DEVELOPMENT AND PSYCHOMETRIC PROPERTIES OF NEGORI (*NEGATIVE ORIENTATION QUESTIONNAIRE*)

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Abstract

There are several available questionnaires, internationally known and accepted, which measure negative problem orientation with one factor (e.g., Social Problem-Solving Inventory–Revised, SPSI–R, D'Zurilla et al., 2002; Social Problem-Solving Inventory–Adolescents, SPSI–A, Frauenknecht & Black, 2002). Our aim was to create such a multi-factor questionnaire that enables a more detailed and reliable analysis of interpersonal problems and one's negative problem orientation towards their solutions in adolescence. We carried out two data collections during the development of the questionnaire ($N_{2016}=952$, $N_{2017}=835$) among 12-, 15- and 18-year-olds in Hungary. The distribution of mothers' highest educational qualification in the three age groups was similar. The tested statements were chosen based on the category system of an earlier pilot research as well as students' and professionals' statements which were then organised into a factor structure. To analyse convergent and discriminative validity, SPSI–R (D'Zurilla et al., 2002) was used. The exploratory factor analysis and confirmatory factor analysis greatly support the theoretical factor structure in all age groups, and the path analysis also confirmed what had been thought about the system of connections of the variables. The result of the questionnaire development is the 21-item, 6-factor NEGORI (*Negative Orientation* Questionnaire) which bears quite good reliability indexes in all age groups and which can measure the following aspects within negative problem orientation: negative self-efficacy, the bad feeling caused by negative consequences, not dealing with the problem as being positive, problem avoidance as well as habits pointing to negative orientation and waiting with the solution. With the multi-factor questionnaire, we gained different and more detailed information as compared to previous data related to age and gender, which enables taking a lot more personal characteristics into consideration in addition to problem-solving styles when creating and using development programmes at schools that focus on social problem-solving and thus better concentrate on orientation which profoundly defines problem-solving.

Keywords: Social problem-solving, negative problem orientation, questionnaire development, NEGORI, adolescents.

1. Introduction

The success of social problem-solving largely depends on one's problem orientation in general and the given problem, problem-solving as a process and how effective problem-solvers we regard ourselves (e.g., D'Zurilla et al., 2002; Frauenknecht & Black, 2010; Strough & Keener, 2013). National and international research (e.g., Eskin, 2013; Kasik, 2015) both show that if one's orientation is negative, for example he/she believes that the given problem is unsolvable and he/she thinks that nothing can be done for a solution and the likelihood of unsuccessful problem-solving increases. Our problem-orientation is primarily influenced by family socialisation and negative orientation is mostly defined by one's mother's (or tender's) negative orientation and problem-solving behaviour (e.g., Nezu et al., 2004). It is also proven that one's negative orientation during childhood and adolescence may bear long-term effects on academic-professional success and the quality of one's social connections, and may play a significant role in the development of the feeling of hopelessness, stress and depression (e.g., Eskin, 2013).

2. Aims

In 2016, a questionnaire (NEGORI) was developed based on the theoretical models, the items expressing negative orientation from the presented and partly used questionnaires, and the system of categories of the reasons of negative orientation in order to measure negative orientation. With the data

collected in 2016, an exploratory factor analysis (EFA) was carried out and the connection between the factors was examined along with age and gender related differences. With the data collected in 2017, a confirmatory factor analysis (CFA) was carried out as well as structural equation model (SEM) to show the causal dependences between the (endogenous and exogenous) dimensions. The aim of the current study was – with the EFA and CFA – to develop a multi-factor questionnaire which enables a more detailed examination of interpersonal problems and negative orientation towards their solution. Furthermore, age and gender differences were revealed in this sample as well and the results of the also completed SPSI–R (D'Zurilla et al., 2002) were used to examine the convergent and discriminative validity of the NEGORI (Kasik et al., 2018).

3. Methods and measurements

The first data collection took place in 2016, the second in 2017 (with a repeated data collection). The first data collection was carried out in autumn 2016 among 12-, 15- and 18-year-old ($M_{12} = 12.13$ $SD_{12} = .78$; $M_{15} = 15.07$ $SD_{15} = .45$; $M_{18} = 18.11$ $SD_{18} = .51$) primary and secondary school students. 952 students were involved in the research ($N_{12} = 310$, $N_{15} = 301$, $N_{18} = 341$; $N_{girls: 12,15,18} = 56, 54, 58\%$). Based on the recorded background variables, the distribution of mothers' highest educational qualification (Hungarian system: 8 years of primary school, vocational school certificate, technical college certificate, grammar school certificate, college/university degree) in the three age groups was similar ($\chi^2 = 21.19$ p = .25). The other data collection was carried out on a sample of 835 students ($N_{12} = 290$, $N_{15} = 270$, $N_{18} = 275$) in spring 2017 ($M_{12} = 12.05$ $SD_{12} = .76$; $M_{15} = 15.12$ $SD_{15} = .41$; $M_{18} = 17.98$ $SD_{18} = .62$; $N_{girls: 12,15,18} = 55, 56, 57\%$). In the case of this one, another data collection was carried out after two weeks. Based on mothers' highest educational qualification the three subsamples do not differ significantly from one another either ($\chi^2 = 20.23$ p = .29). The data collection was carried with the headmasters' and parents' consent in all cases, who were informed about its content and aim. The data collection took the time of one lesson in all cases (Kasik et al., 2018).

