Journal of Trauma & Treatment

Park, J Trauma Treat 2017, 6:2
DOI: 10.4172/2167-1222.1000381

Research Article Open Access

The Effect of Trauma Severity on Borderline Personality: Self-Esteem as Mediator

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Rec date: May 23, 2017; **Acc date:** Jun 08, 2017; **Pub date:** Jun 10, 2017

Abstract

The aim of this study was to examine the effect of trauma experience severity on borderline personality characteristics and to examine as well the mediation effect of self-esteem. To measure traumatic experience severity, the Trauma Experience Questionnaire-Revised (TEQ-R) was developed and validated. The TEQ-R, Rosenberg Self-Esteem Scale, and the personality assessment inventory-borderline features scale (PAI-BOR) were administered to 400 normal subjects. According to structural equation model analysis, trauma experience severity was positively associated with borderline characteristics, and the mediation effect of self-esteem was significant. Both trauma severity and borderline characteristics were negatively related to self-esteem. Thus, self-esteem seemed to have a buffering effect on the path between trauma and borderline personality.

Keywords: Trauma; Borderline personality; Self-esteem; Mediating effect

Introduction

It has been reported that trauma is associated with not only post-traumatic stress disorder (PTSD) [1] but also several mental disorders such as bipolar disorder and borderline personality disorder. Regarding borderline personality disorder especially, reports suggest that the disorder is related to betrayal trauma and complex trauma [2-4]. According to a study that compared the effect of the level of traumatic experience on borderline personality and major depressive disorder groups, there was no difference in stress level between the two groups, whereas the borderline personality disorder group reported more severe traumatic experiences, sexual abuse, and dissociation symptoms. This result indicates that severe trauma is positively associated with borderline personality features [5]. In addition, a meta-study on the relationship between trauma and borderline personality features reported that there was a consistent positive correlation between level of trauma experience and borderline personality features [6]. However, the pathway by which trauma affects borderline personality is yet unclear, although research has identified mediating variables in this path.

First, under-regulation of affect has been reported as a mediating variable [7,8]. Second, relational health has been found to have mediating effects on the path [9]. Third, self-concept may have mediating effects in the relationship between complex trauma and borderline personality [10]. Many types of variables may be directly related to self-concept, such as self-efficacy, self-image, and self-esteem. Among them, self-esteem may be a mediating variable for the following reasons. First, borderline personality features include an unstable self-image, which may be related to low self-esteem. In fact, both the explicit and implicit self-esteem levels of patients with bipolar I disorder who displayed somewhat similar unstable self-images were found to be lower than those of healthy individuals [11]. In other words, self-image instability cannot be the outcome of a robust self-esteem. Second, it is reported that traumatic stressors could give rise to lowered self-esteem [12-14] and that self-esteem has mediating effects on the relationship between trauma and maladjusted eating attitudes, which commonly occur with borderline personality [15]. It is also reported that self-esteem has mediating effects on the relationship between trauma and depressive symptoms, which also occur with borderline personality [16]. Ensuing from the results of these previous studies, the hypothesis that self-esteem has a mediating effect on the relationship between trauma and borderline features was examined.

In trauma research, the operational definition of trauma and its measurement must be taken into careful consideration. The criteria A definition of trauma based on DSM-5 slightly differs from the definition of betrayal trauma. Criteria A trauma is defined as an experience of being exposed to death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence [1]. Moreover, traumatic impact severity can be measured by the severity of re-experiencing, avoiding, negative emotional changes, and hyper-arousal symptoms. However, betrayal trauma or developmental trauma can be related to caregiver abuse rather than trauma as traditionally defined [17].

Indeed, the research finding that betrayal trauma, somewhat similar to abuse, is related to borderline personality and that self-concept has mediating effects on this relationship is meaningful [18]. This result, though, may not reflect the relationship between the traditional concept of criteria A trauma and borderline personality characteristics. There may be a question of whether the trauma experience level measured by the symptom severity of the event was also positively correlated with borderline personality features. Thus, to answer this question, the relationship between criteria A trauma level and borderline personality must be examined. In this study, the potential mediating effect of self-esteem in the relationship between the criteria A trauma and borderline personality characteristics was also examined.

