, children with DS – in the group of severe disorders. The men determined TD children as children with typical development with probability of 55%, children with ASD as having mild disorders with probability of 55%, and children with DS as having severe disorders with probability of 65%. The women determined TD children as children with typical development with probability of 61%, children with ASD as having mild disorders with probability of 39%, and children with DS as having severe disorders with probability of 66% (Figure 1).

Figure 1. Recognition of the psychoneurological state of children by listeners of the different gender. On the horizontal axis – children, on the vertical axis – the probability of recognition, %. Black columns are data for men, white ones are for women. * $p < 0.05$, Mann-Whitney test.



The data of regression analysis showed that the listeners' gender is associated $F(1,24) = 4.8016$ $p < 0.03838$ with the state recognition in children with ASD (Beta=-0.408 $R^2 = 0.167$). The correlation analysis (Spearman, $p < 0.05$) revealed a correlation between the listeners' gender and the state recognition in children with DS ($r = 0.32$). The discriminant analysis found a correlation between the indicators of audiometry (left ear) $F(3,2) = 12.430$ $p < 0.0754$ and the state recognition in TD children (Wilks' Lambda=0.811).

The factor analysis (factor rotation – Varimax raw, $p=1.0$) of 10 variables: listener's gender, age, experience in communicating with children, psychophysiological indicators (phonemic hearing, audiometry (left and right ear), CLP by speech), state recognition in children TD, with DS, and with ASD, identified two factors with the following loadings. Factor 1 – the listener's age (-0.73), the listener's experience (-0.97), phonemic hearing (0.97), and state recognition in children with DS (0.75). Factor 2 – CLP by speech (0.99), audiometry indicators – left ear (0.73), and state recognition in children with ASD (0.87).

Using the instrumental analysis, the acoustic parameters of words determined by the experts as legible and illegible were identified. The duration of the legible words is 767.7 ± 229.8 ms; the duration of the illegible ones is 1105.3 ± 276.3 ms. The duration of the stressed vowel is 176.2 ± 29.6 ms in the legible words and 346.6 ± 237.5 ms in the illegible words. Thus, the words classified by the experts as legible are significantly shorter and have shorter stressed vowels. The pitch of the stressed vowels is 337.4 ± 69.3 Hz in the legible words and 468.8 ± 105.7 Hz in the illegible words. That is, the words classified by the experts as legible have significantly lower pitch values. There were no significant differences between the words classified by the experts as legible and illegible according to values of the difference between maximum and minimum pitch values, formant frequencies of stressed vowels, parameters reflecting the articulation clarity (formant triangles area and vowel articulation index).

4. Conclusion

The paper provides data on the influence of psychophysiological parameters of the listeners – participants of the perceptual experiment on the success of assignments: the correlations between hearing thresholds, PFLA, the formation of phonemic hearing, listeners' age, and gender recognition of children were revealed. The parameters of listeners influencing the recognition of the psychoneurological state of children were determined: gender, age, experience, and the formation of phonemic hearing are associated with the state recognition in children with DS; gender, CLP by speech, and hearing thresholds with the state recognition in children with ASD; hearing thresholds with the state recognition in TD children. The acoustic parameters of words classified by the experts – specialists in the study of child speech, as legible and illegible have been determined. These categories of words differ in the parameters of the duration of words and stressed vowels and the pitch values of stressed vowels. This work is part of the research dedicated to identifying the ability of medical students to determine the presence/absence of developmental disorders in children and, if any, the severity of disorders.

Acknowledgements

The study is financially supported by the Russian Science Foundation (project 19-78-00057).

References

- Amir O., Engel M., Shabtai E., Amir N. (2012). Identification of children's gender and age by listeners. *J. Voice*, 26, №. 3, 313–321.
- Liu L., Jaeger T.F. (2018). Inferring causes during speech perception. *Cognition*, 174, 55-70.
- Lyakso E., Frolova O., Gorodnyi V., Grigorev A., Nikolaev A., Matveev Yu. (2019). Reflection of the Emotional state in the characteristics of voice and speech of children with Down syndrome. *SpeD 2019, The 10th Conference on Speech Technology and Human-Computer Dialog, October 10-12, Timisoara, Romania*, 1-6.
- Lyakso E., Frolova O., Grigorev A., Gorodnyi V., and Nikolaev A. (2019). Strategies of speech interaction between adults and preschool children with typical and atypical development. *Behav. Sci*, 9(12): 159.
- Lyakso, E., Frolova, O., & Grigorev, A. (2016). A comparison of acoustic features of speech of typically developing children and children with autism spectrum disorders. *Lecture Notes in Computer Science*, 9811, 43-50.
- Lyakso, E., Frolova, O., & Grigorev, A. (2017). Perception and acoustic features of speech of children with autism spectrum disorders. *Lecture Notes in Computer Science*, 10458, 602–612.
- Lyakso, E., Frolova, O., & Karpov, A. (2019). A new method for collection and annotation of speech data of atypically developing children. *Proceedings of 2018 International Conference on Sensor Networks and Signal Processing, SNSP 2018*, 175-180.

THE EFFECT OF THE INSTRUCTIONS ON FACE RECOGNITION: ACCURACY AND EYE MOVEMENTS

Ignacio Sifre De Sola, Nieves Pérez-Mata, & Margarita Diges
Department of Basic Psychology, Universidad Autónoma of Madrid (Spain)

Abstract

The present experiment examines how instructions (*absolute judgement* vs. *relative judgement*) affect the performance in simultaneous lineups (*present perpetrator* and *absent perpetrator*). To find out whether the participants really followed the instructions, their eye movements were recorded when they faced the photo lineup. Sixty participants (44 women and 16 men) took part in the experiment. Overall, the results showed that participants with *absolute judgement* instructions made significantly less inter-photograph comparisons than those with *relative judgement* instructions. In the *present perpetrator* lineup, hit rate was lower for participants with *absolute judgement* instructions than with *relative judgement* instructions. In the *absent perpetrator* lineup, no differences were between both instruction conditions. Furthermore, as was expected, no relationship was found between “pre” and “post” confidence and accuracy in the lineups. Moreover, we examined participants’ metamemory evaluations about their examination pattern of the photographs in the lineup. Our results did not show high incongruity between the own participants’ judgment and their visual behavior.

Keywords: *Eye movements, present perpetrator lineup, absent perpetrator lineup, relative instructions, absolute instructions.*

1. Introduction

Memory of witnesses facing a lineup is fragile and inconsistent, leading to a large number of judicial errors (Wells, 2018). Therefore, a main research objective has been to examine the witnesses’ decision-making strategies when they face a lineup. In a seminal article, Wells (1984) proposes the existence of two decision strategies: *relative judgement* and *absolute judgement*. A *relative judgement* consists of comparing photographs of a lineup one by one and select the photograph that best fits to the witness’ memory representation of the person sought. However, an *absolute judgement* consists of comparing each photograph in the lineup with the witness’ memory representation of the wanted person, and select a photograph basing only on the similarity between that person’s photograph on the lineup and the witness’ memory. Furthermore, in *absent perpetrator* lineups, a *relative judgement* produces a higher rate of false identifications than an *absolute judgement*, hence increasing the probability of choosing an innocent suspect (Kneller, Memon, & Stevenage, 2001; Lindsay & Bellinger, 1999).

Mansour, Lindsay, Brewer, and Munhall (2009) recorded the eye movements of their participants when they were faced the photo lineup. They used two criteria (inter-photo comparison pattern and exhaustiveness search) to determinate the underlying eye behavior of each type of judgment (*relative* vs. *absolute*). The participants’ eye fixation pattern showed that they mostly employed a *relative judgement*, although Mansour et al. (2009) found that the scarce non-exhaustive searches performed and a lower number of inter-photograph comparisons were associated with fewer errors. Moreover, participants’ meta-memory evaluations of their own performance on the lineup have shown that an *absolute judgement* is associated with a higher accuracy in the lineup (Kneller, Memon, & Stevenage, 2001; Lindsay & Bellinger, 1999); although there has been a lack of correspondence between own participants’ meta-memory evaluations and their actual visual behavior (e.g., Mansour et al., 2009).

Taking into account all of the above, the present research explored whether giving explicit instructions (*relative* vs. *absolute judgement*) could affect participants’ performance on lineups, their eye movements were recorded when they faced the photo lineup, and they were asked for meta-memory evaluations. It is proposed that two situations could occur. On the one hand, if participants were able to implement the specific instructions given to them, in the *present perpetrator* lineup, we would expect slightly more hits with *relative* than with *absolute* judgment instructions. In addition, in the *absent perpetrator* lineup, we would expect significantly fewer errors with *absolute* than with *relative* judgment instructions. On the other hand, if participants were not be able to implement the instructions, it would be expected that most of the participants based their decisions in a *relative judgement* on the lineup; so no differences between the two instructions (*absolute* vs. *relative*) would be expected on both types of lineup (*present* and *absent perpetrator*).

