

Emotional Deregulation, Dissociative Experiences and Cognitive Failures in Patients with and without Posttraumatic Stress Symptoms

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Abstract

Objective: Studies have found that PTSD patients are more likely to experience various physical and mental health problems. This study was conducted to compare emotional deregulation, dissociative experiences and cognitive failures in persons with and without post-traumatic stress symptoms (PTSS).

Method: This research was causal-comparative. The sample consisted of 150 persons with and without PTSS (75 in each group) referring to forensic medicine centers of Ardabil city. The subjects were selected via convenient sampling method. Cognitive Emotion Regulation Questionnaire-Short Form (CERQ-SF), Dissociative Experiences Scale (DES), Cognitive Failures Questionnaire (CFQ), and Impact of Event Scale-Revised (IES-R) were utilized for data collection.

Results: Multivariate analysis of variance showed that mean scores of emotional deregulation, dissociative experiences, and cognitive failures were significantly higher in persons with PTSS ($p < 0.01$).

Conclusion: The findings indicated that modifying dissociative experiences and cognitive failures, and enhancing emotional regulation skills may help to mitigate posttraumatic stress symptoms.

Key Words: Emotional Deregulation, Dissociative Experiences, Cognitive Failure, Posttraumatic Stress Symptoms.

Introduction

Posttraumatic stress disorder (PTSD) is among the most common chronic and disabling psychiatric disorders. PTSD patients mostly experience various psychological problems including depression, anxiety, and substance-use related problems (Javidi & Yadollahie, 2012). Along with these psychological difficulties, PTSD patients are more likely to experience physical health problems (Qureshi, Pyne, Magruder, Schulz, & Kunik, 2009). The prevalence rate of PTSD, according to DSM-V criteria is estimated 5% to 10% in men, and 10% to 12% in adults (Willis, Chou, Hunt, 2015). PTSD patients, compared to normal individuals, are 80% more

vulnerable to depression, bipolar, anxiety, or substance abuse disorders. On the other hand, there is a significant co-recovery between PTSD and major neurocognitive disorders, as several symptoms of these two disorders are overlapping (American Psychiatric Association, 2013).

Emotion regulation problem is associated with mental health difficulties, and faint life satisfaction (Saxena, Dubey, & Pandey, 2011). Emotion regulation strategies may influence posttraumatic stress symptoms (PTSSs). Emotion regulation is a potential mediator of adverse childhood experiences, PTSD symptoms, depression, and poor physical health (Cloitre et al., 2019). Recent studies point that efficient emotion regulation is vital for preserving mental health, while its failure is related to a wide range of problematic behaviors and mental disorders, including substance abuse, self-harming, depression, borderline personality disorder, and PTSD

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(Robertson, Daffern, & Bucks, 2012). According to the Gross's model, emotion regulation contains all conscious and unconscious strategies which influence on how we experience our emotions (Szczygie, Buczny, & Bazinska, 2012).

Expressive suppression and cognitive reappraisal as two emotion regulation strategies, developed by Gross's model of emotion regulation (1998), have been widely validated. Expressive suppression is a response-focused strategy which moderates an emotional response after its total expansion, while cognitive reappraisal is an antecedent-focused strategy that moderates an emotional response before its full appearance. Expressive suppression is maladaptive since it does not reduce negative experiences, and increases neurological and psychological symptoms of negative emotional responses (Gratz & Roemer, 2004). On the contrary, cognitive reappraisal is adaptive and decreases negative emotions without creating undesirable cognitive and psychological consequences. Findings show that using cognitive reappraisal instead of expressive suppression reduces psychological harms (Boden et al., 2013). PTSD patients experience more difficulties in emotion regulation (McDermott, Tull, Gratz, Daughters, & Lejuez, 2009). Several studies have manifested a direct relationship between problematic emotion regulation and more drastic PTSSs (Kotler, Iancu, Efroni, & Amir, 2001; Tull, Barrett, McMillan, & Roemer, 2007; Bonn-Miller, Vujanovic, Boden, & Gross, 2011). Furthermore, more use of expressive suppression and less use of cognitive reappraisal are correlated with higher levels of PTSSs in traumatized women (Eftekhari, Zoellner, & Vigil, 2009; Moore, Zoellner, & Mollenholt, 2008; Ehring & Quack, 2010). Weiss, Tull, Anestisc and Gratzb (2013) emphasized the role of emotion regulation in perseverance and intensification of PTSSs in substance abusers. In female victims of sexual violence, avoidance symptoms and delayed verbal memory at early stage of trauma can predict severity of PTSD symptoms one to five month later. The regression model, factoring in avoidance and delayed verbal memory, showed a 34.9% explanatory power regarding the PTSSs severity (Shin et

