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Original Article

The role of affective-emotional temperament in predicting the self-injurious behaviors of borderline individuals

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Abstract

Recognizing the factors affecting self-injurious behaviors of people with a borderline personality disorder is of great importance in prevention and treatment of this disorder. The aim of this study was to determine the role of affective-emotional temperament in predicting self-injurious behaviors in people with a borderline personality disorder. The present study was conducted using a descriptive correlational design, the population of which included all prisoners with borderline personality disorder in the central penitentiary of Karaj in the summer of 2015. After selection by screening, 224 people out of the population participated in this study. These individuals were then interviewed in a structured clinical interview for borderline personality disorder (SCID-II), and finally, after confirming their diagnosis, they were asked to answer questionnaires of affective-emotional temperament and self-harm behaviors. The obtained data was also analyzed using Pearson correlation tests and multiple regression analysis. The results of the Pearson correlation test showed that while there is a positive correlation between self-injurious behaviors and depressed, anxious, cyclothymic, bored, quirky, obsessive, excited, irritable, and uninhibited temperaments, the correlation between self injurious behaviors and indifferent, lively, and euphoric emotional temperaments was a negative one; Moreover, self-inflicted behaviors have a positive relationship with the emotional temperament of volition and anger, while presenting a negative relationship with inhibition, sensitivity, coping, control and desire. The results of regression analysis in about 95% of the total variance of self-injurious behaviors is explained by affective temperament and 47% of its total variance is explained by emotional temperament. These results indicate that affective-emotional temperament can predict self-injurious behaviors in people with borderline personality disorder. Therefore, in the prevention and treatment of borderline personality disorder, it is recommended to study the temperamental components.

Keywords

Emotional- affective temperament
Self-injurious behaviors
Borderline personality

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Introduction

A borderline personality disorder is a personality disorder characterized by a pervasive pattern of instability in interpersonal relationships, self-image issues, emotion management, and perceptual impulsivity in early adulthood. This disorder with a moderate prevalence of 1.6% in the general population has recently been considered a public health problem due to its association with severe psychosocial injuries and high suicide mortality rates. There is considerable variability in the process of borderline personality disorder. The most common pattern is the pattern of chronic instability in early adulthood, with periods of severe emotional and impulsive lack of control and high levels of use of mental health resources. Injuries resulting from this disorder and the risk of suicide in young adults are the highest and gradually decrease with age (American Psychiatric Association, 2013). One of the most problematic behaviors in patients with borderline personality disorder is self-injurious behaviors, the treatment of which is among the important challenges for therapists working with borderline personality disorder patients. Injuries intentionally inflicted by patients themselves often cause psychological distress to those around them and may lead

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to involuntary hospitalization, significant bodily harm, and even death. The rate of self-harming behaviors among the general population and in various studies is estimated at between 4% and 27% by MacLaren & Best (2010). People with a borderline personality disorder often intentionally injure themselves, and this behavior is not necessarily the same as harming to end life. The most common self-injurious behavior in these patients is self-injury with razor, occurring more on the forearm and wrist area than anywhere else on the body. Prior to self-harming, there is always a stimulus with which the patient is unable to deal effectively, and sometimes patients self-harm as a means of treatment and an antidote to impending dissociative disorders (Paris, 2008).

According to a study by Baetens, Claes, and Willem (2011), the most important reason for self-harm in both men and women is to reduce negative emotions and excruciating emotions. They avoid painful memories and punish themselves for this behavior (Baetens et al, 2011). Studies by Brown (2009) and McLaren and Best (2010) showed that self-injurious behaviors are associated with the typical features of borderline personality disorder, namely, high neuroticism, pleasantness, and low conscientiousness (Aliloo & Sharifi, 2011). While Goldstein (2009) reported that self-injurious behavior correlates positively with neuroticism and openness to experience, it has nothing to do with being pleasant or conscientious. Also, studies by Claes, Muehlenkamp and Vandereycken (2010) in clinical populations have shown that low extraversion and high neuroticism are characteristic of people with self-injurious behavior (Claes et al, 2010).