2. Method

Participants and design. Sixty students of the Degree in Psychology (44 women and 16 men) participated in the experiment¹. They received course credit for their participation. All participants had a correct visual ability.

The independent between-participant variable was "Type of instruction" (*absolute* vs. *relative judgment*). Participants were randomly assigned to one of the four experimental conditions (Table 1). Half of the participants in each instruction condition faced a *present perpetrator* lineup, and the other half of them faced an *absent perpetrator* lineup. The dependent variables were *accuracy* on the lineups, *pattern of eye movements*, *pre and post lineup confidence*, and *participants' meta-memory evaluations*.

Table 1. Description of the four experimental conditions in the experiment.

| | | |
|--|--------------------------------------|---|
| | <i>Absolute judgment instruction</i> | |
| <i>Present perpetrator</i> lineup (n=15) | | <i>Absent perpetrator</i> lineup (n=15) |
| | <i>Relative judgment instruction</i> | |
| <i>Present perpetrator</i> lineup (n=15) | | <i>Absent perpetrator</i> lineup (n=15) |

Procedure. First, each participant was assigned a computer with an eye movement recorder (Tobii X2-30), and it was told that he/she would be shown an event². They had to pay as much attention as possible to the event. After the event, participants performed a 15-minute filler task (playing the computer game "Pacman"). Then, they were given an answer booklet where wrote confidence pre-lineup. Next, they were presented with a photo lineup, and they had to try to identify the woman protagonist of the event. Before showing the lineup, the specific instructions were given to them (*relative* vs. *absolute judgment*). They were told that in previous research had been found that following that specific instructions they would be more likely to be correct on the lineup. Each participant only saw one of the lineups (*present* or *absent perpetrator*). While participants were examining the lineup and making their decision on the lineup, the ocular behaviour was recorded. Finally, they estimated their post-lineup confidence and answered an open-ended question³ about how they had made their decision on the lineup (i.e., choice a component or reject the lineup).

3. Results

Results are described in three sections: Firstly, analyses of the identification *accuracy* on the lineups; secondly, analyses of the visual behaviour on the lineups; and thirdly, the relationship between *confidence* and *accuracy* on the lineups, and the *meta-memory evaluations*. For all sections, firstly the *present perpetrator* lineup results are described, followed by those for the *absent perpetrator* lineup. The level of significance for all analyses was set at $\alpha \leq 0,05$.

Lineup accuracy as a function of Type of instruction. In the *present perpetrator* lineup, the relationship between Type of instruction and hit rate was significant [$X^2(1) = 8,89, p = 0,03$]. The participants with *absolute judgment* instructions had a significantly lower *hit rate* than those with *relative judgment* instructions (.13 and .67, respectively). However, there was no significant relationship between Type of instruction and *false alarms* or *omissions*, $Xs^2 \leq 2,78, ps \geq 0,09$.

In the *absent perpetrator* lineup, the relationship between Type of instruction and *correct rejections*, *false alarms*, or *false identifications* was not significant, $Xs^2 \leq 0,19, ps \geq 0,67$. The proportions of *correct rejections* were similar in the *absolute* and *relative judgment* condition (.47 and .40, respectively).

Eye movements as a function of Type of instruction. In the *present perpetrator* lineup, it was found a marginally significant effect of the Type of instruction on the *total number of visits* (i.e., total number of inter-photograph comparisons), $F(1,59) = 3,31, p = 0,07, \eta^2 = 0,11$, with a moderate effect size. Thus, participants were more likely to make fewer visits to all photographs of the lineup in the *absolute judgment* condition ($M = 27,07, SD = 28,19$) than in the *relative judgment* condition ($M = 47,13, SD = 32,04$). However, the effect of Type of instruction on the *total visit time* (i.e., total time required to examine the photographs) was not obtained, $F < 1,59$.

In the *absent perpetrator* lineup, the effect of Type of instruction on the *total number of visits* to photographs was found, $F(1,59) = 6,97, p = 0,01, \eta^2 = 0,20$, with a high effect size. Participants made significantly fewer visits to all photographs of the lineup with *absolute judgment* instructions ($M = 23,20$;

¹This experiment was approved by the Ethics Subcommittee of the Faculty of Psychology at the Universidad Autónoma of Madrid.

²The 60 seconds event depicted a woman stealing a wallet and a mobile phone in a pub. The woman's face was exposed for 20 seconds.

³"Please, detail what process you have followed to complete the task".

$SD=21,16$) than *relative judgment* instructions ($M=39,60$; $SD=11,45$). Finally, the effect of Type of instruction on the *total visit time* was not found, $F<1$.

Pre-post lineup confidence and meta-memory evaluations. No significant correlation was found between *confidence* and *accuracy* measures on either lineup ($r_{bps} \leq .21$). Related to meta-memory evaluations, two judges assigned each participants' response to a single category (*absolute self-report* or *relative self-report*). The Kappa index was calculated for the 20% of the responses ($\kappa= 0,75$). In the *present perpetrator* lineup with *absolute judgment* instructions, there were the same number of *absolute* as *relative* self-reports. Moreover, with *relative judgment* instructions, only one participant gave an *absolute* self-report, and the remaining participants had to be assigned to the *relative* self-report category. In the *absent perpetrator* lineup with *absolute judgment* instructions, the number of *absolute* self-reports was lower than the number of *relative* self-reports (4 and 10, respectively). Finally, in the *relative judgment* instructions, all participants had to be assigned to the *relative* self-report category.

4. Discussion and conclusion

The aim of the present study was to examine if participants were able to take advantage of receiving a very explicit *absolute judgment* instruction in a lineup.

Regarding the identification *accuracy*, in the *present perpetrator* lineup, participants in the *absolute judgment* condition, compared to those in the *relative judgment* condition, were significantly more inaccurate. However, in the *absent perpetrator* lineup, no differences were found between the two *judgment* conditions, indicating that the way in which participants followed *absolute judgment* instructions was not sufficient to help them to be more accurate on the lineup.

Results of eye movement measures for both lineups showed that participants in the *absolute judgment* condition did fewer inter-photo comparisons than in the *relative judgment* condition. Therefore, it seems that the participants were able to partially follow the instructions given.

Furthermore, with regard to the meta-memory evaluations, in contrast to the Mansour's et al. work (2009), our results showed a correspondence between the participants' self-reports and their visual behaviour recorded. This could be because our participants, aware of the manner in which they had to face the lineup thanks to the instructions, were more conscious of what they should have done, but were unable to do it. Finally, as in previous research (e.g., Cutler and Penrod, 1989; Leippe and Eisenstadt, 2007), we did not find any relationship between confidence and accuracy measures.

The main question to test in the present experiment was whether the participants in the *absolute judgment* condition would be able to follow the instructions. If they had been able to follow them, in the *present perpetrator* lineup, we would have expected slightly fewer hits with the *absolute* than *relative judgment* instructions. Moreover, in the *absent perpetrator* lineup, with *absolute judgment* instructions there would have significantly been more correct rejections than with *relative judgment* instructions. However, the results obtained did not show this pattern. Findings could be because participants with *absolute judgment* instructions found extremely difficult to implement them. Therefore, instead of simply using all their cognitive resources to identify the woman who committed the theft, they were simultaneously using them to avoid comparing the photographs one by one.

References

- Cutler, B. L., & Penrod, S. D. (1989). *Forensically relevant moderators of the relation between eyewitness identification accuracy and confidence*. *Journal of Applied Psychology*, 74(4), 650.
- Kneller, W., Memon, A., & Stevenage, S. (2001). *Simultaneous and sequential lineups: Decision processes of accurate and inaccurate eyewitnesses*. *Applied Cognitive Psychology*, 15(6), 659-671.
- Leippe, M. R., & Eisenstadt, D. (2007). *Eyewitness confidence and the confidence- accuracy relationship in memory for people*. *The handbook of eyewitness psychology*, 2, 377-425.
- Lindsay, R., & Bellinger, K. (1999). *Alternatives to the sequential lineup: The importance of controlling the pictures*. *Journal of Applied Psychology*, 84(3), 315-321
- Mansour, J., Lindsay, R., Brewer, N., & Munhall, K. (2009). *Characterizing visual behavior in a lineup task*. *Applied Cognitive Psychology*, 23(7), 1012-102.
- Wells, G. (1984). *The psychology of lineup identification*. *Journal of Applied Social Psychology*, 14, 89-103.
- Wells, G. (2018). *Eyewitness identification*. In Erik Luna ed., *Reforming criminal justice: Volume 2, Policing* (pp. 259-278). Sandra Day O'Connor College of Law: Tempe, AZ.