The convergent and discriminative examination of the NEGORI was done with SPSI–R (D'Zurilla et al., 2002). The questionnaire consists of 25 items and the statements are grouped into five factors: Positive orientation, Negative orientation, Rationality, Impulsivity, Avoidance (for their contents, see Introduction). The statements have to be evaluated on a five-fold scale (1 = Absolutely not true for me – 5 = Absolutely true for me). Based on national research, the factor structure of the questionnaire is completely the same as the original English version's factor structure and measures well among 11-18-year-olds. Its reliability index (Cronbach-α) is above .76 at all ages (for more detail about the national cross-sectional and longitudinal studies see: Kasik, 2014; Kasik et al., 2016).

4. Results

An EFA was carried with the data from the 2016 data collection. Based on the analysis, the same six factors were distinguished at all three ages: Fending off the problem (4 items), Negative consequences (4 items), Negative self-efficacy (3 items), Positive consequences (3 items), Habit, pattern (3 items), Waiting (3 items). The validity and reliability indexes of the factors and the NEGORI (in the case of the whole sample and the age groups) are summarised in Table 1.

Table 1. The results of the EFA and reliability.

Factor/NEGORI	Number of items	Cronbach-α			
		Whole sample	12-year-olds	15-year-olds	18-year-olds
Fending off the problem	4	.85	.80	.84	.89
Negative consequences	4	.86	.84	.88	.85
Negative self-efficacy	4	.84	.87	.85	.78
Positive consequences	3	.68	.69	.70	.71
Habit, pattern	3	.69	.66	.69	.70
Waiting	3	.77	.71	.79	.78
NEGORI	*21*	*.78*	*.88*	*.90*	*.88*
KMO		.90	.88	.89	.87
Bartlett		7026.86	2015.28	2615.01	2683.53
df		210	210	210	210
p		.00	.00	.00	.00
Variance (%)		57.66	68.11	70.22	65.84

The factor structure of NEGORI was tested on the data collected in 2017 with CFA. The fitness of the model is satisfactory; the CFA carried out with the six factors separated during the 2016 EFA also show satisfactory fitness indexes: whole sample: $\chi^2 = 386.4$ p < .001 df = 174 $\chi^{2/}$df = 2.22 CFI = .96 TLI = .95 RMSEA = .04 (p = 1.00) SRMR = .04; 12: $\chi^2 = 289.98$ p < .001 df = 174 $\chi^{2/}$df = 1.67 CFI = .92 TLI = .90 RMSEA = .05 (p = .25) SRMR = .06; 15: $\chi^2 = 237.12$ p < .001 df = 174 $\chi^{2/}$df = 1.36 CFI = .97 TLI = .96 RMSEA = .04 (p = .98) SRMR = .05; 18: $\chi^2 = 285.65$ p < .001 df = 174 $\chi^{2/}$df = 1.64 CFI = .95 TLI = .94 RMSEA = .04 (p = .88) SRMR = .05. SEM was used to describe the system of connections between the factors and theoretical model of the effects the variables have on one another (Figure 1) with the data from the second collection. Based on the research that has been carried out so far and the inter-correlational coefficients revealed in this research, it was hypothesised that the central latent variable of the model was Negative self-efficacy, which directly effects all factors, and that Fending off the problem, Negative consequence and Positive consequence directly affect the Habit, pattern and Waiting variables.