In addition, existing scales of trauma were designed to measure the frequency of a subject's traumatic experiences. Using those scales,

researchers could not assess the psychological impact of a single specific trauma. In disaster situations such as an earthquake, a large fire, or the sinking of a ship, there could be a large number of trauma victims. In those cases, measuring the psychological impact of the single specific trauma is needed to make decisions about what type of intervention takes priority and to assess aspects of the traumatic experience.

In this study, a traumatic experience questionnaire (Trauma Experience Questionnaire-Revised; TEQ-R) that measures the concepts of traditional criteria A trauma and both trauma impact and trauma frequency was developed and validated. With this measure, the effect of trauma severity on borderline personality and the mediating effect of self-esteem were examined.

Materials and Methods

Subjects

A total of 400 subjects participated in the study. The TEQ-R, Rosenberg Self-Esteem Scale, and Personality Assessment Inventory-Borderline Features Scale (PAI-BOR) were administered to all subjects. The mean age was 39 years. Demographic characteristics of the subjects are presented in Table 1. All participants provided their written informed consent to participate in this study. The Korea Counseling Graduate School Institutional Review Board approved the study. Regarding the data collecting procedure, Invight, Inc. collected the data through an Internet survey using their research panels that consist of the general population of Korea.

		Male	Female	Total
		N=215	N=185	N=400
	Age: M (SD)	40.4 (9.3)	36.6 (9.8)	38.6 (9.7)
	High school or below	32	31	63
Educational level (N)	College level	38	42	80
	University level	115	94	209
	Graduate School	30	18	48

Table 1: Demographic variables.

Measures

Trauma experience questionnaire-revised: The Trauma Experience Questionnaire was adapted by Choi [19] from the Post-Traumatic Growth Inventory, which was developed by Tedeschi and Calhoun [20]. Items pertaining to negative events taken from the Social Readjustment Rating Scale developed by Jang [21] and Song et al. [22] were also used.

The Trauma Experience Questionnaire contains 16 items that assess a variety of traumatic experiences, ranging from accidents to childhood abuse. Subjects place a check for the type of trauma that they had experienced. For the checked items, subjects are asked to indicate the period of their life in which the traumatic experience occurred and rate the severity of its of impact using a 6-point Likert scale.

A total of 30 items are used to measure the past and the present impact of one specific trauma. The scale consists of four subscales that assess intrusion symptoms, avoiding symptoms, alteration of cognition and emotion symptoms, and lowered daily functioning. Sample items include "After the event, I felt as if I were re-experiencing the event" (intrusion symptom), "After the event, I was withdrawn from others for a long time" (avoiding symptom), "After the event, I felt intense negative emotions" (alteration of emotion symptom), and "Because of the event, I had difficulty taking care of my everyday life in the following days" (lowered daily functioning). Two items from the original trauma experience questionnaire were used to verify the validity of the TEQ-R. A translated Korean version of the Trauma Experience Questionnaire-Revised is included in the appendix.

Personality assessment inventory-borderline features scale: This scale is one of the eleven clinical subscales of the personality assessment inventory (PAI) developed by Morey [23] to assess borderline personality traits. The scale is composed of 23 items that are responded to on a 4-point Likert scale. Higher scores indicate more severe borderline personality traits. The Korean version of the PAI-BOR is composed of 6 subscales that measure impulsivity, anger, emptiness, emotional lability, impulsive consumption, and fear of abandonment as reported in the Korean version validation study [24].

Factor structure of the Korean version of the PAI-BOR differs from the original version developed by Morey [23] that has four factors. In the present study, the six-factor structure was evaluated by statistical analysis. However, because the fit indices of the measurement model of the PAI-BOR were low, the total score was used in the following analysis. The internal consistency reliability of the scale in the present study was 0.779.