al., 2015). Direct and indirect impacts of meta-cognition (through emotion regulation) and indirect impact of emotional schema (through emotion regulation) on persons with PTSS have been confirmed (Mazloom, Yaghubi, & Mohammadkhani, 2016). Also, emotional deregulation and difficulties in controlling behaviors when distressed largely affect PTSD symptoms (Weiss, Walsh, DiLillo, Messman-Moore & Gratz, 2019). PTSD patient suffer from higher levels of emotional deregulation and behavioral regulatory inflexibility (Hannan & Orcutt, 2020). Raudales et al. (2020) indicate that emotional deregulation may confer maintenance of PTSS through anxiety sensitivity. Furthermore, emotional deregulation may make individuals vulnerable to PTSD symptomology (Raudales, Weiss, Schmidt & Short, 2020).

Dissociative experiences worsen problems of physical and mental health including dissociative identity disorder, PTSD, psychosis and substance abuse (Rafieian & Hosier, 2011) and greatly affect general health (Yarollahi & Shairi, 2018). Evidence suggests that dissociative experiences are common among patients with PTSSs. Sense of torpidity and awareness reduction have been reported in 40% of earthquake survivors (Cardena & Spiegel, 1993), and 53% of murder observers (Freinkel, Koopman, & Spiegel, 1994). Traumatized individuals have harmful experiences, and report severer levels of dissociative disorders and its negative impacts on various aspects of their life (Baranyi et al., 2010). The long-term relationship between dissociative experiences and PTSD has been confirmed (Najavits & Walsh, 2012). Studies of Bremner et al., (1992) on war survivors, Baranyi et al., (2010) by accident-experienced individuals, Najavits and Walsh (2012) on female substance abusers, and Wolf et al., (2012) on veterans identified the relationship between PTSD and dissociative symptoms. However, studies are fraught with conflicting outcomes. Ozer's et al. (2003) confirmed the importance of dissociative symptoms in predicting PTSSs amongst traumatized individuals, while

others reported that dissociative symptoms could not predict PTSD development (Gershuny, Cloitre & Otto, 2003; Wittmann, Moergeli & Schnyder, 2006). There is a significant relationship between dissociative experiences and PTSD (Hyland, Shevlin, Fyvie, Cloitre & Karatzias, 2020; Cramer, Leertouwer, Lanius & Frewen, 2020). Boyd et al (2020) also found emotion regulation difficulties and dissociative symptoms may embitter functional impairment in patients with PTSSs.