Figure 1. The theoretical model of the connection of the variables.
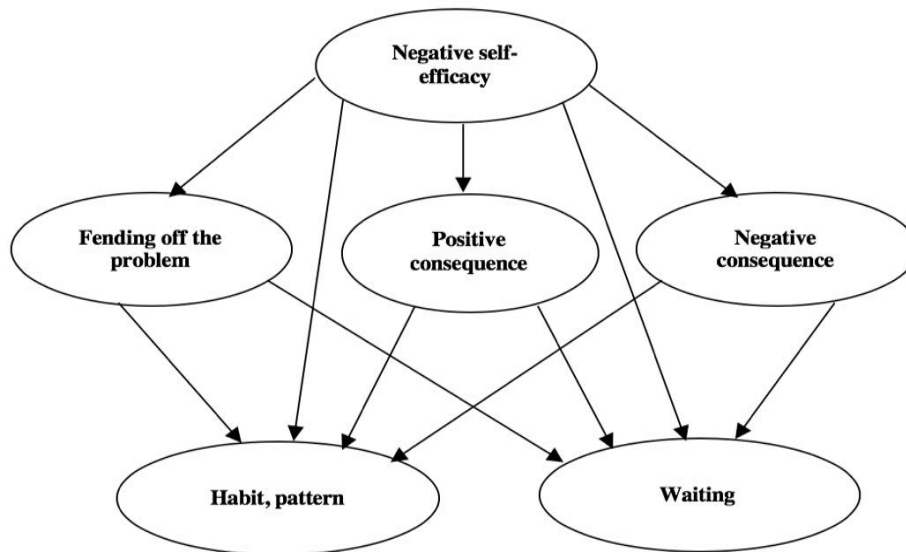
The fitness of the theoretical model is satisfactory: whole sample: $\chi^2 = 466.06$ p < .001 df = 174 $\chi^{2/}$df = 2.68 CFI = .94 TLI = .93 RMSEA = .04 (p = .98) SRMR = .06; 12: $\chi^2 = 319.49$ p < .001 df = 176 $\chi^{2/}$df = 1.81 CFI = .90 TLI = .88 RMSEA = .06 (p = .67) SRMR = .08; 15: $\chi^2 = 266.44$ p < .001 df = 176 $\chi^{2/}$df = 1.51 CFI = .95 TLI = .94 RMSEA = .04 (p = .87) SRMR = .07; 18: $\chi^2 = 325.71$ p < .001 df = 176 $\chi^{2/}$df = 1.84 CFI = .93 TLI = .92 RMSEA = .05 (p = .48) SRMR = .05. At the same time, more imputed relationships were not significant; therefore, those were deleted. The fitness thus received is satisfactory, it is consistent with the theoretical model in whole sample and in all age subsamples: whole sample: $\chi^2 = 466.06$ p < .001 df = 176 $\chi^{2/}$df = 2.64 CFI = .94 TLI = .93 RMSEA = .04 (p = .98) SRMR = .06; 12: $\chi^2 = 272.54$ p < .001 df = 132 $\chi^{2/}$df = 2.06 CFI = .92 TLI = .90 RMSEA = .06 (p = .14) SRMR = .08; 15: $\chi^2 = 266.44$ p < .001 df = 176 $\chi^{2/}$df = 1.51 CFI = .95 TLI = .94 RMSEA = .04 (p = .87) SRMR = .07; 18: $\chi^2 = 327.80$ p < .001 df = 177 $\chi^{2/}$df = 1.85 CFI = .93 TLI = .92 RMSEA = .05 (p = .48) SRMR = .05.

The analysis of the convergent and discriminative validity of NEGORI was carried out on the data from the second collection (2017) for which we used SPSI–R Based on the correlations, the Positive orientation is a negative significant connection with Negative self-efficacy and Waiting in all three age groups (Table 2). Negative orientation is in a positive connection with all NEGORI factors and in almost all age groups; of these, the values in connection with the factors of Fending off the problem and Negative self-efficacy are the highest among 12- and 15-year-olds. The factor of Avoidance bears no significant connection with any NEGORI factor among 12-year-olds; however, it does with 15- and 18-year-olds. The connection between the factors of Avoidance, Waiting and Negative self-efficacy are the strongest among 15-year-olds. Rationality and Impulsivity is a significant connection with only the factors of Habit, pattern and Waiting (the former is negative, the latter is positive) among 15- and 18-year-olds.

Table 2. The connection between the factors of NEGORI and SPSI–R (Pearson r; p<.01).

Factor	Sub-sample	PO	NO	R	I	A
Fending off the problem	12	n.s.	.35	n.s.	n.s.	n.s.
	15	n.s.	.48	n.s.	n.s.	.31
	18	n.s.	.29	n.s.	n.s.	.17
Negative consequence	12	n.s.	n.s.	n.s.	n.s.	n.s.
	15	n.s.	.20	n.s.	n.s.	.16
	18	n.s.	.16	n.s.	n.s.	.17
Negative self-efficacy	12	-.13	.35	n.s.	n.s.	n.s.
	15	-.22	.55	n.s.	n.s.	.43
	18	-.15	.28	n.s.	n.s.	.22
Positive consequence	12	n.s.	.21	n.s.	n.s.	n.s.
	15	n.s.	.33	n.s.	n.s.	.31
	18	n.s.	.20	n.s.	n.s.	.23
Habit, pattern	12	n.s.	n.s.	n.s.	n.s.	n.s.
	15	n.s.	.26	-.16	.19	.29
	18	n.s.	.25	-.18	.21	.22
Waiting	12	-.18	.29	n.s.	n.s.	n.s.
	15	-.19	.25	-.15	.21	.52
	18	-.13	.18	-.19	.18	.31

Note. PO=Positive orientation, NO=Negative orientation, R=Rationality, I=Impulsivity, A=Avoidance.

