

MALADAPTIVE COGNITIONS AND EMOTIONAL REGULATION IN PTSD

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Abstract

Background: PTSD causes alterations in cognitive functioning like in emotional regulation and the production of cognitive distortions.

Objective: To determine how PTSD impacts emotional regulation and the production of cognitive distortions.

Method: An intergroup comparison was performed on the 180 participants divided into 3 groups. First group (n=60) was recruited from a psychotrauma center, second group (n=60) was recruited from victim support associations, and third group (n=60) was recruited from the general population. All participants completed a questionnaire validated by the ethics committee, including the PCL-5, LEC 5, CERQ, DES, and EDC-A.

Results: Outcomes indicate that individuals with PTSD produce more negative cognitive distortions and use more maladaptive emotion regulation strategies. Furthermore, the production of negative cognitive distortions and maladaptive emotion regulation strategies are positively correlated. This relationship maintains the severity of PTSD symptoms.

Conclusion: The results confirm that the PTSD group has the most unfavorable clinical picture, which gives indications on the management to be put in place. Moreover, the presence of the intermediate group remains relevant since it allows us to identify changes in the observed alterations. It would be relevant to extend the experimental design used here to the study of traumatic events that may cause a specific type of disorder.

Keywords: *Post-Traumatic stress disorder, emotion regulation, cognitive distortions.*

1. Introduction

Posttraumatic stress disorder is known to have comorbidities with cognitive functioning, including cognitive distortions (Cieslak et al., 2008) and emotion regulation (Radomski, 2016). This disorder is characterized by various symptoms such as re-experiencing, avoidance, persistence of negative cognitive impairments or hypervigilance and mood disorders (anxiety and depression).

Initially, cognitive distortions refer to erroneous thoughts that cause an individual to perceive events inappropriately (Beck, 1995). Negative automatic thoughts about the self, the environment and the future are induced by dysfunctional thinking (Ellis, 1958). Moreover, cognitive distortions are linked to the development of mental disorders such as anxiety and depression (Franceschi, 2007).

We rely on Franceschi's (2007) conceptual model, which is built around three concepts: 1) the reference class, which is a set of events, phenomena or stimuli in general; 2) the principle of duality, which makes it possible to characterize an event in the reference class according to a dichotomy between two poles (positive/negative; internal/external...). And finally, 3) the taxon system which encompasses the first two points, this refers to the way in which individuals classify the elements of the reference class according to a given duality.

Franceschi (2007) distinguishes between general cognitive distortions (dichotomous reasoning, maximization, minimization, arbitrary focus, omission of the neutral, and reclassification into the other pole) and specific distortions, defined as instances of general distortions (disqualification of one of the poles, selective abstraction, and catastrophism). Experimental research has shown that interventions to alter negative cognitions after trauma can lead to more positive beliefs. However, by distorting negative cognitions, the mechanisms activate the response element that causes individuals to re-experience the intense emotion associated with the trauma (Owens et al., 2008). This mechanism is the reason why trauma-induced disorders are inextricably linked to emotional disorders (Gratz & Roemer, 2004).

Emotion regulation is "the process by which individuals influence what emotions they have, when they have them, and how they experience and express those emotions" (John & Gross, 2004). Several studies (McDermott, Tull, Gratz, Daughters, & Lejuez, 2009; Tull, Barrett, McMillan, & Roemer, 2007) have reported that PTSD symptoms are associated with more limited access and less ideal use of emotion regulation strategies (Weiss, Tull, Anestis, & Gratz, 2013). This is what leads to unsuccessful efforts to avoid negative experiences (Salters-Pedneault, Tull, & Roemer, 2004; Radomski & Read, 2016). Finally, emotion regulation has been shown to identify individuals who have experienced trauma but have not developed PTSD, as opposed to those who have been exposed to trauma and have developed PTSD (Weiss, Tull, Davis, Dehon, Fulton, & Gratz, 2012).