Cognitive failures are associated with disability and poor life quality (Samuel, McLachlan, Mahadevan & Isaac, 2016). Specifically, cognitive and memory impairments have been widely studied in PTAS patients (Schonfeld, Ehlers, Bollinghaus, & Rief, 2007). Cognitive failures refer to distraction, memory problems, inadvertent errors, and inability to remember names (Wallace, 2004), and are accompanied by memory disorders (Merckelbach, Muris, Nijman, & De Jong, 1996). Weakness of memory in PTSD patients has been reported in several studies (Yehuda, Golier, & Tischler, 2007; Johnsen, Kanagaratnam, & Asbjornsen, 2008; Eren-Kocak, Kilic, Aydin, & Hizili, 2009). In Moore's meta-analysis (2009), PTSD patients had weaker scores in verbal and visual memory tasks. Bryant and Guthrie (2007) in a study on PTSD children concluded that a great portion of PTSD variance could be explained by negative evaluation of probable dangers in future. Additionally, Louise Field, Norman and Barton (2008) found a significant correlation between negative attitudes toward self and the world, and severity of PTSD symptoms in heart attack-experienced patients during hospitalization period and three months after discharge from the hospital. Thus, cognitive evaluation in impaired patients with acute stress disorder (Elsesser, Freyth, Lohrmann, & Sartory, 2009). Additionally, negative cognitions after a trauma are significantly correlated with PTSD development and severity (Karl, Rabe, Zollner, Maercker, & Stopa, 2009). Both objective and

subjective cognitive impairments are common in PTSD patients (O'Neil et al, 2019). Liu et al, (2019) found that PTSD was significantly associated with cognitive failures. Quinones, Gallegos, Lin, and Heffner (2020) emphasized that cognitive failures, including deficits in attention and processing speed, executive function, and memory were key features of PTSD. These cognitive domains are supported by brain structures and neural pathways that are disrupted in PTSD.

Overall, understanding the impact of emotion strategies, dissociative experiences, and cognitive failures in patients with PTSS is helpful to design effective interventions for reducing many of their interpersonal problems. Given the probable role of these variables in PTSS, few studies in this field, and different findings, this study aimed to compare emotional deregulation, dissociative experiences and cognitive failures in patients with and without post-traumatic stress symptoms.

Methods

Participants and procedure

This study was causal-comparative research. The statistical population included all persons who referred to medical centers of Ardabil city due to experiencing a traumatic event in year 2018. Among them, 150 persons were selected via convenience sampling method and two groups were formed: those with PTSS (N=75), and those without PTSS that were at the stressful situation of a traumatic event (N=75). According to previous research (Delavar, 2011), to calculate the sample size, it is necessary to consider the minimum of 30 participants in each group.

The inclusion criteria were diagnosis of PTSD according to DSM-5, age between 21-40 years, and educational level between diploma to bachelor. The exclusion criteria were presence of a physical and/or psychological chronic disease, and unwillingness to cooperate at any point in the research.

First, persons encountered a traumatic event and

diagnosed as having PTSS (in legal medical centers of Ardabil) were identified. Then, those persons who did not show posttraumatic stress symptoms were recognized (persons without PTSS). At the next stage, Composite International Diagnostic Interview for PTSS was administered. Then all the subjects were asked to answer the given inventories. Finally, the Multivariate Analysis of Variance (MANOVA) was utilized to examine differences between the two groups.

Measures

Cognitive Emotion Regulation Questionnaire-Short Form: The 18-item Cognitive Emotion Regulation Questionnaire-Short Form (CERQ-SF; Garnefski, Kraaij, & Spinhoven, 2001) was used to assess both positive and negative cognitive emotion regulation strategies. The items are measured on a five-point Likert scale ranging from 1 ((almost) never) to 5 ((almost) always). Alpha coefficient for the CERQ-short subscales was acceptably high. Cronbach's alpha for its subscales has been reported from 0.73 to 0.81. Test-retest reliability with five months' interval was between 0.41 and 0.59 for the subscales (Garnefski, Kraaij, & Spinhoven, 2001). In Iran, the Cronbach alpha for the total scale score was 0.82. In the present study, the reliability coefficients of the positive and negative strategies were 0.84 and 0.74, respectively (Babapour & Ahmadi, 2013). Yousefi and Carranza (2015) evaluated the validity of CERQ-SF in Iranian adolescents, and reported its validity coefficient 0.85.