FERRETS MAY LEARN AWARENESS IF THEIR OWN BODY LIMITS

Ivan A. Khvatov¹, Alexander N. Kharitonov², & Alexey Yu. Sokolov¹

¹*Moscow Institute of Psychoanalysis (Russia)*

²*Institute of Psychology, Russian Academy of Sciences (Russia)*

Abstract

The study of the ability of self-awareness (self-awareness, the ability to perceive one's own body and mental properties separately from objects of the external world) in animals contributes to the study of the specifics of human consciousness. One of the aspects of self-awareness is body-awareness, which is expressed in the ability of an animal to take into account the physical parameters of its body when regulating behavior. We studied the ability of ferrets (*Mustela putorius furo*) to be aware of the limits of their own bodies.

To solve the experimental problem, the animals had to choose holes suitable in size for penetration in the partition that divided the sections of the experimental setup. The shapes and sizes of the holes varied. We have used both small area holes that are suitable for penetration and large areas that are not suitable for penetration. It was found that all 6 animals participating in the experiment were able to choose a hole suitable for penetration from the first trial, despite the fact that it was smaller than the unsuitable one in area. In 18 test trials, ferrets made 105 successful penetrations and 3 unsuccessful attempts. This distribution differs from the uniform one ($\chi^2 = 97.25$; $df = 2$; $p < 0.01$). None of the individuals showed a significant reduction or increase in unsuccessful attempts to penetrate the holes.

This data may indicate that ferrets have knowledge of the boundaries of their bodies and the ability to compare them with the parameters of the penetration hole.

Keywords: *Self-awareness, body awareness, body limits awareness, ferrets.*

1. Introduction

Nowadays, there is a point of view that self-awareness (this sense of awareness allows animals to understand that they are different from the rest of the environment) did not arise suddenly in the course of evolution, but developed gradually (Bekoff, Sherman, 2004; De Waal, 2019; Gallup, Anderson, 2020). An important component of self-awareness is body-awareness (Dale, Plotnik, 2017).

One of the aspects of body-awareness is the ability to take into account the limits of one's own body (Khvatov et al., 2019). In a series of experiments the animals solved the problem that required correlating the boundaries of their body with the size of the holes to penetrate into the goal compartment. In dogs, it was shown that when the size of the holes decreased during the experiment, this led to the fact that the animals spent more time deciding to penetrate. When the size of the holes became too small, the dogs completely stopped trying to penetrate (Lenkei et al., 2020). A similar study was conducted on children aged 18 to 24 months (Brownell et al., 2017). The authors used several techniques to study the children's awareness of their bodies. On average, children of different ages made 2.5 mistakes while solving these problems. Since 2004 we have been studying body-awareness in various animal species - including rats (Khvatov et al., 2016) and snakes (Khvatov et al., 2019).

The aim of the current study was to determine the ability of ferrets to take into account their own body limits when penetrating holes in external objects.

2. Methods

Experimental animals: 6 male ferrets (*Mustela putorius furo*) at the age of 1 - 1.5 years. Naive animals raised in the nursery.

Equipment. The experimental setup was a rectangular arena (110x130 cm), divided in the middle by a partition with three holes. The presence / absence of holes and their size was adjusted by inserting

additional plates into the grooves on their sides. In two opposite walls of the arena there were holes (40x40 cm), to which the “start” and “finish” cages (each 40x40x45 cm) were placed.

At the beginning of each test, a ferret was placed in the “starting” cage, and a feeder with 3 pieces of dry delicacy was placed in the “finishing” cage. The experimenter went into the next room, closed the door behind him and remotely opened the door leading to the arena. We carried out 6-9 trials per day with each animal. To find out which holes ferrets prefer, we ran 2 tests with them.

3. Test 1

This test was performed to determine whether ferrets have a preference for penetrating a larger hole.

Before the test, we ran a training series to get the animals accustomed to the experimental setup and task. The series consisted of 9 trials, only one hole was opened in each trial; its location was changed quasi-randomly. The hole had a maximum size (30x30 cm).

The test consisted of 36 trials, each with all three holes were opened & Holes were suitable for penetration, but differed in diameter. We used holes with three diameters: 70 mm, 90 mm, 110 mm. The location of the holes in each trial was changed randomly. Penetrations into holes were counted during the test. For penetration, we considered such a situation when the animal completely left compartment No. 1 through one of the holes.

3.1. Results of test 1

In 36 trials, ferrets made 72 penetrations into holes with a diameter of 70 mm, 74 - into holes with a diameter of 90 mm, 70 - into holes with a diameter of 110 mm. This distribution does not differ from the uniform one ($\chi^2 = 0.056$; $df = 2$; $p > 0.05$). Also, the empirical penetration distributions for each of the 6 ferrets do not differ from the uniform one (see Table 1).

Table 1. Text Evaluating preference for a larger hole in test 1.

| Animal | Ø 70 mm | Ø 90 mm | Ø 110 mm | χ^2 value by comparing empirical distribution with uniform ($df=2$) |
|--------|---------|---------|----------|--|
| Nº 1 | 11 | 12 | 13 | $\chi^2=0,083$; $p>0.05$ |
| Nº 2 | 14 | 12 | 10 | $\chi^2=0,336$; $p>0.05$ |
| Nº 3 | 12 | 12 | 12 | $\chi^2=0$; $p>0.05$ |
| Nº 4 | 11 | 13 | 12 | $\chi^2=0,083$; $p>0.05$ |
| Nº 5 | 11 | 14 | 11 | $\chi^2=0,241$; $p>0.05$ |
| Nº 6 | 13 | 11 | 12 | $\chi^2=0,083$; $p>0.05$ |
| Sum | 72 | 74 | 70 | $\chi^2=0,056$; $p>0.05$ |

4. Test 2

This test was conducted to determine if ferrets would prefer smaller openings for penetration rather than large, impermeable openings. The test consisted of 54 trials, in each of which all three holes were open. In this test, two types of trials were alternated: test trials and background trials. Each test trials followed by two background ones. This sequence helped to avoid the learning effect of penetrating a certain type of holes.

In each of the 18 test trials, one of the holes (70 mm in diameter) was passable and the other two had a large area but were too narrow or too low to pass through. There were used 3 types of holes unsuitable for penetration: horizontal rectangle 250x25 mm, vertical rectangle 25x250 mm, cross (consisted of crossed horizontal and vertical rectangles).

In 36 background trials, two holes were passable and one was impermeable. In 18 trials we used horizontal rectangles 250x70, in the other 18 trials we used vertical rectangles 70x250. The impermeable hole was a circle with a diameter of 30 mm. The location of the holes in the trials was changed by accident.

During the test, we counted the number of penetrations and unsuccessful attempts to penetrate the holes. As an unsuccessful attempt to penetrate, we considered the situation when the ferret pressed against the hole, making either reciprocating movements with its muzzle in the direction of compartment 2, or skidding movements with its paws on the floor.

4.1. Results of test 2

In 18 test trials, ferrets made 105 successful penetrations and 3 unsuccessful attempts. This distribution differs from the uniform one ($\chi^2 = 97.25$; $df = 2$; $p < 0.01$). Also, the empirical penetration distributions for each of the 6 ferrets separately differ from the uniform one (see Table 2).

It is important to note that none of the individuals showed a significant reduction or increase in unsuccessful attempts to penetrate the holes.

Table 2. The number of penetrations into holes of various diameters in 6 animals in test trials in test 2.

| Animal | Permeable | Impermeable | χ^2 value by comparing empirical distribution with uniform ($df=2$) |
|--------|-----------|-------------|--|
| № 1 | 17 | 1 | $\chi^2=14,57$; $p<0.01$ |
| № 2 | 18 | 0 | $\chi^2=18,00$; $p<0.01$ |
| № 3 | 18 | 0 | $\chi^2=18,00$; $p<0.01$ |
| № 4 | 18 | 0 | $\chi^2=18,00$; $p<0.01$ |
| № 5 | 16 | 2 | $\chi^2=11,69$; $p<0.01$ |
| № 6 | 18 | 0 | $\chi^2=18,00$; $p<0.01$ |
| Sum | 105 | 3 | $\chi^2=97,25$; $p<0.01$ |

5. Discussion & conclusions

During the experiment, it was found that ferrets do not have a preference for penetration into large holes, since the empirical distributions of penetrations into holes of various diameters (for all 6 animals) do not differ from the uniform ones.

