



Self-compassion and cognitive flexibility in trauma-exposed individuals with and without PTSD

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Abstract

Considering the importance of cognitive processes in controlling behavior and emotion, and also individuals' different reactions toward traumatic events; the current study was carried out to compare self-compassion and cognitive flexibility in trauma-exposed individuals with and without post-traumatic stress disorder. In this cross-sectional study, subjects were recruited among individuals exposed to at least one traumatic event in Gilan-Gharb city (Iran). Through the available sampling method, the numbers of 400 people were selected, and after exerting inclusion and exclusion criterions, 252 individuals concluded the final sample of the study. Subjects were divided into two groups of with and without post-traumatic stress disorder based on clinical interview and the cut-off scores higher than 103 in the Civilian Mississippi Post-Traumatic Stress Disorder scale; Then responded to the demographic questionnaire, Self-Compassion Scale and Cognitive Abilities Questionnaire individually. Collected data were analyzed using descriptive statistics and the Multivariate Analysis of Variance test. Results revealed that the mean scores of the group with post-traumatic stress disorder were significantly lower than the group without post-traumatic stress disorder in variables of Cognitive Flexibility, Self-Compassion, and components of self-compassion including Self-Kindness, Common Humanity, and Mindfulness; the mean scores of the group with post-traumatic stress disorder were significantly higher than the group without post-traumatic stress disorder in components of self-compassion including Self-judgment, Isolation, and Over-Identification. Findings of the present study suggest that self-compassionate attitude toward shortcomings and failures of self, and cognitive flexibility is lower in people suffering from post-traumatic stress disorder than those trauma-exposed individuals without post-traumatic stress disorder.

Keywords Trauma · PTSD · Self-compassion · Cognitive flexibility

Introduction

Facing any traumatic events may lead to a severe and chronic mental condition called Post-Traumatic Stress Disorder (PTSD) (Breslau et al. 2003; Kessler et al. 1995). According to American Psychiatric Association (2013), the twelve-month prevalence of PTSD among US adults has been estimated by about 3.5%; and the lower estimates have also been reported in Europe and

most Asian, African, and Latin American countries clustering around 0.5%–1.0%. Accordingly, as Palm and Follette (2011) claimed, “exposure to a traumatic event is a necessary but not sufficient criterion related to the development of PTSD”. Applying a systematic review and meta-analytic method, Sepahvand et al. (2019) studied the prevalence of PTSD among Iranian people following disasters and wars; They reported the prevalence of PTSD about 25%, 11%, 47%, 58%, 40%, and 74% caused by childbirth, accident, war, earthquake, burning, and rape events, respectively. Their findings revealed the high burden of PTSD among Iranian people exposed to different traumatic events. In their study, PTSD was related to demographics and pre-traumatic factors and also characteristics of the event exposure.

PTSD risk (and protective) factors have been divided into three clusters of pretraumatic factors including temperamental factors such as childhood emotional problems by age 6 and prior mental difficulties, peritraumatic factors which do not

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conclude any temperamental factors, and posttraumatic factors including temperamental elements like negative appraisals, applying improper coping strategies, and development of acute stress disorder (American Psychiatric Association 2013). Due to the numerous investigations on the extensive variety of PTSD prevalence after exposing traumatic events, there have been multiple research works (e.g. Yehuda et al. 1995; Yehuda 1999) which emphasized the crucial role of individuals' vulnerability in developing PTSD besides exposure to a traumatic event.

There are numerous contributors to developing PTSD among trauma-exposed individuals. One of the associated factors is self-compassion. Neff (2003a, b) developed her construct self-compassion based on the larger Buddhist notion of compassion (Pali: *Karuna*) and on what is often translated as loving-kindness (Pali: *matta*). As Thompson and Waltz (2008) defined, "*Karuna* refers to a feeling of compassion towards all beings and an awareness of our shared experience as human beings, whereas *matta* involves conscious goodwill towards others". Neff (2003a) defined Self-compassion consisting of three components: (a) applying a kind and understanding attitude toward one's self against harsh judgment; (b) perceiving one's experiences as part of a larger human condition rather than feeling detached; (c) mindful awareness of distressing experiences without being overidentified by them. In this regard, Maheux and Price (2015) studied the association of self-compassion and PTSD symptoms, and revealed the negative association of self-compassion with all PTSD symptom clusters for DSM-5. They declared the protective role of self-compassion against PTSD symptoms consequently.