Dissociative Experiences Scale: The Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986) is a 28-item self-reported questionnaire developed to measure a wide range of dissociative symptoms from normal to pathological dissociative experiences. The current format (DES-II) asks respondents to circle the percentage of time they experience such symptoms ranging from 0 to 100. The total score is the sum of scores on each item divided by 28. DES has three subcomponents

including amnesia, absorption and imagination, and depersonalization and derealization (Bernstein & Putnam, 1986). DES has undergone extensive psychometric testing reliability and validity in both clinical and general populations. Reported test-retest reliability, internal reliability, construct validity and criterion validity are good to excellent (Bernstein & Putnam, 1986; Dubester & Braun, 1995).

In Iran, the Cronbach alpha for the total scale score was 0.92. The confirmatory factor analysis showed that indexes of model including CFE, GFI, and PGFI are fit and factor loads are significant and scales have high reliability coefficient (Kargar-Barzi et al., 2019).

Cognitive Failures Questionnaire: The Cognitive Failures Questionnaire (CFQ; Broadbent, Cooper, Fitzgerald, & Parkes, 1982) consists of 24 items being answered on 5-point Likert-type scale (0=never to 4=always). Cronbach's alpha for the CFQ was 0.91, with a test-retest reliability of 0.82 over a 2-month interval (Vom Hofe, Mainemarre, & Vannier, 1998). The test-retest reliability of the summated CFQ score was found to be 0.71 (Bridger, Johnsen, & Brasher, 2013). In Iran, the Cronbach alpha for the total scale score was 0.84. (Abolghasemi & Kiamarsi, 2009).

The Impact of Event Scale-Revised: The Impact of Events Scale-Revised (IES-R; Weiss & Marmar, 1997) consists of 22 items and measures symptoms of post-traumatic stress disorder defined in DSM-IV which includes intrusion, avoidance, numbing, and hyper-arousal in respect to particular life-threatening events. The response format uses a 5-point Likert-type scale (0= not at all, 4= extremely). The Korean version of the Impact of Event Scale-Revised had a high internal consistency (Cronbach's alpha = 0.93) among patients with PTSD (Lim et al., 2009). The Persian version of IES-R has good internal consistency (Cronbach's alpha =0.67-0.87), test-retest reliability ($r=0.8-0.98$, $P<0.001$) and convergent validity. The factor

analysis was conducted and 3-factor solution, which explained 41.6% of the variance, was obtained (Panaghi et al., 2006).

Ethical considerations

Information about the research process was provided for all the participants, and they were asked to fill a consent form to ensure their contentment in participating in the study. To maintain confidentiality, participants’ names were kept anonymous and data protection was performed at all stages of the study. Persons who were unwilling to cooperate were excluded.

Results

Table 1 shows demographic information including age, gender, education level and marital status of all the participants.

According to Table 1, in the with (without) PTSSs group, 85% (73%) of the participants were male; 30% (41.3%) had bachelor degree; and 52.2% (41.3%) were married.

Table 2 shows mean and standard deviation of the dissociative experience, emotion regulation strategies, and cognitive failures in patients with and without posttraumatic stress symptoms.

Multivariate tests of group differences in the combination of emotion regulation strategies, dissociative and cognitive failures revealed a significant effect of groups on (Wilks’ Lambda=0.625, F=9.39, P<0.001 and Eta=0.312).

The results of MANOVA indicate that there are a statistically significant differences between these two groups in terms of dissociative experiences (F= 11.99, p<0.001), negative emotion regulation strategies (F=5.30, p=0.02) and cognitive failures

Table 1. Demographic characteristics and Chi-square test (N= 150) 150

Variable	With-PTSSs(n=75)	without-PTSSs (n=75)	Test	Sig
	M(SD)	M(SD)	T	Sig
Age	30.41(5.83)	30.11(5.50)	.32	.76
Gender	Percent	Percent	Chi-square test	Sig
Male	85.3(64)	73.3(55)	2.54	.28
Female	14.7(11)	26.7(20)		
Education Level	Percent	Percent		
Diploma	36.2(29)	37.4(28)	2.11	.33
Associate	33.8(27)	21.3(16)		
Bachelor	30(24)	41.3(31)		
Marital status	Percent	Percent		
Single	52.5(42)	41.3(31)	2.75	.24
Married	47.5(33)	58.7(44)		