Studies show that individuals' differences in temperament can play an important role in determining their reactions. Temperament is the inherited basis of emotions and learnings which is acquired through emotional and automatic behaviors and is discerned as observable habits early in life and remains constant throughout most of life (Cloninger, 2000). Temperament is an automatic emotional response that occurs in a variety of situations, is largely present at birth, and remains constant throughout life (Birt & Vaida, 2004). Cloninger has tried to create a strong theoretical framework for personality by looking at and emphasizing biological parameters which include both normal and abnormal personality. In his view, temperamental systems in the brain have a functional organization consisting of different and independent systems to activate, perpetuate and inhibit behavior in responding to certain groups of stimuli. An understanding of these dimensions is provided by the TCI questionnaire. This questionnaire assesses four temperamental dimensions including innovation, harm avoidance, dependency reward, and perseverance. The four traits of temperament are closely related to the four major feelings of fear, anger, dependence, and ambition respectively (Cloninger, 2002).

Akiskal (2005), who has also dealt primarily with emotional temperament, contends that the concept of emotional temperament is based on Kraepelin's basic states (cyclothymia, mania, irritability and depression), which represent the predisposing traits. In addition, Akiskal (2004) believes that BPD and type II bipolar spectrum disorders are in a continuum based on cyclothymic temperament, which includes emotional instability and interpersonal sensitivity (Akiskal, 2005). Lara's emotional-composite model is also based on the assumption that temperament is an important element in understanding mental health and pathology, and that the concept of temperament traditionally includes the basic emotions of fear, anger, and desire (Clark, 2005). In general, Cloninger and Akiskal's theories of temperament deal with emotional and affective temperament, respectively, while Lara's composite model of affective-emotional temperament combines both. The results of research by Soloff, Kelly, Stephen, Strott Meyer (2003), Chapman, Grazo Brown (2006), and Mescluski, Neo, and Shiver (2009) show that people with borderline personality disorder have an impulsive temperament. The results of research revealed the relationship between impulsivity and dopamine in borderline personality disorder, which indicates the effect of bio-temperamental factor on borderline personality disorder (Joyce, 2009).

Patients with borderline personality disorder have uncontrollable anger, and are never able to predict the effect of their mood on others (Millon et al, 2004). These patients frequently report long and severe periods of annoying daily stimuli in various life situations (Stiglmayr et al, 2001). Although more research is needed to conclude on the etiology of behaviors in people with borderline personality disorder, current studies have shown that many genetic and biological factors are associated with the risk of developing the disorder. For example, a large number of emotional traits associated with borderline personality disorder (for example, emotional instability, impulsivity) appear to be at least partially inherited (Freeman et al, 2005). Evidence suggests that self-injurious behaviors are important and common features of people with borderline personality disorder (Stanley & Siever, 2010) and studies emphasize the role of temperamental foundations in predicting the symptoms of this disorder, therefore this study aims to determine the role of emotional and affective temperament in predicting self-injurious behaviors of people with borderline personality disorder.

Method

Participants

The method of the present study is correlational. In this study, affective-emotional temperament and its dimensions were used as predictor variables and self-harm behaviors as criterion variables. The population of the present study included all prisoners with borderline personality disorder in the central penitentiary of Karaj in the summer of 2015. From this population, 224 people were selected by screening and entered into this study.

Instrument

1. Structured clinical interview disorder (SCID):

This interview is a screening tool consisting of 124 items of yes or no questions and it includes 103 criteria related to 11 personality-centered disorders on axis II. A 3-to-11 rating of scale SCID-II (grade 1, on this scale determines the absence of criteria, grade 2 below the diagnostic criteria threshold, grade 3 constitutes the diagnostic criteria threshold) indicates that there is sufficient evidence to diagnose a particular personality disorder (Mohammad khani, 2012).

2. Borderline personality scale:

The Borderline Personality Scale (STB) was designed by Jackson and Claridge (1991) and consists of 24 yes/no items wherein a yes answer scores one and a no answer scores zero. Jackson and Claridge (1991) reported a test reliability coefficient of 0.61 for STB. Moreover, Rawlingso et al. (2001) reported an alpha coefficient of 0.80 for STB. Simultaneous STB validity with EPQ scales of neuroticism and psychoticism was reported in the main culture as 0.64 and 0.44, respectively. In addition, the general standardization of this scale in Mohammadzadeh's research in Iran was 0.72 (Mohammadzadeh et al, 2004).