Thompson and Waltz (2008) described self-compassionate individuals as less prone to feel threatened and more prone to experience a natural process of facing trauma-related stimuli in times of difficulties, and consequently avoid distressing memories, thoughts, and emotions as well. Based on the studies performed on the Self-Compassion scale, Neff (2003b) reported the association of higher self-compassion with a greater quality of life, and psychological well-being including less anxiety, depressive symptoms, rumination and thought suppression. Recently, researchers have merged compassion-based practices into treatment. Mindfulness-Based Stress Reduction (MBSR) is a program in which loving-kindness is emphasized through meditation (Kabat-Zinn 1990). Clinicians reported a greater rate of self-compassion as the result of providing an MBSR 8-week program (Shapiro et al. 2005). Carson et al. (2005) studied a sample of patients suffering from chronic lower back pain and revealed a significant reduction in pain and anger after applying an 8-week treatment program emphasizing loving-kindness meditation. Bowman (2005) indicated the crucial role of this program in decreasing pain and anger among survivors of childhood sexual abuse as well. More recently, Gilbert and Procter (2006) provided a program that develops compassion and reduces shame and self-criticism

among people suffering from personality and/or mood disorders as the result. Neff et al. (2007a, b) suggested that increased self-compassion through one-month treatment is linked with the reduction in depression, rumination, thought suppression, self-criticism and anxiety, and also with the higher feeling of being interpersonally connected to others. In this regard, lack of self-compassion can be considered as a pathological process (Hayes 2008). An increasing number of investigations propose self-compassion as a worthwhile therapeutic target (Germer and Neff 2013; MacBeth and Gumley 2012) which can play a protective role against pathological reactions to trauma such as PTSD (Thompson and Waltz 2008; Kearney et al. 2013). Contextual behavioral approaches like Acceptance and Commitment Therapy (ACT) include an implicit foundation of compassion (Hayes et al. 2009), however, treatment protocols have recently concluded components of self-compassion explicitly (e.g. Forsyth and Eifert 2016). In this regard, Thompson and Waltz (2008) investigated PTSD symptoms and self-compassion in a sample of 210 undergraduate students and revealed the significant negative correlation of self-compassion with PTSD symptoms and avoidant strategies.

Another factor related to the development and maintenance of PTSD following exposure to traumatic events is impaired cognitive flexibility. Cognitive flexibility has been defined as "the capability of switching cognitive sets for being adopted to changing environmental stimuli" (Dennis and Vander Wal 2010). Dennis and Vander Wal (2010) described three components of cognitive flexibility as follows: (a) considering tough situations as controllable; (b) being capable of perceiving various alternative justifications for life events and human behavior; (c) being capable of creating various alternative solutions to difficult situations. People with higher cognitive flexibility against difficult conditions are more prone to take a more flexible approach in attributions they make for events. For instance, how individuals react to specific situations can impact the degree to which they experience psychological distress. Hence, cognitive flexibility can be considered conceptually like the constructs of attributional and cognitive styles (Palm and Follette 2011). Johnson et al. (2011) considered cognitive flexibility as one of the five traits which may have a role in greater protection against distress and trauma-related psychological and behavioral health difficulties. Furthermore, Ben-Zion et al. (2018) declared that cognitive flexibility, shortly after exposing to trauma, can emerge as a crucial predictor of PTSD symptom severity; They demonstrated that better cognitive flexibility 1-month post-trauma predicts less severe PTSD symptoms at 6 and 14 months post-trauma. According to Hayes et al. (2004) investigation, individuals with lower cognitive flexibility may form more rigid rules about the need to control or avoid experiences that are considered negatively. Psychological inflexibility is linked with poorer quality of life and declined well-being across pathologies (Fledderus et al. 2010), it is also involved in the

onset and maintenance of post-trauma distress (Marx and Sloan 2005).

The evidence indicates that exposure to traumatic events is an important issue related to the general health, however not every trauma-exposed individual will develop PTSD. Considering self-compassion definition as a non-judgmental openness to internal experiences (Neff 2003a) and the fact that individuals with high self-compassion have less tendency to suppress unwanted thoughts and emotions (Leary et al. 2007), a negative correlation can be supposed between self-compassion and PTSD symptoms. As stated above, according to the previous findings, flexible cognitive styles are associated with lower psychological distress. It also contributes to lower trauma-related psychological and behavioral health problems. Hence, the current research aim is to study self-compassion and cognitive flexibility among trauma-exposed individuals with and without PTSD. Accordingly, it was hypothesized that self-compassion will be different between people with PTSD and those exposed to trauma without PTSD, and cognitive flexibility will differ between people with PTSD and those exposed to trauma without PTSD. Also, components of self-compassion including self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification are different between people with PTSD and those exposed to trauma without PTSD.