4. Discussion

The results of the research unequivocally supported the assumption that in order to understand negative problem orientation, fields other than the ones covered by the questionnaires should also be taken into consideration. The categories of reasons revealed in the pilot largely contributed to the development of the NEGORI. Based on the analysis of the factor structure of the original, 40-statement questionnaire, the final, 21-item NEGORI has good reliability indexes in all three age groups. The six factors partially cover the fields that measure negative orientation in PSI, SPSI–R and SPSI–A, and most categories of the pilot measurement. The results of the CFA confirmed the six-factor model in all three ages. The 'I do not want to solve my problem because…' statement beginnings most likely account for the fact that the connection between the NEGORI factors are positive in all age groups. Based on the analysis of the convergent and discriminative validity, the Negative orientation factor of SPSI–R is in a positive connection with all NEGORI factors at almost all ages, which was confirmed by other tools that measure negative orientation as well (e.g., Robichaud & Dugas, 2005). One of the reasons for this is the content overlap of the items of Negative orientation and the NEGORI factors.

5. Limitation

Even though the NEGORI can be considered to be apt to shed light on fending off the problem, negative and positive consequence, negative self-efficacy, habit and pattern, and waiting as reasons for negative orientation, several further studies are needed in order to refine the questionnaire, on the one hand and to analyse the data in more detail, on the other hand. Upon completion, the students could think of problems, problematic situations related to anyone; therefore, it will be useful to create the person-specific version of the NEGORI in the future (as in the case of SPSI–R, Kasik, 2015) which requires the changing of the statements in the Habit, pattern factor because those contain family, peer and teacher model people. It will also be important to shed light on the connection between the NEGORI and other fields, such as anxiety, general self-efficacy, coping, self-evaluation and the aforementioned responsibility-taking. The results of these correlation analyses will also contribute to making school development programmes for children and adolescents that focus on problem-solving even better and to be able to concentrate on the solution-defining orientation as well by taking more personal characteristics into consideration in addition to problem-solving styles.

References

D'Zurilla, T. J., Nezu, A., & Maydeu-Olivares, A. (2002). *Social Problem-Solving Inventory–Revised (SPSI–R): Technical Manual.* North Tonawanda, New York: Multi-Health Systems.

Eskin, M. (2013). *Social Problem Solving Therapy in the Clinical Practice*. Elsevier. Turkey.

Frauenknecht, M. & Black, D. R. (2010). Is it social problem solving or decision making? Implications for health education. *American Journal of Health Education*, *41*(2), 112–123.

Kasik, L. (2014). Development of social problem solving – A longitudinal study (2009–2011) in a Hungarian context. *European Journal of Developmental Psychology*, *12*(2), 142–158.

Kasik, L., Gál, Z., & Tóth, E. (2018). Development and Psychometric Properties of NEGORI (Negative Orientation Questionnaire). *Journal of Relationships Research*, *9*(8), 1–13.

Kasik, L., Gáspár, CS., Guti, K., & Zsolnai, A. (2016). Relationship between Social Problem Solving, Anxiety and Empathy among Adolescents in Hungarian Context. In K. Newton (Ed.), *Problem-Solving: Strategies, Challenges and Outcomes* (pp. 177–196). New York: NOVA Science Publishers, Inc.

Nezu, A. M., Wilkins, V. M., & Nezu, C. M. (2004). Social problem solving, stress, and negative affect. In E. C. Chang, T. J. D'Zurilla, & L. J. Sanna (Eds.), *Social problem solving* (pp. 49–65). Washington, DC: American Psychological Association.

Robichaud, M. & Dugas, J. (2005). Negative problem orientation (Part I): Psychometric properties of a new measure. *Behaviour Research and Therapy*, *43*(3), 391–401.

Strough, J. & Keener, E. (2013). Interpersonal problem solving across the life span. In P. Verhaeghen, P. & C. Hertzog (Eds.), *The Oxford handbook of emotion, social cognition, and everyday problem solving during adulthood.* Oxford University Press, The Oxford Library of Psychology Series.