Table 2. Means and standard deviations of the study variables in patients with and without PTSSs

Variable	With-PTSSs M± SD	Without-PTSSs M± SD
DE	121.34± 16.94	93.71 ± 20.85
NERS	24.5± 5.17	22.40 ± 6.29
PERS	29.76 ± 7.39	31.45 ± 6.32
CF	54.23 ± 13.23	47.51 ± 12.86
PTSSs	8.51 ± 1.51	5.52 ± 0.63

Note: DE = dissociative experiences; NERS = negative emotion regulation strategies; PERS = positive emotion regulation strategies; CF= cognitive failures; PTSSs = posttraumatic stress symptoms.

Table 3. Results of multivariate analysis of variance on study variables in patients with and without PTSS.

Variable	SS	DF	MS	F	P	Eta	OP
DE	29553.41	1	29553.41	11.99	0.001	0.173	1
NERS	174.80	1	174.80	5.30	0.023	0.133	.097
PERS	110.67	1	110.67	2.33	0.129	0.115	0.95
CF	1747.20	1	1747.20	10.25	0.002	0.163	1

($F=10.10$, $p=0.002$). However, the two groups did not differ in positive emotion regulation strategies. The mean scores of dissociative experiences, cognitive failures, and negative emotion regulation are significantly higher in patients with PTSSs (Table 3).

Discussion and conclusion

This study was conducted to compare emotion regulation strategies, dissociative experiences, and cognitive failures in persons with and without PTSS. Findings discovered higher rates of using negative emotion regulation strategies in patients with PTSSs, which is consistent with previous studies (Eftekhari, et al., 2009; Moore, et al., 2008; Ehring & Quack, 2010; Hannan & Orcutt, 2020; Weiss, et al., 2019; Raudales, et al., 2020; Raudales, et al., 2020). It is assumed that impairment of emotion regulation is the basis of mood and anxiety disorders (Campbell-Sills & Barlow, 2007). Several negative or inefficient emotion regulation strategies intensify anxiety by attending threatening stimulants, and increasing lack of predictability, and probable awareness (Tortella-Feliu, Balle, & Sese, 2010). Controlling and evaluating emotional reactions negatively, which produce more negative emotions (e.g., feeling ashamed of experiencing anxiety of fear) and preserve emotional stress (Gratz & Roemer, 2004). Given the presence of avoidance coping strategies, constant negative emotional state, and inability to express positive emotions in PTSD patients, it seems that PTSD relates to emotion regulation strategies. On the other hand, studies

on the relationship between severe emotional responses and specific stimulants indicate that PTSD symptoms may be correlated with severe negative responses, which increase the need for regulative attempts. Inability to regulate emotional arousal, or having difficulty in differentiate emotional situations may affect perceiving emotions as unpredictable and uncontrollable. Therefore, individuals learn to fear from situations that evoke specific emotions, which in turn, prevents them from effective confrontation with signs related to trauma. So, emotion regulation strategies may play a significant role in preserving PTSD symptoms (Tull, et al., 2007). However, findings of the current study found no significant difference between the patients with and without PTSSs in terms of positive emotion regulation, which is contrasted to former research (Eftekhari et al., 2009; Moore et al., 2008; Ehring & Quack, 2010). This conflict can be explained by the difference in tools used in each study, since those studies performed Emotion Regulation Questionnaire of Gross and John (2004) which measures the tendency toward using cognitive reappraisal as a positive emotion regulation strategy, while in this study, Emotion Regulation Questionnaire-short form- (Garnefski, et al., 2001) was applied, which considers a wider range of positive emotion regulation strategies.