Methods

Design

Considering the aim of the current study in comparing self-compassion and cognitive flexibility among trauma-exposed individuals with and without PTSD, this research was a cross-sectional study.

Participants

Subjects were recruited among people who were under the auspices of Committee on Relief and Martyr Foundation because of exposure to at least one traumatic event (such as mine explosion led to physical impairment, spouse death, spouse addiction, serious illness of self or relatives, imprisonment of spouse and divorce, physical abuse and road traffic accidents) in Gilan-Gharb city (Iran) from October 2018 to March 2019 ($N=1753$). Through the available sampling method, the numbers of 400 people were selected. After exerting inclusion and exclusion criteria, 65 people were excluded from the study and the final sample was comprised of 252 individuals.

Instruments

Structured Clinical Interview for DSM-5-Research Version (SCID-5-RV) The SCID-5-RV has been developed by First et al. (2015) for determining psychiatric diagnoses. It is a semi-structured interview that includes all of the relevant subtypes, severity and course specifiers. A prominent feature of the SCID-5-RV is its customizability which makes the instrument suitable for meeting the requirements of a particular study. SCID-5-RV comes in a standard “core” configuration which includes the disorders most researchers are presumably to assess routinely for most investigations, as well as in an “enhanced” configuration which includes several optional disorders, in addition to the disorders from the “core” configuration (First 2015). Shankman et al. (2017) reported the Dimensional severity scales from an adapted version of the SCID-5 for both concurrent and lifetime major depression, alcohol, substance, post-traumatic stress disorder, panic, agoraphobia, social anxiety, specific phobia, obsessive-compulsive disorder, and generalized anxiety disorder; according to their findings, The SCID’s severity scales demonstrated substantial internal consistency (all Cronbach’s α s >0.80), test-retest reliability, and concurrent and predictive validity.

The Civilian Mississippi Post-Traumatic Stress Disorder Scale

The Civilian Mississippi PTSD scale (Vreven et al. 1995), a version of the Mississippi-PTSD (Keane et al. 1988) was used to measure PTSD symptom scores. The items are answered on a five-point Likert scale from “never” or “not at all true” (one) to “very frequently” (five). Researchers requested subjects to answer based on “the way you have been feeling during the PAST MONTH.” The past month is considered as a period which includes present symptoms and could also incorporate symptom-free phases during which a person functions well, although underlying problems remain (Williams 1993). Symptom scores may range from thirty-five to 175. A cut-off score on the scale, above which respondents can be classified as PTSD cases, has been calculated at 103 for nonclinical samples (Eustace 1994). Vreven et al. (1995) reported acceptable reliability coefficients (0.86, $M = 64.31$) after evaluating the psychometric properties of the Civilian Mississippi used with 668 civilians. Goodarzi (2003) evaluated the psychometric properties of this scale in an Iranian sample which reported the Cronbach’s α about 0.92. Cronbach’s α was 0.74 in the present study as well.

Self-Compassion Scale (SCS) It is a 26-item self-report scale (Neff 2003a) which evaluates the positive and negative aspects of the three main components of self-compassion including Self-Kindness (e.g., “I try to be understanding and patient toward aspects of my personality I don’t like”) versus Self-Judgment (reverse-coded; e.g., “I’m disapproving and

judgmental about my own flaws and inadequacies”), Common Humanity (e.g., “I try to see my failings as part of the human condition”) versus Isolation (reverse-coded; e.g., “When I think about my inadequacies it tends to make me feel more separate and cut off from the rest of the world”), and Mindfulness (e.g., “When something painful happens I try to take a balanced view of the situation”) versus Over-Identification (reverse-coded; e.g., “When I’m feeling down I tend to obsess and fixate on everything that’s wrong.”). Responses are given on a 5-point Likert scale ranging from 1 (*almost never*) to 5 (*almost always*). Then the mean score of self-compassion is calculated, as research indicates that a single higher-order factor of “self-compassion” explains the strong inter-correlations among the subscales; Internal consistency reliability was 0.97 as well (Neff 2003a). This scale has been validated in Iran by Basharpour (2013) in which the results of exploratory factor analysis revealed 6 factors with eigenvalues greater than one which explained 43.47% of the whole variance. Internal consistency reliability has been reported from 0.65 to 0.92 among the Iranian population. Cronbach’s α was 0.79 in the present study.