3. The Deliberate Self-Harm Inventory:

This tool is a 17-item self-report questionnaire that assesses the history of intentional self-harming behaviors over a lifetime and includes: frequency, duration, and type of self-harming behavior (cutting, burning, tattooing, breaking bones, etc.). In using this tool, the subject is asked to answer yes or no to a set of questions about the types of self-harming behaviors. The reliability of the retest was 0.92 and its Cronbach's alpha coefficient was reported to be 0.82. It was also significantly correlated with other self-harm tools. The reliability of retesting and validity of the convergent and divergent structure of this questionnaire has been reported to be appropriate in the samples of undergraduate students and patients.

4. Affective-Emotional Temperament Questionnaire:

This scale was developed by Lara et al. (2012) with the aim of integrating emotional and affective temperament into a composite model. Fifty two questions on this scale describe the six emotional temperaments of volition, anger, inhibition, sensitivity, coping, control, and desire on a 7-point Likert scale. Twelve questions also measure 12 emotional traits: depressive, anxious, apathetic, obsessive, cyclothymic, dysphoric, volatile, euthymic, disinhibited, hyperthyroidism and euphoric on a 5-point Likert scale. Three questions also provide general information about a person's emotional temperament. Lara et al. (2012) obtained Cronbach's alpha coefficients in five dimensions of emotional temperament in the range of 0.87 to 0.90 and for the inhibition dimension, it was 0.75. Reliability was also obtained for the component of cyclothymic temperament 0.91, for depression 0.81, for hyperthyroidism 0.77, for restlessness 0.76, and for anxiety 0.67. In this study, Cronbach's alpha coefficients for affective temperament subcomponents ranged from 0.35 to 0.75, and Cronbach's alpha coefficients for emotional temperament subcomponents ranged from 0.30 to 0.50 (Lara et al, 2008).

The method of data collection in this study was such that after obtaining permission from the university and referring to the central penitentiary in Karaj, the list of all prisoners was made available. Then, all inmates at the prison responded to the Borderline Personality Disorder Scale. Afterwards, those who scored above this cut-off score were evaluated by the second author of the present study (holder of a Master's degree in Clinical Psychology) in a structured clinical interview. Finally, 224 people were diagnosed with borderline personality disorder. They were then asked to respond individually and in prison to their questionnaires of intentional injury and "emotional" temperament. The collected data was analyzed using Pearson correlation test and multiple regression analysis.

Results

A total of 224 patients with borderline personality disorder with the mean age of 27.96 years participated in this study. 24.6% of the participants had primary education, 12.5% secondary education, and 52.2% were high school students, 9.4% were undergraduates and 1.3% were postgraduates.

Table 1. Mean, standard deviation, and correlation coefficient of affective temperament and self-injurious behaviors in borderline personality

Variable	M SD±	1	2	3	4	5	6	7	8	9	10	11	12	13
1- Self-injury	9.9 (1.67)	1												
2- Depressed	2.79 (1.32)	0.02	1											
3- Anxious	2.50 (1.40)	0.22**	0.13*	1										
4- Indifferent	2.64 (1.29)	-0.61**	-0.003	-0.29**	1									
5-Syclothymic	2.14 (1.12)	0.19**	0.12*	0.13*	-0.40**	1								
6- Bored	2.29 (1.43)	0.43**	0.23**	0.14*	0.06	0.12*	1							