In the second test, it was found that in the test trials, regardless of the area of the holes, the ferrets significantly more often penetrated those of them that corresponded in size to their bodies. In addition, the number of unsuccessful attempts in all animals from the very first trial was low and did not change during the experiment. This indicates that these animals have knowledge of the limits of their bodies (one of the aspects of the body-awareness), comparing these limits with the size of the holes through which they need to penetrate.

Unlike snakes (Khvatov et al., 2019), ferrets chose suitable holes from the very first trials of the second test, which indicates that they developed this component of body-awareness in themselves early in ontogeny. It is also curious that when solving similar problems, ferrets, like rats (Khvatov et al., 2016), made fewer mistakes than children (Brownell et al., 2017).

Our data indicates this direction of research as promising for organizing experiments on other animal species.

Acknowledgements

The study was supported by the Russian Science Foundation, grant No. 19-18-00477.

References

- Bekoff M., Sherman P.W. (2004). Reflections on animal selves. *Trends Ecol. Evol.*, 19, 176–180.
- Brownell, C.F., Zerwas, S., Ramani, G.B. (2017). “So Big”: The Development of Body Self-awareness in Toddlers. *Child Dev.*, 78(5), 1426–1440.
- Dale, R., Plotnik, J. M. (2017). Elephants know when their bodies are obstacles to success in a novel transfer task. *Scientific reports*, 7, 46309. doi:10.1038/srep46309
- De Waal, F. B. M. (2019) Fish, mirrors, and a gradualist perspective on self-awareness. *PLoS Biology*, 17(2), e3000112. doi:10.1371/journal.pbio.3000112
- Gallup, G.G.Jr., Anderson, J.R. (2020) Where do we stand 50 years later? Lessons from cleaner wrasse and other species. *Psychology of Consciousness: Theory, Research, and Practice*, 7(1), 46–58.
- Khvatov, I.A., Sokolov, A.Y., Kharitonov, A.N. (2019). Snakes Elaphe Radiata May Acquire Awareness of Their Body Limits When Trying to Hide in a Shelter. *Behav. Sci.*, 9, 67.
- Khvatov, I.A., Sokolov, A.Yu., Kharitonov, A.N., Kulichenkova, K. N. (2016). Scheme of own body in rodents (on the example of rats *Rattus norvegicus*). *Ekspperimental'naya psikhologiya*. 9(1), 112–130. doi:10.17759/exppsy.2016090109 (in Russian).
- Lenkei R., Faragó T., Kovács D., Zsilák B., Pongrácz P. (2020). That dog won't fit: body size awareness in dogs. *Animal Cognition*, 23, 337–350.

IDENTIFICATION AND SYMBOLIZATION IN ADOLESCENT DEPRESSION TODAY

Larissa Leão de Castro, & Terezinha de Camargo Viana

Postgraduate program in Clinical Psychology and Culture, University of Brasília (Brazil)

Abstract

This theoretical study, of a qualitative character, proposes to investigate what the relationship between identification and symbolization is in adolescent depression today. The importance of discussing the theme is as a direct result of the alarming observation that, as an illness of epidemic proportions, it does not refer to a natural illness, whose origin is restricted to the individual level, but mainly refers to structural determinations present in society. In this sense, this work addresses the problem of understanding which identification and symbolization processes are present in a culture that has transformed depression among adolescents into a social symptom. In order to develop this, it expresses the main determinations that are present at puberty, discussing the processes of primary and secondary narcissism, the nature of identifications, mechanisms of the capitalist culture of consumption and its relationship with the processes of subjectivation, reflecting on the possibilities and obstacles of the social bond to offer and / or allow symbolization of anxieties and humanizing psychical work.

Keywords: *Identification, adolescence, symbolization, depression, social symptoms.*

1. Introduction

This study aims to investigate the relationship between identification, narcissism and symbolization in adolescent depressions today. We note the importance of moving forward in the study of the theme, considering the predicted trend that in 2020 depression would be the second cause of morbidity in the world (Kehl, 2009). This is in addition to the alarming data taken up by Dolto (1990) that for 20 years the second leading cause of death among adolescents in the United States has been suicide. This is something that has been ignored and, as a rule, has been shadowing the adolescent and is often associated with the mechanisms of the problem of depression.

2. The capitalist culture of consumption, narcissistic fragility, identifications and acting out

In the text *Adolescence: act and actuality*, Bianca Savietto and Marta Cardoso (2006) analyze the route to the act as a resource increasingly used by adolescents, reinstating the question of the relationship between subjectivity and culture. To do this, the authors discuss the determinations considered central for the constitution of the phenomenon, such as helplessness, identifications, narcissistic fragility, the current context of the West that propagates this form of subjectivity and the meaning of the recourse to the act in this context. These elements can be deepened to better understand the relationship between the depressive symptoms and the structure of this consumerist culture.

The authors start from the psychoanalytical definition of adolescence, referencing both the biological dimension of puberty - which includes the novelty of the unification of the drives under genital primacy -, as well as the unconscious implications of this experience in the pulsional dynamics, requiring psychical work to address the representation and the symbolization of that period in which there is pulsational excitation changes. This demands the work of reorganizing body, sexual and psychic identity, as it is understood from Marty's description. (Cardoso, Savietto, 2006).

The importance of the analysis of narcissism in this period is recovered, since to it belongs the function of exercising the self-preservation of the image of the unifying Ego. In this stage of life, this function is under attack, since there are major transformations in the body that the subject has to deal with, in addition to requiring a gradual disconnection from the parental figures that supported the internal structuring of the Ego-Ideal, in the constitution of primary narcissism. It must be weakened, together with the omnipotence that was associated with these figures, to make room for another process of subjectification through the internalization and consolidation of other identifying references that will internally form the subject's Ideal of the Ego, consolidating the structuring of secondary narcissism. For this reason, the authors claim that it is essential to reduce the level of narcissism to make room for a new subjective reorganization. (Cardoso, Savietto, 2006).

However, their analysis argues that for this process to occur, the presence of “a significant narcissistic preamble” is necessary (Cardoso, Savietto, 2006, p.21) for the psychic restructuring through the identificatory trajectory. They rely on the work of Marty when he emphasizes that one of the elements of the failure of this transition is the lack of support from parents or whoever represents them (Cardoso, Savietto, 2006, p.21).

At the same time, for the predominance of the Ego-Ideal to cease to operate and give space for subjectification by the Ideal of the Ego, some work needs to be done in the area of culture. As pointed out by Pinheiro (2001), culture and its mediations must offer objects, identifying references that weaken totalizing omnipotence, since the individual at that moment feels threatened in his integrity by helplessness, always using the other as a model to construct himself. (Cardoso, Savietto, 2006).

Just like the concept of drive, the notion of helplessness encompasses both a biological and a psychic dimension. It concerns a psychomotor insufficiency and the psychic apparatus of symbolizing and representing the amount of pulsational excitation that the subject is unable to master. Added to this factor, the authors' analysis that the strength of Western culture is not found in the power of symbolization, which makes the move towards the suicidal act more understandable as a resource used in adolescence in this historical particularity. (Cardoso, Savietto, 2006).

In this sense, they highlight some elements. Among them, the Winnicottian analysis of the increasing presence of a depression in the parents, which does not allow the constitution of an identifying reference that life in itself, is worth it. If this base of primary narcissism is already weakened, it becomes even more difficult to move through secondary narcissism and the internal construction of the Ideal of the Ego. As such, we recognize that western culture has a tendency to move towards a state of helplessness in general, especially in adolescence, when this issue is updated. In other words, there is a weakening of the mediations that culture offers in its power to build symbolic order based on identifying references. (Cardoso, Savietto, 2006).

Among the factors involved in this process, Cardoso and Savietto (2006) highlight the centrality of the cult of the body in the formation of identities. They resume the analysis by Jurandir Costa (2004) that, at other times in the history of Western culture, relationships were based on people's actions, which later led to an emphasis on moral and interior characteristics, while today the relationships are based on the bodily and imagery attributes that the subjects have of themselves. For the author, due to the influence of the media in the new processes of subjectification, these attributes are associated with money, power, success and fame.