Cognitive Abilities Questionnaire It is a self-report 30-item scale developed by Nejati (2013), which includes 7 separate items (memory, inhibitory control and selective attention, decision making, planning, sustained attention, social cognition, and cognitive flexibility). All items are scored reversely except those related to social cognition. Subjects answer the questions on a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). Nejati (2013) reported Pearson’s correlation significant at the level of 0.01 in two consecutive tests and the Cronbach’s α about 0.83. Also, all subscales of the test (except social cognition) were correlated with the mean score of the total test at the level of 0.01; the T-test was also significant among all test indicators (except planning and social cognition) (Nejati 2013). In the present research, only the subscale of cognitive flexibility was used and the Cronbach’s α was 0.76.

Procedure

The group that carried out the performing phase of the study consisted of three people including two Ph.D. students of clinical psychology who were master in PTSD diagnosis and treatment, and a head - associate professor of the university- who supervised the accuracy of the performing phase by checking the procedure and performance. After administrative arrangements and referring to the centers of Committee on Relief in GilanGharb city (Iran), a list of all people who were under the auspices of Committee on Relief and Martyr Foundation because of exposure to at least one traumatic event (such as mine explosion led to physical impairment, spouse death, spouse

addiction, imprisonment of spouse and divorce, serious illness of self or relatives, physical abuse and road traffic accidents) in Gilan-Gharb city (Iran) from October 2018 to March 2019 was provided ($N = 1753$). Through the available sampling method, the numbers of 400 people were selected. The two performers contacted these people and invited them to take part in the research after describing research objectives, and emphasized that participation is completely optional. The final numbers of individuals who accepted to take part in the study reached 317 individuals. Throughout the first interview, inclusion and exclusion criterions were evaluated based on SCID-5-RV results and individuals’ reports, and numbers of 65 individuals were removed from the study as the result, and the final sample was comprised of 252 individuals. In this way, any contradiction between the results of the interview and self-report scale was reevaluated by interviewers through rechecking psychiatric conditions more precisely and asking the respondents to respond again to the questionnaire, and those left with any contradictory results were excluded from the study. However, only six individuals had such an indeterminate diagnosis who were removed from the study. Numbers of the individuals who met criteria on the SCID-5-RV but did not score above 103 on the scale were 2 and those who scored above 103 but did not qualify based on the SCID-5-RV were 4 as well. Inclusion criteria included having the experience of at least one traumatic event and having at least high school literacy. Individuals with any medical conditions, mental retardation, psychotic symptoms, any other prominent psychiatric diagnosis, substance abuse, lack of motivation for participating in the study and any prominent discrepancies between the results of the SCID-5-RV and Mississippi PTSD scale were excluded.

Then subjects were divided into two groups of with and without PTSD based on the cut-off scores higher than 103 in the Mississippi PTSD scale and SCID-5-RV PTSD diagnosis. The final sample was comprised of 110 individuals with PTSD (43.7%) and 142 ones without PTSD (56.3%). Subjects responded to the questionnaires of demographic information (including age, gender, marital status, education, employment, and economic status) and Self-Compassion Scale and Cognitive Abilities Questionnaire individually. Collected data were analyzed using the Multivariate Analysis of Variance (MANOVA) test.

Results

Numbers of 110 traumatized individuals with PTSD with the mean (standard deviation) scores of 30.38 (± 8.56) for age and 142 traumatized individuals without PTSD with the mean (standard deviation) scores of 28.79 (± 8.84) for

age participated in this study. The PTSD group was comprised of 74 female and 36 male participants, and the trauma-exposed group without PTSD was comprised of 106 female and 36 male participants as well. Among the PTSD group, 29 people had primary education, 72 people had secondary education and 9 had higher education. In the traumatized group without PTSD, 38 individuals had primary education and 104 had secondary education. In terms of marital status, numbers of 69 were married and numbers of 41 individuals were unmarried in the PTSD group, and numbers of 101 were married and numbers of 41 individuals were unmarried in the traumatized group without PTSD. In the PTSD group, 38 individuals were self-employed and 72 were unemployed; besides, 76 individuals were self-employed and 66 were unemployed in the traumatized group without PTSD. In terms of economic status, most subjects of the two groups of trauma-exposed individuals with and without PTSD (68% totally) were of the poor class of the society and the others (32% totally) belonged to the middle class of the society.