Rosenberg self-esteem scale: To measure the level of participants' self-esteem, the Rosenberg self-esteem scale [25] was used. This scale is composed of 10 items that are responded to on a 4-point Likert scale. The internal consistency reliability of the scale in the present study was 0.870.

Procedure

In the present study, fifteen items measuring the impact of a participant's most severe past trauma and a similar fifteen items measuring the present impact of the trauma were developed based on trauma-related disorder criteria of the DSM-5 [1]. The original trauma experience questionnaire and the newly developed 30 items were then administered to 400 subjects. Additionally, the Rosenberg's Self-Esteem Scale and the PAI-BOR were administered to all subjects.

Statistical analysis

Correlation analysis was applied to explore the relationships between the variables, and Cronbach's alpha coefficients were calculated to verify the reliability of the TEQ-R. According to the report that variables measuring the trauma have a non-normal distribution [26], normality test statistics of each indicator were calculated. Results indicated that some of the variables had a non-normal distribution.

Next, factor analysis was conducted to identify the factor structure using the principal axis method with rotation. Subsequently, a correlation analysis between the original two items of the TEQ and the newly developed two subscales of the TEQ-R was conducted to verify the validity of the TEQ-R.

Next, structural equation model analysis with maximum likelihood robust estimation was applied to the data to minimize the bias resulting from the non-normal distribution of the variables [27]. Trauma severity was introduced as the independent variable, borderline personality was introduced as the dependent variable, and self-esteem was introduced as the mediating variable. Indicators of trauma severity in the measurement model were past impact of trauma, present impact of trauma, and frequency of trauma.

For self-esteem in the measurement model, two subscales identified by exploratory factor analysis of the Rosenberg's self-esteem scale were used. For borderline features in the measurement model, the total score of the PAI-BOR was used because structural validity and fit indices of this measure were poor. Model fit indices were calculated. To verify the significance of the mediating effect, Sobel's test and the bootstrap method were applied. SPSS, AMOS 23, and MPlus 7.0 were used to perform these analyses.

Results

According to the factor analysis results (Table 2), there were two subscales consisting of past impact items and present impact items, as expected. Cronbach's alpha for the past impact subscale was 0.958 and the alpha coefficient for the present impact subscale was 0.974. Thus, the newly developed subscales had acceptable reliability.

No.	Item Content	Factor Loadings	
		Factor 1	Factor 2
1	At the time of the event, it had a serious impact on me		0.723
2	Because of the event, I had difficulty taking care of my everyday life in the following days		0.787
3	After the event, I was afflicted with nightmares		0.71
4	After the event, I suffered from painful memories of the event		0.834
5	After the event, I felt as if I were re-experiencing the event		0.689
6	After the event, it was very painful every time I saw places, things, or people reminding me of the event		0.795
7	After the event, it was very painful to see anything symbolizing or similar to the event		0.759
8	After the event, I was withdrawn from others for a long time		0.765
9	After the event, I was very much afraid of experiencing a similar event		0.712
10	After the event, I spent much time distracted and confused		0.738
11	After the event, I felt intense negative emotions		0.731
12	After the event, I did not feel positive emotions, such as joy, for a long time		0.765
13	After the event, I felt separated from other people		0.691
14	After the event, I felt as if my future lifetime was shortened		0.55
15	After the event, I felt that I could not manage to live a healthy life		0.569
16	There is still some impact of the event on me nowadays	0.629	
17	When the memory of the event occurs to me, I have a hard time taking care of my daily tasks	0.845	
18	Although a long time has passed, I am still afflicted with nightmares	0.739	
19	Although a long time has passed, I still suffer from painful memories of the event	0.782	
20	Although a long time has passed, I still re-experience the event	0.852	
21	Still nowadays, it is very painful every time I see places, things, or people reminding me of the event	0.823	
22	Still nowadays, it is very painful to see anything symbolizing or similar to the event	0.902	
23	Still nowadays, I am withdrawn from peoples	0.87	
24	Still nowadays, I am very much afraid of experiencing a similar event	0.614	
25	Still nowadays, I spend much time distracted and confused	0.928	
26	Still nowadays, I feel intense negative emotions	0.773	
27	Still nowadays, I feel positive emotions, such as joy, less than before the event	0.91	
28	Still nowadays, I separated from other people	0.829	
29	Still nowadays, I feel as if my future lifetime is shortened	0.884	
30	Still nowadays, I feel that I cannot manage to live a healthy life	0.933	