As a large part of the population is excluded from this scenario, it seeks to affirm subjectivity at least through a body image that deserves success, seeking to have the same body as famous people have, as well as exposing it uninterruptedly, as in a showcase open to assessments. This raises a problem for adolescents, as they go through a period of great and constant bodily transformations that are beyond the standard of beauty, which, in turn, generates anguish that aggravates the problems already faced. (Cardoso, Savietto, 2006)

With the acquiescence of the media in the processes of subjectivation, the references to fleeting celebrities, expressing the presentification of time (the here-and-now) are now occurring, so the search for fame leads to the absence of commitments to the future, and these fleeting values are always tied to body image. Through this logic of instantaneity, the authors point out the absence of representations of the Ideal of the Ego and, in their place, the presence of narcissistic ideals of completeness and omnipotence in the instantaneous logic that objects for consumption can offer. This factor is intertwined with the loss of lasting authority figures, the absence of intergenerational difference, showing that both parents and children often remain in what is called the generation of adolescents, which makes the processes of subjectification resistant to the dimension of alterity, to difference (Cardoso, Savietto, 2006).

Thus, it is through the understanding of these processes of the current Western culture that Cardoso and Savietto (2006) understand the increasing acting out by the adolescent. We take up Philippe Jeammet's analysis when he interprets that there is a short circuit in the demand for psychical work of symbolization and in its place, an acting out appears. Although the progress to the act expresses the need for a review of the psychological discharge in the face of anguish, an archaic mechanism typical of primary narcissism ensures that the Ego-Ideal predominates over the Ideal of the Ego in the absence of mediations by culture, which make it possible to carry it out. In this sense, thinking about adolescence presupposes not universalizing these conditions of subjectivity, but understanding them circumscribed to the present context of Western culture.

3. Final considerations: Psychical work x depression as a social symptom

As we saw previously, the suicidal act is an effect of the absence of symbolization reinforced by culture, depression is also a symptom that expresses the primary processes of narcissism, as well as the primary nature of the identification processes. This indicates the development of a barrier to this waiting time and of symbolization that would allow the elaboration of anxieties, the reorganization of identifiable

references, the ability to fantasize, to think about the transformation of their reality, etc. (Kehl, 2009). This waiting time becomes sparse, similar to that which did not allowed the person to meet the demand of the other, in addition to not responding to the imperative of jouissance and not seeking to be a total object. Thus, so many elements of the construction of narcissism are put in place, processes of identification and symbolization typical of the gradual history of the subjects up to the breadth of this structuring present in the culture that is completely conducive to the strengthening of the depressive symptom in the social bond.

In the same sense, the works of Dolto (1990) emphasize the importance of analyzing the mediation of culture when, for example, it investigates the genesis of the problem of suicide among adolescents as an epidemic and not as an isolated issue, that is, it concerns recurrent causalities in the inter-constitutive relationship between individual and culture. In view of the alarming data of young people attempting suicide in the United States, the author questions what factors could be in play and mentions, among them, the discovery of their presence in regions demonstrating accelerated development. This is quite significant within the North American way of life that radicalizes the internalization of capitalism's tendency to produce and be.

If the regions where the problem has assumed greater proportions have a more accelerated level of development, this indicates exactly what has been done about the absence of the necessary waiting time for work on people's psyche which results in the possibility of elaborating and transforming reality. Even with this element in common, on the other hand, there are specificities among the complexity of the reasons in different countries that often lead adolescents to commit suicide.

Having made this journey and then realizing that the absence of work on the psyche (which would allow symbolization, elaboration and transformation of reality), added to the manifestations of the culture of the values and ways of life of capitalism, we note there is a transformation not only in the symptom of suicide, but also in the symptoms of depression as a problem of epidemic proportions.

In this sense, Dolto (1990) points out that any proposal of prevention in the face of the phenomenon - which in the present study can extend to the understanding of the treatment of depression -, it is essential to make the ghost speak, to allow time for work on the psyche. Just as with children, it is desirable to speak more frankly about death to adolescents who are experiencing this problem. It is also important for the adolescent to feel better understood when talking to family members in addition to their parents. If he wants to die, it is important that the psychotherapist asks him about the death wish and what prevents him from going through with it. In this way, ghosts can be talked about, time is allowed for the elaboration of, and transformation of what the adolescent is often silent about. As it is a taboo subject, as with the whole culture around them, the author warns about the effect of the growth of that which it has been silent about and yet has grown into adolescence. (Dolto, 1990).

In this same sense, Maria Rita emphasizes that it is necessary to “allow a rectification of the subject within the (imaginary) family story that gives meaning to the (symbolic) ghost” (Kehl, 2009, p. 231, author's translation). It is necessary to encourage him to overcome his reflected position to allow the possibility of fantasizing, to deal with his desire, which would allow him to deal with what is absent, but not in the sense of a disastrous or tearing apart experience, but as the possibility of sustaining a desire, a fantasy, and the possibility of transformation.

If we live in the culture of capitalism in which the prevailing social bond propagates the imperative of jouissance and indestructible happiness, we note that this is just another guise of the same bourgeois ideal for the free individual to give away his ability to work, produce, and achieve happiness, which in turn is sought indefinitely via consumer objects. Obviously, that same culture propagates the ideology that if the person fails to respond to the mandates to “enjoy”, the fault is the individual's. In this sense, the author indicates that in the phenomenon of depression there is a suffering experienced as a catastrophe of unhappiness for not being happy, for not being able to respond to this mandate of the culture of “enjoyment”. (Kehl, 2009).

References

- Dolto, F. (1990). *Los suicidios de los adolescentes: una epidemia ocultada*. In: La causa de los adolescentes. Barcelona: Seix Barral.
- Freud, S. (1996). *Psicologia de grupo e análise do eu*. In: Freud, S. Obras psicológicas completas de Sigmund Freud. Rio de Janeiro: Imago, Vol. 18 (p. 77-154). (Trabalho original publicado em 1921).
- Freud, S. (1996). *Sobre o narcisismo – uma introdução*. In: Freud, S. Obras psicológicas completas de Sigmund Freud. Rio de Janeiro: Imago, Vol. 14 (p. 77-108). (Trabalho original publicado em 1914).
- Kehl, M. R. (2009). *O tempo e o cão: a atualidade das depressões*. São Paulo: Boitempo.
- Savietto, Bianca Bergamo, & Cardoso, Marta Rezende. (2006). Adolescência: ato e atualidade. *Revista Mal Estar e Subjetividade*, 6(1), 15-43

WORKSHOPS



EXPANDING PLURALISM IN THE AGE OF COVID

Joanne Ginter

MA, Registered Psychologist

Sundancer Psychological Services, Calgary, Alberta (Canada)

Abstract

Multiculturalism and growing diversity found within client populations encourages therapists to become pluralists in their work. Pluralism is the position, identified by Kenneth Pargament, that therapists take when the cultural story of both the client and therapist are acknowledged to be present in the session. These cultural stories provide the foundation for creative meaning making in the therapeutic process.

The COVID pandemic has set a new bar for therapists in for extending themselves beyond what was once comfortable to being increasingly creative and diversified in meeting their clients' needs. This has involved ways to navigate online or telephone sessions, which subsequently provided therapists with opportunities for interacting with clients outside their typical client base. Or in other words, the need for a broader and more diversified understanding of client needs and ways to promote healing and client resiliency.

This workshop will review the foundational elements of pluralism and the building blocks of resiliency (self, mentor, and community of care) with reference to some of the early literature of the effects of the COVID pandemic on therapists and the therapeutic process. Participants will have an opportunity to identify their position on pluralism and the need for diversity in therapy and the effects of the COVID pandemic on their practice.

Keywords: *Pluralism, resiliency, cultural self, diversity, COVID.*

1. Introduction

The increasing multiculturalism found within client populations has been challenging therapists to become more pluralistic in approaching client needs. This client diversity has pressed therapists to frequently practice outside their worldviews. The COVID pandemic which emerged in early 2020 has presented therapists with an additional challenge for meeting client needs as health and safety pushed regulations and intervention strategies beyond previously defined boundaries, including the use of technology to meet with clients through audio or video remote formats and to adapt interventions for delivery outside the therapist's typical therapeutic setting. These changes also posed challenges to ethical codes and standards of practice for regulatory bodies as therapists were being asked to practice in new and challenging ways. In a review of the ethical principles of practice of the APA, Chenneville and Schwartz-Mette (2020) identified the importance of Principle B, "Fidelity and Responsibility" to be particularly relevant in the time of COVID. Under this principle, developing relationships of trust were ones that might require adjustments due to the COVID crisis, including the change to delivery of services, financial limitations, and other unique circumstances such as practicing outside one's typical client population (pp. 644-654).