In sum, the literature has shown that the interactions between emotional regulation strategies and cognitive distortions in individuals with PTSD are not fully explored. First, we hypothesize that PTSD severity is positively correlated with disruptions in (maladaptive) emotional regulation strategies and cognitive distortions. Second, we hypothesized that the production of cognitive distortions was negatively correlated with the use of maladaptive emotional strategies. Thus, the purpose of the study is to demonstrate the impacts of PTSD on cognitive functioning, particularly on emotional regulation and the production of cognitive distortions.

2. Methods

The study and procedures were approved by the ethics committee (Comité d'Ethique de la Recherche Tours-Poitiers, n°2019-11-06). The participants were clinical participants (group 1) recruited after psychiatric consultations in a university hospital. They had experienced a traumatic event in the previous year, had been diagnosed with PTSD for more than 3 months by a qualified psychiatrist (WEH) based on a structured clinical interview, and had been in unchanged treatment/therapy for at least 4 weeks. Group 2 participants (exposed without PTSD) had experienced a traumatic event but had not developed PTSD. Finally, non-clinical participants (Group 3) were recruited through notices posted on university bulletin boards and social media, with no history of a traumatic event or ongoing treatment/therapy. Exclusion criteria for all participants included age, all participants were over 18 years of age, and did not have a history of neurological or mental health disorders (e.g., bipolar disorder, substance use disorders, schizophrenia and psychotic disorders, major depressive disorder) and substance abuse. All participants completed the entire experiment face-to-face with the examiner in a quiet environment. They answered some sociodemographic questions and completed the following scales: PCL-5 (posttraumatic stress disorder), DES-T (dissociation), EDC-A (cognitive distortions) and, CERQ (emotional regulation).

Data were collected anonymously; each participant was assigned a unique, random code. The reason for this was to respect the confidentiality of the participants. The average time to complete the questionnaire was 45 minutes.

3. Results

Table 1. Descriptive statistics of all variables for the three groups. Variables are expressed as Means (SD).

	Exposed PTSD (N=60)	Exposed non-PTSD (N=60)	Control group (N=60)	F (2,181)
Age	35.86 (13.14)	34.01 (11.80)	34.28 (11.91)	0.40 ns
Psychopathology				
<i>PCL-5, PTSD score</i>	53.10 (9.35)	17.33 (11.81)	2.57 (5.90)	464.22 ***
<i>DES-T, Dissociation score</i>	18.96 (18.12)	8.50 (10.84)	3.41 (7.12)	22.78***
Emotion regulation, CERQ scores				
Maladaptive strategies	46.80 (10.09)	34.58 (10.93)	32.16 (8.93)	36.75***
<i>Self-blame</i>	10.61 (5.00)	8.41 (3.76)	9.08 (3.42)	4.50***
<i>Rumination</i>	15.36 (3.23)	11.15 (4.28)	9.98 (4.10)	31.56***
<i>Catastrophizing</i>	11.60 (3.34)	8.05 (3.79)	6.43 (2.49)	39.50***
<i>Other-blame</i>	9.21 (4.87)	6.96 (2.95)	6.66 (2.18)	9.40***
Adaptive strategies	63.33 (13.44)	63.68 (14.85)	62.10 (14.73)	0.20 ns
<i>Acceptance</i>	15.01 (3.63)	13.36 (4.11)	12.55 (3.88)	6.28***
<i>Positive refocusing</i>	11.16 (3.91)	11.06 (4.08)	10.60 (3.95)	0.34 ns
<i>Planning</i>	12.91 (3.65)	13.48 (3.88)	12.86 (3.89)	0.48 ns
<i>Positive reappraisal</i>	11.45 (4.37)	12.46 (3.86)	12.45 (3.96)	1.22 ns
<i>Putting into perspective</i>	12.78 (4.15)	13.30 (4.29)	13.63 (3.84)	0.65 ns
Cognitive distortions, CDI scores				
CD positive	65.58 (18.01)	63.96 (14.76)	65.20 (17.38)	0.15 ns
<i>Dichotomous reasoning +</i>	21.35 (6.24)	23.45 (5.14)	23.53 (5.20)	2.98 ns