Table 2: Factor analysis results of the TEQ-R and descriptive statistics.

The correlation coefficient between one item measuring past impact and the past impact subscale was 0.498, and the correlation coefficient between one item measuring present impact and the present impact subscale was 0.484. Thus, there was support for the validity of the TEQ-R subscales. According to the descriptive statistics, the mean score of the past impact subscale was 54.2, and the mean of the present impact subscale was 39.6. Correlation analysis results and psychometric information on the variables are presented in Table 3.

According to the structural equation model analysis and Sobel test [28,29], the mediating effect of self-esteem on the relationship between severity of trauma and borderline personality traits was significant (Sobel test statistic=4.506, $p<0.001$). The model is presented in Figure 1, and the fit indices are presented in Table 4.

	1	2	3	4	5	6
Past Impact						
Present Impact	0.703**					
Trauma frequency	0.450**	0.387**				
Self-esteem 1	-0.244**	-0.361**	-0.152**			
Self-esteem 2	-0.366**	-0.507**	-0.219**	0.641**		
Borderline features	0.460**	0.547**	0.303**	-0.364**	-0.562**	
Skewness	-0.039	0.574	1.17	-0.247	-0.044	0.24
Kurtosis	-0.679	-0.384	1.94	-0.066	-0.393	0.714
Internal Consistency	0.958	0.974		0.832	0.786	0.779
M(SD)	54.2 (16.9)	39.6 (17.5)	3.1 (2.0)	18.2 (3.1)	16.2 (3.5)	26.3 (7.2)
**p<0.001						

Table 3: Correlation analysis and psychometric information.

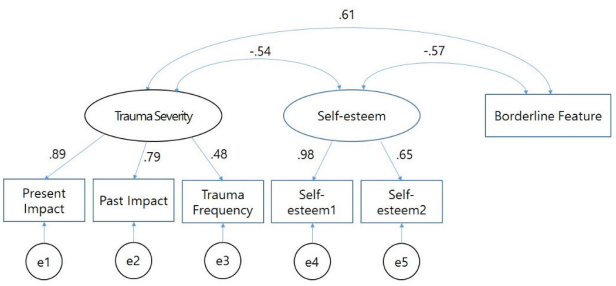

Figure 1: The measurement model.

Statistics	X2(df)	CFI	TLI	RMSEA	Sobel's Z	Indirect effect (standard error)
Final Model	20.5(7)**	0.984	0.967	0.066	5.948**	0.187(0.051)**
Model: borderline features variable as indicator variable; **p<0.001						

Table 4: Model fit indices.

Discussion

Recently, some researchers and practitioners redefined borderline personality disorder as a kind of "complex PTSD" [30,31]. They proposed that borderline personality disorder is related to childhood developmental trauma or complex trauma and that it should be called complex PTSD. Due to the research results that support the notion that repetitive trauma is related to borderline personality, the concept of complex PTSD has emerged. However, when it comes to this concept, the difference from the traditional trauma definition should not be overlooked.