Before running the MANOVA test, its assumptions were tested. Levene test results exhibited that variances of the two groups didn't differ significantly in self-compassion and cognitive flexibility. MANOVA results showed the difference between Centroids of two groups considering dependent variables about 58%, which means that 58% of the whole variance of the differences between two groups can be explained based on self-compassion and cognitive flexibility.

According to Table 1, Variables of self-compassion and cognitive flexibility were significantly different between the two groups. Self-compassion was significantly lower in trauma-exposed individuals with PTSD compared to those without PTSD. For cognitive flexibility, trauma-exposed individuals with PTSD had lower scores than the group without PTSD.

Table 2 shows MANOVA results for components of self-compassion. Self-kindness, common humanity and mindfulness were significantly lower in trauma-exposed individuals with PTSD when compared to the group without PTSD; though self-judgment, isolation and over-identification were significantly higher in the group with PTSD compared to the group without PTSD.

Discussion

Throughout life, everybody may face numerous and various events. Some of these events are associated with difficulties that may impose adverse effects on an individual and his relatives' mental health. Exposing various traumatic events (such as mine explosion, spouse death, spouse addiction, imprisonment of spouse and divorce, serious illness of self or relatives, physical abuse and road traffic accidents) can impress individuals to exhibit particular clinical responses which may increase the risk of developing PTSD. Studies have shown that such individuals report multiple difficulties in their daily functions including sexual relationships, family cohesion, emotion expression, and also fundamental functions of life beside various difficulties in reacting behaviorally with more hostility through an interpersonal interaction (Beckham et al. 1996). Hence, regarding the importance of this issue, the current study was carried out to investigate self-compassion and cognitive flexibility among trauma-exposed individuals with and without PTSD.

MANOVA results revealed that self-compassion was significantly different in both groups and was lower in the group with PTSD compared to the group without PTSD. Accordingly, self-kindness, common humanity, and mindfulness were significantly lower in individuals with PTSD when compared to those without PTSD; however, self-judgment, isolation, and over-identification were significantly higher in subjects with PTSD. These findings are related to the Zeller et al. (2015) investigation who found that components of self-compassion act as flexible protective factors against psychopathological consequences of traumatic events. Considering these findings, it's worth noting that the people with PTSD symptoms may have lower healthy self-acceptance which represents the lower rate of accepting unfavorable aspects of self and life. Low self-compassion may be accompanied by high negative emotions through affecting positive and negative emotions which, in turn, may result in intensifying PTSD symptoms.

According to the results of the current study, trauma-exposed individuals with and without PTSD differ significantly in terms of mindfulness- a component of self-compassion- which means that mindful people may engage less in negative

Table 1 Subjects' mean and standard deviation in variables of self-compassion and cognitive flexibility and MANOVA results to compare the significant differences among them

Variables	Groups	Mean	SD	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Self-compassion	With PTSD	69.71	16.54	956.71	1	956.71	5.25	.02	.40
	Without PTSD	75.40	10.49						
Cognitive flexibility	With PTSD	10.05	3.35	436.11	1	436.11	44.93	.001	.58
	Without PTSD	13.89	2.91						

Table 2 Subjects' mean and standard deviation in self-compassion components and MANOVA results for comparing significant differences among them

Variables	Groups	Mean	SD	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Self-Kindness	With PTSD	10.56	6.576	470.20	1	470.20	15.81	.001	.42
	Without PTSD	14.55	4.366						
Self-Judgment	With PTSD	15.45	1.69	83.193	1	83.19	27.67	.001	.29
	Without PTSD	13.77	1.76						
Common Humanity	With PTSD	9.01	5.06	161.94	1	161.94	9.93	.002	.28
	Without PTSD	11.35	2.99						
Isolation	With PTSD	13.15	2.42	59.63	1	59.63	8.86	.004	.38
	Without PTSD	11.73	2.71						
Mindfulness	With PTSD	8.66	5.13	354.06	1	354.06	19.01	.001	.24
	Without PTSD	12.11	3.53						
Over-Identification	With PTSD	13.56	2.16	154.16	1	154.16	26.49	.001	.39
	Without PTSD	11.28	2.59						

emotions after exposing traumatic events. Terry and Leary (2011) suggested the crucial role of mindfulness in promoting mental and physical health for people experiencing problems associated with anxiety. They declared that perceiving events with self-compassion and mindfulness may allow individuals to consider the probability of future anxiety in a non-judgmental way which avoids maximizing any anxiety they may experience.