The study finding, regarding the frequency dissociative experiences in persons with PTSS, was formerly confirmed (Bremner, et al., 1992; Baranyi et al, 2010; Wolf et al., 2012; Ozer, Best, Lipsey, & Weiss, 2003; Hyland, et al., 2020; Cramer, et al., 2020; Boyd et al., 2020). Dissociation responses

are consequences of increased arousal during a traumatic event (Bryant, 2007). Dissociative experiences occur in individuals who experience arousal related to Yohimbine phenomenon (Bryant, 2007). In addition, dissociation is a psychological defense used throughout and after a trauma both by humans and animals (Najavits & Walsh, 2012). This defensive process enhances individual's ability to make himself/herself distant from physical and psychological pains of a traumatic event (Spiegel, 1991). Seemingly, traumatized individuals reduce their emotional pains by limiting their awareness of the event, and controlling its annoying memories (Spiegel, 1991). However, this does not let major painful memories being accepted and blocks emotional processing (Bryant, 2007). Dissociative symptoms are found to play an important role in commence and perseverance of posttraumatic stress disorder and can predict it (Wolf et al, 2012; Ozer, et al., 2003). Totally, the tendency to dissociate may be considered as a vulnerable factor that paves the way for PTSD development and progress.

Outcomes of the current study confirmed a significant difference between PTSD patients with and without PTSSs in terms of cognitive failures. Other studies on memory difficulties in these patients have had the same finding (Yehuda, et al., 2007, Johnsen, et al., 2008; Eren-Kocak, et al., 2009; Moore, 2009; O'Neil et al., 2019; Liu, et al., 2019; Quinones, et al., 2020). Memory problems and intrusive thoughts are common in PTSD patients since they restrict their active memory capacity. Hence, information is not properly transferred into long-term memory and consolidated, and in turn, its retrieval becomes difficult (Bandalos, 2002). Frequently, unwanted repetition of the traumatic event interferes with daily life activities and prevents PTSD patients from fully processing received information (Klink, et al., 2008). Memory problems of these patients can also be explained by cognitive theories, like

Foa's fear network theory. According to this theory, when a person confronts threatening stimulants, his/her fear network begins to work and leads him/her to remember threatening trauma-related materials. Finally, this automatically activates network restricts memory capacity. Trauma affects ways of organizing information (MacCallum, et al., 1999). Because cognitive deficiency is a meta-cognitive related process, it can be concluded that this finding is consistent with previous ones (Bryant, 2007; Louise Field, et al., 2008; Elsesser, et al., 2009; Karl et al., 2009). Given the model of posttraumatic stress disorder proposed by Ehlers and Clark (2000), evaluation of the traumatic incidence or its consequences can be a main source for server and permanent fear. Negative evaluation of a traumatic event includes critical appraisal of experienced feelings and activities during the event, negative perception of others' responses, and being severely pessimistic about the future. Attributing a traumatic event to external, permanent and uncontrollable reasons is significantly related to emersion of posttraumatic stress symptoms. (Smith & Bryant, 2000). Therefore, external attribution causes PTSD patients to have a more negative evaluation of the world, which creates a sense of threat and preserves their disorder. This negative evaluation determines patients' reactions to perceived harm, and by impairing their cognitive and behavioral coping strategies may be get memory deficits (Ehlers & Clark, 2000). This study shed light on problems of persons with PTSS. These findings provide the opportunity for conducting more research on PTSD patients and designing more efficient interventions to help PTSD patients in managing their symptoms. However, due to several limitations of the current study, including non-random selection of participants, kind of the traumatic event, and applying self-report tools (which increases data distortion probability), findings generalization should be done with caution. It is recommended

to perform the same research on different gender and age groups, and to use various forms of tests to improve findings generalizability. Also, the results of current study provide important evidence in support of performing prevention and treatment strategies for persons with PTSS in clinical settings.

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