If we examine the measurement of complex or betrayal trauma, we find that it is more similar to the concept of abuse than to traditional trauma. Thus, the question arises, is borderline personality related only to complex or betrayal trauma and not to traditional trauma? To answer this question, this study first validated the TEQ-R, composed of items based on the trauma definition of the DSM-5 [1], then investigated the relationship between traumatic experience severity and borderline personality traits. Furthermore, to examine the effect of negative self-concept on borderline personality, the potential mediating effect of self-esteem was scrutinized through structural equation analysis.

The results of this study must be interpreted cautiously because the findings were derived from using cross-sectional data. We should not conclude hastily that trauma severity results in borderline personality features. We cannot know the direction of the causal relationship. There could be two hypotheses: one is that borderline personality results from traumatic experiences, and the other is that borderline personality brings about more traumatic experiences.

However, if we assume that the former is true, the results could be interpreted as follows. Both the direct effect of traumatic experience severity (beta=0.53, p<0.01) and the indirect mediating effect of self-esteem (Sobel's z=4.506, p<0.001) were significant. As for the indirect mediating effect, trauma severity was negatively related to self-esteem, and self-esteem was also negatively related to borderline personality features. Thus, we can conclude trauma experience has a direct effect on borderline features and an indirect effect mediated by self-esteem. In other words, trauma experience lowers self-esteem and the hampered self-esteem aggravates the borderline personality features. A similar relationship was observed between complex trauma and borderline traits and between traditional trauma and borderline traits.

This result is consistent with the notion that childhood sexual abuse plays an important role in the course of borderline personality disorder [32], because sexual abuse can be regarded as criteria A trauma with

regard to sexual violence. With regard to betrayal trauma, the level of the trauma has been found to have differential effects on sub-features of borderline personality organization [26]. Thus, in future research the question of how the sub-factors of the PAI-BOR are associated with trauma severity as measured by TEQ-R must be examined.

These results could be viewed as having four implications. First, interventions that address traumatic experiences could ameliorate borderline personality disorder symptoms. Our findings were that the more severe the traumatic experiences, the more florid were the borderline personality characteristics, suggesting the possibility that among borderline personality patients many of them may have traumatic experiences as their unsolved issue. Thus, psychotherapy with a primary focus on traumatic experiences could have an effect on borderline personality symptoms. More research is needed on this issue.

Second, interventions to improve self-esteem could have buffering effects on borderline personality characteristics. This implication is consistent with research showing that self-compassion psychotherapy programs were effective in reducing borderline personality characteristics through improving subjects' self-concept [33]. Third, preventing borderline personality patients from being exposed to more trauma could be an important key to stabilizing symptoms.

Thus, prevention of the deterioration of daily functioning that can cause traumatic events should be taken into consideration throughout treatment. Finally, the newly developed TEQ-R could be used as a screening tool for identifying the high-risk group when collective traumatic events occur. According to the descriptive analysis results, those with scores above 57 points (M + 1SD) on the present impact subscale were classified as a high-risk traumatized group (Figure 2).

One of the limitations of this study was the fact that a causal relationship design was applied to cross-sectional data. To confirm these results, longitudinal research should be designed and carried out. Second, when it comes to the TEQ-R, it consists of items related to the impact of trauma without measuring arousal or avoidance symptoms.

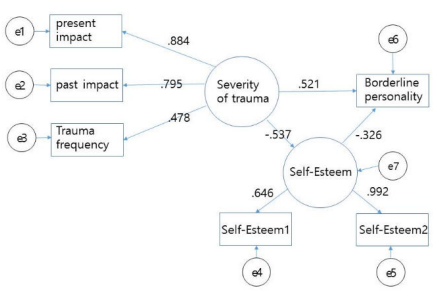

Figure 2: The final model.

To measure total aspects of trauma experiences, the TEQ-R needs revision. Third, data were obtained from a non-clinical normal population. Thus, the results would need to be verified among patients with borderline personality disorder and compared to a normal control group. Until now, there are few empirical studies supporting the notion that treatment of trauma in patients with borderline personality disorder can result in symptom amelioration. This hypothesis derived from the current study must be verified.

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