<i>Disqualification pole +</i>	7.85 (5.79)	7.05 (4.58)	6.53 (4.82)	1.01 ns
<i>Omission of the neutral +</i>	8.36 (5.11)	8.16 (5.00)	8.98 (4.45)	0.45 ns
<i>Requalification pole +</i>	6.46 (6.01)	4.10 (4.66)	5.01 (6.05)	2.70 ns
<i>Minimization +</i>	8.40 (5.91)	7.81 (4.59)	8.16 (4.81)	0.19 ns
<i>Maximization +</i>	6.95 (4.40)	6.96 (5.05)	6.68 (4.86)	0.06 ns
<i>Arbitrary focus +</i>	6.20 (4.96)	6.41 (5.84)	6.28 (4.28)	0.02 ns
CD negative	76.31 (24.86)	71.74 (26.51)	67.76 (22.90)	1.78 ns
<i>Dichotomous reasoning -</i>	7.13 (5.82)	5.10 (5.64)	4.51 (4.67)	3.87***
<i>Disqualification pole -</i>	9.93 (6.30)	10.28 (6.53)	10.18 (5.44)	0.05 ns
<i>Omission of the neutral -</i>	12.72 (6.32)	12.88 (6.49)	12.06 (5.40)	0.31 ns
<i>Requalification pole -</i>	12.51 (5.12)	13.03 (5.15)	12.10 (4.84)	0.51 ns
<i>Minimization -</i>	13.36 (5.84)	12.00 (6.58)	11.48 (5.99)	1.50 ns
<i>Maximization -</i>	10.65 (5.02)	9.16 (4.93)	8.75 (4.53)	2.56 ns
<i>Arbitrary focus -</i>	9.95 (5.89)	9.25 (5.61)	8.66 (5.10)	0.80 ns

*One way anova; *p<0.05; **p<0.01; ***p<0.001; ns: non-significant; CERQ: Cognitive Emotion Regulation Questionnaire; HADS: Hospital Anxiety and Depression Scale; PCL-5: Post-traumatic Stress Disorder Checklist for DSM-5 (PCL-5); PTSD: Post-traumatic stress disorder; Ratio M/F: Ratio of males to females*

Statistically significant differences were detected in all mean scores of the scales (Table 1) for emotion regulation. The clinical group exposed with PTSD had significantly higher scores for the PTS score (53.10 ± 9.35), also for dissociation (18.96 ± 18.12). Group 2 had scores for PTSD of 17.33 (± 11.81) and for dissociation 8.50 (± 10.84). Finally, group 3 had lower scores for post-traumatic stress 2.57 (± 5.90) and 3.41 (± 7.12) for dissociation.

Table 2. Correlation analysis of PTSD severity and cognitive alterations in the group 1.

	PCL-5	DES-T
Maladaptive strategies	.4455*	.1202
<i>Self-blame</i>	.2783*	.0908
<i>Rumination</i>	.3499*	.1586
<i>Catastrophizing</i>	.3680*	.0083
<i>Other blame</i>	.1524	.0447
Adaptive strategies	.0341	.1459
<i>Acceptance</i>	.0691	.1465
<i>Positive refocusing</i>	-.3647*	-.0231
<i>Planning</i>	.0498	.0982
<i>Positive reappraisal</i>	.1226	.0652
<i>Putting into perspective</i>	.2198	.2103
CD positive	.0459	.1383
<i>Dichotomous reasoning +</i>	-.0395	-.0648
<i>Disqualification pole +</i>	.1469	.1438
<i>Omission of the neutral +</i>	-.0404	.1080
<i>Requalification pole +</i>	.1039	.1106
<i>Minimization +</i>	-.0838	.1213
<i>Maximization +</i>	-.3115	-.1573
<i>Arbitrary focus +</i>	.0882	.1655
CD negative	.0282	-.1304
<i>Dichotomous reasoning -</i>	.0302	-.0337
<i>Disqualification pole -</i>	.0104	.0571
<i>Omission of the neutral -</i>	.1915	-.1787
<i>Requalification pole -</i>	.1703	.0711
<i>Minimization -</i>	-.1181	-.1995
<i>Maximization -</i>	-.0375	-.1673
<i>Arbitrary focus -</i>	-.1262	-.1073