The need for therapists to adapt in this way aligns with the foundational elements of pluralism found within the therapeutic relationship as identified by Kenneth Pargament. Pargament while researching the relationship between religion and psychology, identified pluralism as preferred modality in addressing multiculturalism in client populations (Zinnbaur and Pargament, 2000). Ginter later identified a modified pluralist position as an expanded position to provide therapists who did not hold a belief in a spiritual ontology to practice as a pluralist (Ginter, 2016). Either position of pluralism offers to therapists the foundation for the inclusion of multiple worldviews to be addressed and acknowledged in the therapeutic relationship.

In the pluralist position, the cultural story of both the client and therapist are acknowledged to be present in the session and provide the foundation for creative meaning making in therapy. This creative meaning making, also known as resiliency, offers to therapists both a language and process for meeting the diversity found within client populations (Ginter, 2016).

2. Objectives

Since the beginning of the COVID pandemic, as therapists have begun meeting with clients outside their regular client base, they have been invited to meet a more diverse set of client needs. In addition, the effects of the COVID pandemic have resulted in increased anxiety in individuals, increased mental health challenges in children and youth, a broader range of couple problems, and family challenges (Prime, Wade, and Browne, 2020).

Pluralism as a relational process of understanding diverse worldviews offers to therapists a means of addressing these client needs in these new and challenging times. Understanding the building blocks of resiliency, e.g., self, mentor, and community of care, offers a language and process that therapists can use to meet the needs of their clients, in person or remotely, and regardless of cultural identity or community (Ginter, 2016).

3. Method/discussion

A general survey of practicing therapists (psychologists, social workers, mental health clinicians) within Alberta, Canada, found that therapists were challenged by video fatigue along with an increase of client and therapist challenges believed to be associated with the effects of the COVID pandemic. Some of these challenges were discussed in a panel discussion at the recent Evolution of Psychotherapy conference in December 2020, when Drs. Stephen Porges, Michael Yapko and Jeffrey Zeig discussed the effects of the COVID pandemic. The overall focus of this panel discussion was 1) to be aware of our own vulnerabilities while questioning who we truly are and what we value; 2) to recognize the need for therapists to find ways to honor their existential goals; and 3) to understand the significant effects of trauma on clients that has been reactivated with the uncertainty of the COVID pandemic. Therapists were encouraged to meet clients where the client is without judgement and with acknowledgement of the client's needs and resources. These challenges in addition to the suggestions provided to therapists were consistent with the position of pluralism where the worldviews, including resources, of the client and therapist are present in therapy (Porges, Yapko and Zeig, 2020).

4. Conclusions

In conclusion, therapists are encouraged to expand their practice of pluralism as defined by Pargament and Ginter, whereby both the worldviews of both the client and therapist are accessed to facilitate resiliency in addressing the client's problems. Further the language and process of resiliency can be used to support diverse client populations. A review of current literature indicates that meeting client needs through telepsychology and other remote vehicles is not going away. As well, the psychological effects of the COVID pandemic will likely have an impact on both clients and therapists well into the future (Calkins, 2021).

Workshop Objectives:

- a. Review the foundational elements of pluralism and the building blocks of resiliency (self, mentor, and community of care);
- b. Review some of the early literature on the effects of COVID on therapy;
- c. Involve participants in interactive activities:
 - a. Identify their cultural foundations
 - b. Identify the ways resiliency has been fostered in their lives
 - c. Share changes participants have made seeing clients during the COVID pandemic
 - d. Plan for the future

References

- Calkins, H. (2021). Online Therapy Is Here to Stay. *Monitor on Psychology*, (Jan/Feb), 78-82.
- Chenneville, T. and Schwartz-Mette, R. (2020). Ethical issues for Psychologists in Time of COVID-19. *American Psychologist*, Vol 75, No. 9, 644-654.
- Ginter, J. (2016). *The Fifth Position: Developing Intercultural Resiliency and Pluralism*. Phoenix, AZ: Zeig, Tucker and Theisen.

- Padesky, C. and Siegel, R. (2020) Practical Ways to Improve Telehealth Sessions, National Institute for the Clinical Application of Behavioral Medicine (NICABM). Retrieved May 2020 from Practical Ways to Improve Telehealth Sessions - NICABM
- Porges, S., Yapko, M. and Zeig, J. (2020), COVID-19 Impact Panel, Evolution of Psychotherapy, (December 12, 2020). Retrieved Dec 2020.
- Prime, H., Wade, M. and Browne, D.T. (2020). Risk and Resilience in Family Well-Being During the COVID-19 Pandemic. *American Psychologist*, Vol 75, No. 9, 631-643.
- Zinnbauer, B. J. and Pargament, K. (2000) Working with the sacred: Four approaches to religious and spiritual issues in counseling. *Journal of Counseling and Development*, 78 (2), 162-171. Retrieved June 2003) from <http://www.psycinfo.com/library/fulltext.cfm>

NEW TRENDS IN PERSONALITY PSYCHOLOGY: SOCIAL AND VIRTUAL ASPECT

Tatiana Martsinkovskaya¹, Daria Tkachenko², & Vladimir Karpuk²

¹*Institute of Psychology, Russian State University for the Humanities, 125993, Miusskaya square 6, Moscow, Russia; Psychological Institute RAE, 125009 Mochovaya 9, Moscow (Russia)*

²*Russian State University for the Humanities, 125993, Miusskaya square 6, Moscow (Russia)*

Abstract

Psychology is currently facing global challenges that with necessity lead to the emergence of fundamentally new trends and patterns in the theory and practice of personality psychology. From the point of view of theory, there is a constant rethinking of changes in the structure and content of identity - personal, sociocultural, ethnic. In practice, there are no less significant processes associated with approaches and methods in diagnostics and counseling. These changes are associated with the expansion of the virtual space of identification and self-realization. In the last year, the changes associated with quarantine for COVID 19 have become of great importance. The frustration of real space, which often connects with a narrowing of the time perspective, leads not only to an increase in the role of virtual space, but also to intensification of the role of network identity and the development of various forms of Internet communication, counseling and leisure activities. It appears that new trends will become more significant and constant in the future. Therefore, it is imperative to discuss the new forms of narrative and virtual identity, the directions for further change and their positive and negative impact on the identification and well-being of both young and old people.

Keywords: *Frustration of space and time, wellbeing, identity, narrative.*

1. Introduction

During the last year life has put on an impressive natural experiment in which we have met a variety of challenges: a new incomprehensible somatic illness, physical and mental burnout, a difficult economic and environmental situation, fatigue from the uncertainty of the situation and the rigidity of barriers that have radically changed the space and time of our life. ... And all these challenges require a quick response, because the delay in the reaction can turn into a fan of new problems.

The shock, the suddenness of change and the emergence of a fundamentally new situation, of course, raises the motivation to preserve our-selves, our values and lifestyle. As the search activity of people is intensified, it is very important to analyze the preferred information resources and the degree of trust in them. Indeed, it is the degree of trust that largely determines the degree of influence of this information on behavior. Another problem is the relationship between psychological and economic precariousness. (Druzhilov, 2015).

Analyzing the psychological impact of quarantine scientists mention as difficulties in both - coming in and out of the quarantine situation and the influence of uncertainty. (Brooks & others, 2020). (Jacobson & others, 2020). In a situation of frustration new forms of communication appear the importance of social networks, telephone and Internet communication platforms increases. In a quarantine situation, not only conferences, lectures and exams moved to the Internet, but also friendly conversations and even meals, including the celebration of significant events. Although, of course, such communication cannot replace the real one, nevertheless, it is an important substitute for it, helping to maintain emotional contact, psychological well-being and the necessary sources of information. (Martsinkovskaya, 2019, 2019a). In this context, a person's ability to accept changes and tolerance for uncertainty become extremely important (Grishina, 2019). Also, there must be taken into account the latest publications on the coping problem, especially, issues related to the difference in individual reactions in retroactive and proactive coping (Frydenberg, 2014).

At the same time, one can assume a gradual adaptation to the new reality and even the discovery of positive aspects in it. Therefore, it is necessary to constantly monitor the situation and fix all emotional, personal and behavioral changes.

2. Design, method, participants.

The aim of this work was to study mental well-being, behavior and emotional experience of a pandemic and quarantine in a situation where real interactions were replaced by a virtual one.

The study involved students of Moscow universities (17-23, n = 90) and people of mature age (45-60, n = 60). The survey was conducted with the help of social networks; all respondents were aware of its purpose and agreed to participate in the work.

The questions were divided into several groups, for each of which the received answers were processed separately.

1. Attitude to information

This group included questions aimed at studying the main information sources that respondents used to find out news about the situation about the pandemic, the specifics of the virus, the characteristics of the course of the disease and methods of prevention.