People with high self-compassion tend not to suppress their emotional responses (Neff et al. 2007a, b). Rather, they are more prone to pass distressing events with a more mindful and less reactive manner and, since they experience less negative affect, they do not deplete self-control resources trying to manage their emotions (Terry and Leary 2011). Additionally, after exposing a traumatic event, victims are often challenged with feelings of self-blame; and when they perceive that they could have avoided the event, they would be more prone to blame themselves for negative, traumatic events (Davis et al. 1996). People with high self-compassion may concentrate less on how they were uniquely to blame for what happened to them through focusing on feelings of common humanity; in this regard, Self-compassion can promote healthy reactions toward events by helping people to take a kind perspective toward themselves, consider their condition with equanimity and face problems applying a non-judgmental attitude (Terry and Leary 2011). Self-compassion may assist individuals to cope with their distressing life events due to the good coping resources of self-compassion (Allen and Leary 2010). As Neff et al. (2005) believed, it can be considered as a crucial component of mental health in which individuals may develop delight and psychological health through learning and applying its related skills.

MANOVA results revealed that cognitive flexibility was significantly different in both groups, with a lower level in

the group with PTSD than the group without PTSD. This finding is compatible with the result of Dick et al. (2014) based on the fact that increasing cognitive flexibility can result in PTSD symptoms reduction. It is also in line with Caldwell et al. (2014) study which showed that cognitive control and emotional integrity are positively correlated with cognitive and emotional flexibility, while intensification of past traumatic events is negatively correlated with cognitive and emotional flexibility. The results of the current study represent that the group with PTSD may have a lower capability in modifying cognitive beliefs to adjust to the new condition which may result in intensifying PTSD symptoms. Accordingly, it is worth noting that individuals suffering from PTSD can hardly adjust to the traumatic event and modify the primary attitudes toward the traumatic event; consequently, they persist in their previous attitudes which may result in incompatibility with new conditions and magnifying PTSD symptoms.

Cognitive flexibility includes two mutually interdependent processes containing acceptance of experiences and values-based action. Accordingly, individuals with higher cognitive flexibility tend to face their negative experiences rather than avoiding, controlling or changing them; furthermore, doing actions that are according to the valid individual values may assist promoting this perspective (Hayes et al. 2006). Hence, increasing cognitive flexibility in PTSD patients may result in mood improvement. If trauma-exposed individuals conceive difficult situations as manageable conditions and substitute more compatible justifications after facing traumatic events, they may escape from mental disorders.

Results of the current study revealed that self-compassionate attitude toward shortcomings and failures of self, and cognitive flexibility is lower in individuals suffering from PTSD than those trauma-exposed individuals

without PTSD in GilanGharb city who were under the auspices of Committee on Relief and Martyr Foundation.

The results of the present study also suggest employing Compassion-Focused Therapy (CFT) as a preventive and interventional program for reducing post-traumatic symptoms.

Several limitations of the present study warrant comment. Inability in controlling some variables like the socio-economic status, marital status, the type of trauma, the severity of traumas and post-traumatic symptoms, and using self-report scales for collecting data limited the generalizability of findings of the current study. Hence, it is suggested to perform future studies by controlling the mentioned variables and also distinguishing the severity of the traumas and different types of trauma. Considering the key role of gender as another risk factor of post-traumatic symptoms in trauma-exposed individuals, studying gender differences is of great importance. Another limitation worth noting is that there is no way to say whether self-compassion or cognitive flexibility are protective factors concerning PTSD, including the possibility that low self-compassion or cognitive flexibility could be the sequelae of PTSD rather than antecedent risk factors for it. Finally, selecting subjects through available sampling method and from those individuals who were under the auspices of Committee on Relief and Martyr foundation in GilanGharb city would limit the generalizability of findings to other traumatized people with and without PTSD, hence the authors suggest future researchers to perform such studies in broader populations.

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Compliance with Ethical Standards

Informed Consent Informed consent was obtained from all participants included in the study.

Ethical Approval All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Conflict of Interest None.

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