Coefficients r of correlations (significant at p=.05; N = 60); PCL-5: post-traumatic checklist; DES-T: dissociation experiences scale-T; CD positive: positive cognitive distortions; CD negative: negative cognitive distortions

First, we note that the post-traumatic score is positively correlated with the subscales composing the non-adaptive emotional regulation strategies. Moreover, only acceptance is significantly correlated with the PCL-5. In relation to the cognitive distortion production scores, the PCL-5 is correlated with positive and negative dichotomous reasoning and negative minimization. The subscales of the DES-T are positively correlated with maladaptive emotional regulation strategies. Here again, we note a correlation with acceptance. For cognitive distortions, positive and negative dichotomous reasoning are also correlated with the DES-T and requalification in the other positive pole.

4. Discussion

The objective of our research was to observe the existing interactions between the production of cognitive distortions (positive and negative) and the use of emotional regulation strategies (adaptive or maladaptive). In accordance with our first hypothesis, we observed positive correlations between maladaptive emotional regulation strategies and the severity of PTSD but also with acceptance. These findings echo the scientific literature, including the fact that individuals with PTSD have more difficulty managing their emotions (Fairholme et al., 2013; Weiss et al., 2013). We had also hypothesized that the production of cognitive distortions was negatively correlated with the use of maladaptive emotional strategies. According to the results, a significant positive correlation was shown regarding the production of negative cognitive distortions and the use of maladaptive emotional regulation strategies.

Furthermore, concerning the production of cognitive distortions, we note a positive correlation between the severity of PTSD and the reclassification into other (positive), dichotomous reasoning (negative), minimization (negative), maximization (negative) and total cognitive distortions (negative). This means that the difficulties associated with these distortions increase with the severity of post-traumatic symptoms. Indeed, Brewin et al. (2003) have proposed several explanations for why negative thoughts can influence the onset and maintenance of PTSD, including distortions that often support traumatic reactions (Cielsak et al., 2008). For emotional regulation strategies, Boden's (2013) study had also indicated a clear association between alterations in emotion management and posttraumatic symptoms. We can also ask whether the strategy "acceptance" is not a particular strategy because of the trauma, it would have a role in emotion management in the same way as resilience.

Furthermore, our results support the idea of considering an intermediate group, this allows us to observe a change in outcomes between the three groups (Cascardi, 2015).

The main novelty with this study was the observation that the production of cognitive distortions was associated with emotion regulation strategies. Our results showed that these two variables were related. The results also suggest that the ability to control impulsive behaviors during distress and access to effective emotion regulation strategies may be protective factors against the development of PTSD. Thus, we could complement trauma and comorbidity treatment techniques by focusing on impulsive behaviors and then allowing emotions to be regulated as they should be. Finally, our results indicate that an awareness of the links between emotional difficulties (Spinhoven et al., 2015) and maladaptive cognitions (Booth RW et al., 2019) is necessary for the proposed management of patients with PTSD. Furthermore, it would be relevant to extend the experimental design used here to the study of traumatic events more likely to cause a specific type of disorder (Kira et al., 2020).

In conclusion, the strength of this study is the examination of disparities in alterations in emotion regulation and the production of cognitive distortions as a function of both traumatic exposure (Group 2 exposed without PTSD) and PTSD status (Group 1 exposed with PTSD) while comparing these results to a control group (Group 3). Specifically, the research findings support the relevance of studying emotional regulation and cognitive distortions in PTSD. It seems essential to identify the mechanism(s) by which some individuals develop PTSD following a traumatic event, while others do not. This allows for specific prevention protocols to be established in those with risk factors, early and effective management of those affected in the first few days following the experience, and ultimately understanding the common etiology with other comorbidities (Kessler et al., 2014).

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