2. Emotional state

This group included questions that reveal the attitude of people to the quarantine situation, changes in the nature of communication, study, work and entertainment. When analyzing the answers, possible ways of replacing emotional contacts and options for spending leisure time were also recorded.

3. Behavior

When analyzing the answers to these questions, both methods of behavior in everyday life (food, masks, gloves) and the relationship between real and virtual behavior, especially during study / work and entertainment, were analyzed.

4. Visions of the future

This group of questions was aimed on analyzing the respondents' ideas about their future after the end of quarantine, as well as about the role of new forms of communication for the future of the whole world.

3. Discussion

Contrary to expectations, no significant differences were found in the sources of information between the respondents of both age groups. Almost everyone searched for information in the Internet, and trusted this information more than TV. Apparently, when it comes to information that is important for life, not only young people, but also adults and the elderly are trying to get data from various sources and various Internet resources. The differences were mainly due to the fact that adults mostly identified social networks, instant messengers and the Internet in general, while students focused on specific messengers, social networks and, especially, streaming video. At the same time, young people trust their friends and adults are more focused on the opinions of famous people.

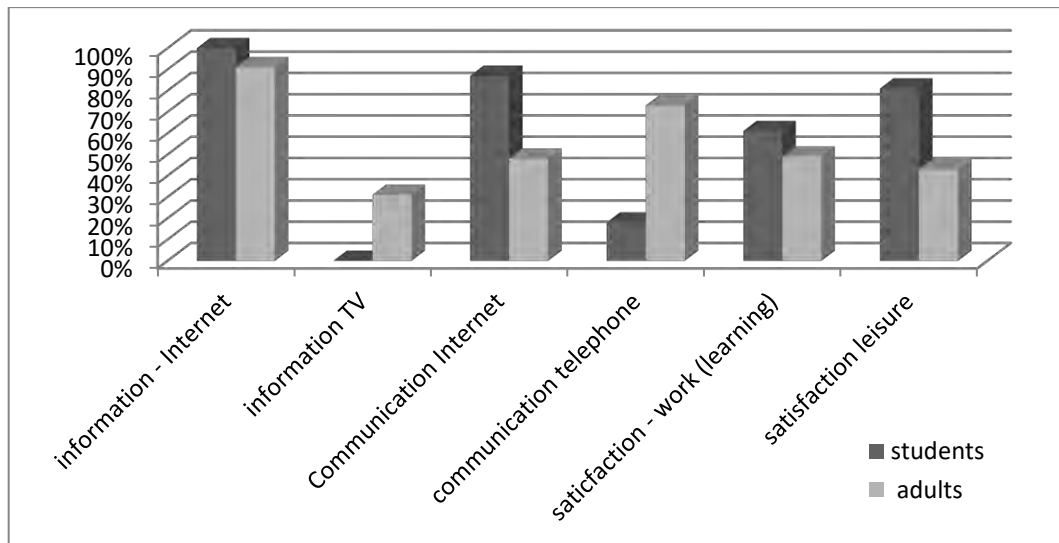
No significant difference was found in the behavior of people in both age groups. All of them agreed with necessity to maintain social distance and wear masks, although this prescription is not always fully implemented. The only things that really take place are hand washing and the use of disinfectants and wet wipes. At the same time, both groups are irritated by the need to comply with these strict regulations. These restrictions are especially annoying to adults and the elderly. They also often wear groceries and try to minimize contacts.

The main difference in the emotional state of the young and the elderly is related to the time perspective. Changes in the daily routine of life are already affected work and communication with family and friends, and even leisure activities. Elderly people experience depression not so much because of the quarantine situation and movement restrictions, but because of the fear that this situation may become permanent for them for the rest of their lives. This situation reduces the time perspective and darkens the idea of the future.

Young people are less prone to depression and do not consider quarantine as the factor, that can influence the time perspective and change their global plans for the future. The preservation of emotional stability among young respondents is also facilitated by the fact that they were able to find a substitute for real communication and spending their leisure time in virtual space. Older respondents communicate with family and friends mostly by phone, less often via Skype, and even less often by Zoom. Some watch old films or performances, a few - concerts or virtual tours of museums. Young people have much wider opportunities provided by the Internet space. These are online training courses, which many actively use in addition to the basic courses at the university, as well as the emergence of new hobbies and new ways of spending leisure time, when they play together and even dance (zoom parties, discussion of their streaming videos, etc.).

Another important point is related to the assessment of new technologies for the future world. Here we can state a difference in the predominantly positive attitude of young people, who answered that they hope for changes for the better and noted the importance of new technologies in modernizing the world. For adults and the elderly, expectations are more reserved and the prospects for change are assessed as ambivalent. For many adults, changes are associated with psychological and economic precariousness. In general, the first data is presented on figure 1.

Figure 1. The ratio of real and Internet space.



Of course, the psychological state of many people, regardless of age, is not cloudless, even people with a predominantly positive attitude have moments of irritation, fatigue, depression. However, even a small monitoring shows a slight increase in positive well-being, primarily, an increase in the positive assessment of online work and learning.

4. Conclusions

The obtained data showed that in a difficult situation trust in information coming from the Internet is significantly higher than to information from others sources. Apparently, the importance of the situation leads to the fact that the ability to choose an interesting and significant channel increases the role of the Internet for all groups of the population.

The difference in the emotional state is only partially and indirectly determined by age, since young people are more flexible in using the virtual space to replace real options for communication, study and entertainment.

The materials obtained confirm that at present, the attitude towards the information and cultural space of the Internet significantly affects the boundaries of the real social field, allowing one to overcome various types of external frustration, and often even the most severe barriers.

Acknowledgments

This work was supported by the Russian Science Foundation, project 19-18-00516 “Transitive and virtual spaces - commonality and differences”.

References

- Brooks, S. K. & others (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet*, 14(395), 912-920, [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8)
- Druzhilov, S.A. (2015). Precariat and informal employment in Russia: social and psychological aspects. *Humanitarian research*, 41(1-2), 53-61
- Frydenberg, E. (2014). Coping research: Historical background, links with emotion, and new research directions on adaptive processes. *Australian Journal of Psychology*, 66, 82-92.
- Grishina, N.V. (2019). Procedural approach in personality psychology. *Psychology of personality: Stay in change*. SPb.: SPbSU publishing house
- Jacobson, N.C. Lekkas, D. & others (2020) Mental health search: COVID-19stay-at-home orders. *JMIR Mental Health*, 7(6), e1934. doi:10.2196/19347
- Martsinkovskaya, T. D. (2019). Person in Transitive and Virtual Space: New Challenges of Modality. *Psychology in Russia: State of the Art*, 12(2), 165-176. DOI: 10.11621/pir.2019.0212
- Martsinkovskaya, T. D. (2019a). Information space of a transitive society: problems and development prospects. *Consultative psychology and psychotherapy*. 27 (3), 77-96, doi: 10.17759 / cpp.2019270306

AUTHOR INDEX

| | | | |
|----------------------|----------|----------------------|--------------------|
| Aboitiz, F. | 349 | Chung, P. | 409 |
| Abrinková, L. | 426 | Coelho, R. | 66, 113 |
| Adamczyk, K. | 37 | Cong, P. | 379 |
| Ading, C. | 212, 227 | Crepaldi, G. | 384 |
| Ah Gang, G. | 202, 212 | Crespo-Sanmiguel, I. | 345 |
| Ahgang, G. | 227 | Čurová, V. | 426 |
| Aia-Utsal, M. | 172 | da Silva, A. | 123 |
| Akopov, G. | 47 | Dai, W. | 379, 429, 450, 456 |
| Alves, E. | 143 | Dal Corso, L. | 302, 312 |
| Andreatta, P. | 384 | Darwich, R. | 242, 252 |
| Angel Gonzales, C. | 197 | Dayag, E. | 197 |
| Anikina, V. | 76 | De Carlo, A. | 297, 312 |
| Arcan, K. | 89 | De Carlo, N. | 302 |
| Arendasy, M. | 187 | de Castro, L. | 330, 468 |
| Ayanyan, A. | 453 | de Sousa, M. | 242 |
| Aziz, A. | 61 | de Souza, A. | 252 |
| Ballon, N. | 27 | Deyneka, O. | 262 |
| Barbierik, L. | 411 | Di Giacomo, D. | 118, 133 |
| Barrault, S. | 27 | Di Sipio, A. | 297, 312 |
| Basto, I. | 32 | Didry, A. | 182 |
| Bauch, S. | 354 | Diges, M. | 462 |
| Beaulieu, D. | 138 | Dominguez, J. | 66, 113 |
| Belinskaya, E. | 322 | Donkin, L. | 51 |
| Benka, J. | 411 | Dreisiebner, S. | 187 |
| Berinšterová, M. | 162 | Egorova, M. | 207 |
| Best, L. | 128, 138 | El Archi, S. | 27 |
| Blokh, M. | 76 | Endriulaitienė, A. | 335 |
| Bobková, M. | 292 | Englmair, E. | 354 |
| Bodi, G. | 7 | Falco, A. | 297, 312 |
| Botega, L. | 252 | Farkašová, R. | 282 |
| Both, L. | 438 | Feldhammer-Kahr, M. | 187 |
| Bozogáňová, M. | 162, 257 | Ferrante, L. | 94, 103 |
| Brunault, P. | 27 | Ferri, C. | 133 |
| Campos, S. | 420 | Figueira, A. | 420 |
| Candel, O. | 400 | Fitriana, M. | 222 |
| Cao, X. | 394 | Folomeeva, T. | 277 |
| Cardona-Moltó, M.-C. | 317, 325 | Förster Marín, C. | 349 |
| Ceschi, A. | 217, 435 | Friedmann-Eibler, J. | 354 |
| Chertkova, Y. | 207 | Frolova, O. | 359 |
| Chiner, E. | 317, 325 | Frydrychowicz, M. | 37 |
| Christodoulides, P. | 374 | Fuchsová, K. | 162 |

| | | | |
|-----------------------------|--------------------|---------------------|----------|
| Fujisawa, A. | 423 | Khoroshilov, D. | 322 |
| Gaete, J. | 349 | Khvatov, I. | 465 |
| Gere, B. | 287 | Klimochkina, E. | 277 |
| Gerio, E. | 197 | Kõiv, K. | 172 |
| Ghersetti, E. | 302 | Kollár, K. | 158 |
| Ginter, J. | 473 | Kononenko, I. | 397 |
| Girardi, D. | 302, 312 | Kostic, J. | 22, 232 |
| Glaser, J. | 272 | Kreitler, S. | 17, 42 |
| Golub, T. | 167 | Kurnosova, S. | 267 |
| Golubeva, M. | 237 | Kvasova, O. | 447 |
| Golubeva, N. | 453 | Lambun, J. | 202 |
| Gómez-Puerta, M. | 317, 325 | Lastar, A. | 227 |
| Gorodnyi, V. | 459 | Le, T. | 148 |
| Greškovičová, K. | 282 | Li, H. | 394 |
| Grigorev, A. | 459 | Li, K. | 12 |
| Guerra, F. | 118, 133 | Li, X. | 450, 456 |
| Halim, L. | 182 | Li, Z. | 379 |
| Haramaki, Y. | 414 | Lisá, E. | 247 |
| Hebert, K. | 128 | Ljubin-Golub, T. | 177 |
| Herbig, B. | 272 | Loginova, I. | 3, 397 |
| Hidalgo, V. | 345 | Lovaš, L. | 292 |
| Hirata, Y. | 414 | Lyakso, E. | 359 |
| Höfler, M. | 354 | Machado, R. | 32 |
| Höge, T. | 441 | Magdová, M. | 162 |
| Hornung, S. | 272, 441 | Magomed-Eminov, M. | 447 |
| Horváth, S. | 158 | Magomed-Eminova, O. | 447 |
| Hu, C. | 409 | Maintenant, C. | 7 |
| Hunter, E. | 403 | Maksimenko, A. | 262 |
| Iakovleva, M. | 99 | Marino, C. | 103 |
| Ischebeck, A. | 354 | Markšaitytė, R. | 335 |
| Jarašiūnaitė-Fedosejeva, G. | 369 | Marques, S. | 123 |
| Jędryszek-Geisler, A. | 432 | Martsinkovskaya, T. | 476 |
| Jia, N. | 379, 429, 450, 456 | Merzlyakova, S. | 237 |
| Jurčec, L. | 167 | Mishra, S. | 56 |
| Kalina, O. | 411 | Mitevská, M. | 307 |
| Kantor, H. | 42 | Mitrovic, M. | 22, 232 |
| Kapová, J. | 162 | Moco-Daijardin, A. | 444 |
| Karacheva, E. | 447 | Montoliu, T. | 345 |
| Karen, Y. | 12 | Mora, D. | 297 |
| Karpuk, V. | 476 | Mrázková, K. | 247 |
| Khan, N. | 61 | Nagum, L. | 197 |
| Khan, R. | 222 | Navon, G. | 42 |
| Khan-White, T. | 417 | Nguyen, T. | 148 |
| Kharitonov, A. | 465 | Nikolaev, A. | 359 |

| | | | |
|----------------------------|----------|-------------------|----------|
| Nunes, A. | 242, 252 | Savina, O. | 447 |
| Orestova, V. | 322 | Schimmenti, A. | 103 |
| Orosova, O. | 426 | Schmidt, K. | 108 |
| Othman, M. | 227 | Schmidt, M. | 108, 123 |
| Pacchter, M. | 187 | Seelig, C. | 123 |
| Panic, D. | 22, 232 | Šeibokaitė, L. | 335 |
| Parshikova, O. | 207 | Seok, C. | 212, 222 |
| Parung, C. | 71 | Shafaie, S. | 287 |
| Payoux, M. | 182 | Shastri, I. | 56 |
| Pennequin, V. | 7 | Shchelkova, O. | 99 |
| Pérez-Mata, N. | 462 | Siau, C. | 222 |
| Perminas, A. | 369 | Sifre De Sola, I. | 462 |
| Peschos, D. | 374 | Silva, V. | 108 |
| Pethö, T. | 257 | Slavinskienė, J. | 335 |
| Petkevičiūtė-Barysienė, D. | 340 | Snele, M. | 192 |
| Petryaeva, O. | 3, 397 | Sokolov, A. | 465 |
| Pinheiro, P. | 32 | Stănescu, D. | 80 |
| Pradelok, J. | 37 | Štefaňáková, M. | 426 |
| Prado, P. | 143 | Stiles, W. | 32 |
| Preobrazhenskaya, S. | 453 | Sturm, C. | 354 |
| Prihod'ko, I. | 447 | Tadeo-Awingan, N. | 197 |
| Proctor, C. | 138 | Takano, Y. | 414 |
| Pulopulos, M. | 345 | Tardivo, L. | 66, 113 |
| Quadros, A. | 108 | Tiamzon, E. | 197 |
| Răducu, C. | 153 | Tkachenko, D. | 207, 476 |
| Randjelovic, D. | 192 | Todorovic, J. | 192 |
| Ranieri, J. | 118, 133 | Tommasi, F. | 217, 435 |
| Rapisarda, S. | 302 | Tran, T. | 148 |
| Reiman, A. | 138 | Trenvoux, A. | 182 |
| Réveillère, C. | 27 | Tsvetkova, P. | 307 |
| Ribeiro, C. | 420 | Ty, W. | 391 |
| Rijavec, M. | 167 | Tzallas, A. | 374 |
| Rojas-Barahona, C. | 349 | Tzimourta, K. | 374 |
| Rollo, S. | 94, 103 | Usmanova, K. | 99 |
| Romaşcanu, M. | 80 | Varnagirytė, E. | 369 |
| Rosa, H. | 66, 113 | Vedd, N. | 85 |
| Rufino, A. | 197 | Vedeneeva, E. | 267 |
| Šakinytė, D. | 335 | Veloso, G. | 391 |
| Salgado, J. | 32 | Venuleo, C. | 94, 103 |
| Salimi, N. | 287 | Viana, B. | 32 |
| Saludes, E. | 197 | Viana, T. | 330, 468 |
| Salvador, A. | 345 | Vishnjakova, N. | 397 |
| Sartori, R. | 217, 435 | Vratasti, I. | 71 |
| Savenysheva, S. | 76 | Waihrich, F. | 108 |

| | |
|--------------------|-----------------|
| Wang, X. | 450, 456 |
| Weigl, M. | 272 |
| Widuch, K. | 406 |
| Wilson, H. | 51 |
| Xia, Y. | 429 |
| Yun, L. | 222 |
| Zabelina, E. | 267 |
| Zakopoulou, V. | 374 |
| Zapater-Fajari, M. | 345 |
| Zawada, K. | 37 |
| Zdechovanová, B. | 282 |
| Zelevich, O. | 42 |
| Zhang, C.-Q. | 409 |
| Zinchenko, T. | 364 |
| Zyšk, D. | 37 |