7- Unstable	2.43 (1.18)	0.20**	0.17**	0.18*	0.28**	0.25**	0.28**	1						
8- Obsessive	2.29 (1.28)	0.44**	0.09*	0.14*	-0.41**	0.22**	0.16*	0.50**	1					
9- cheerful	2.57 (1.24)	-0.33**	-0.40**	-0.16*	-0.14**	0.14**	-0.09	-0.36**	-0.25**	1				
10- excited	1.93 (1.16)	0.10*	-0.31**	-0.19*	-0.25*	0.15*	-0.24**	-0.08	-0.37**	0.02	1			
11 Irritable -	2.21 (1.14)	0.18**	-0.53**	0.20**	-0.19**	0.19**	0.13*	0.35**	0.15*	-0.18**	0.31**	1		
12-uninhibited	1.86 (0.74)	0.10*	0.11*	0.20**	-0.27**	0.19**	0.17*	0.50**	0.49**	-0.22**	0.26**	0.24**	1	
13-euphoric	2.07 (1.16)	-0.29**	-0.10*	-0.32**	-0.36**	0.21**	-0.26**	-0.18**	0.13	0.37**	-0.04	-0.06	-0.26**	1

P < 0.05 , P < 0.01

The results of Table 1 show that depressed affective temperament (r = 0.02; p< 0.35), anxious (r=0.22; p < 0.001), cyclothymic temperament (r= 0.19; p < 0.001), obsessive (r = 0.44; p <0.001), excited (r = 0.10; p < 0.05), irritable (r = 0.18, p < 0.001), uninhibited (r=0.10, p < 0.05), bored (r=0.43, p < 0.001), and quirky (r = 0.20, p < 0.001) a correlated positively with self-injurious behavior; but indifferent temper (r = -0.61, p < 0.001), cheerful (r = -0.33, p < 0.001) and euphoric (r= -0.29, p < 0.05) had a negative correlation with self-injury behavior.

Table 2. Mean, standard deviation, and correlation coefficient of emotional nature and self-injurious behaviors in borderline personality

variable	M SD±	۱	۲	۳	٤	٥	٦	۷	۸
1 self-injury	9.93 (1.67)	1							
2-volition	14.90 (4.49)	0.03	1						
3-anger	15.30 4.14	0.43**	0.36**	1					
4- Inhibition	11.40 (1.50)	-0.33**	0.63**	-0.60**	1				
5-sensitivity	11.50 (3.23)	0.15*	0.77**	-0.69**	0.73	1			
6- dealing	11.10 (2.56)	-0.11*	0.36**	-0.18**	0.05	0.09	1		
7-control	12.10 (2.30)	-0.37**	0.51**	-0.67**	0.39**	0.52**	0.12*	1	
8- desire	5.43 (0.73)	-0.50**	0.07	-0.73**	0.22**	0.30**	0.14	0.56**	1

The results of Table 2 show that among the emotional temperaments, volition (r = 0.03; p>0.28), anger (r=0.43; p<0.001) and sensitivity (r=0.15; p <0.03) have positive correlation with self-injurious behavior; but inhibition (r = -0.33; p <0.001), coping (r = -0.11; p <0.04), control (r = -0.37; p <0.001) and desire (r = -0.50; p <0.001) present a negative correlation with self-injury behavior.

Table 3. Results of regression analysis of predicting self-injurious behaviors in borderline personality through components of affective temperament

Criterion variable	Predictor variable	R^2	F	Sig of F	B	SEB	β	T	Significance level
		0.95	333.15	0.001					
	Constant				8.91	1.89		4.69	0.001
	Depressed				0.93	0.05	0.73	16.47	0.001
	Anxious				0.28	0.05	0.23	5.13	0.001
	Indifferent				-0.54	0.12	-0.42	-4.34	0.001
	Cyclothymic				0.15	0.07	0.10	2.14	0.33
	Depressed				0.92	0.08	0.80	10.39	0.001
	Quirky				1.05	0.06	-0.74	15.31	0.001
Self-injury	Obsessive				0.88	0.11	-0.68	7.77	0.001
	Cheerful				-0.94	0.07	0.70	-12.60	0.001
	Excited				0.56	0.14	-0.39	3.90	0.001
	Irritable				1.42	0.09	0.98	14.43	0.001
	Uninhibited				-0.18	0.07	-0.08	-2.38	0.018
	Euphoric				-0.66	0.09	0.46	-7.06	0.001

Table 3 shows that about 95% of the total variance of self-injurious behaviors in borderline personality in the sample can be explained by the components of affective temperament. The results of the ANOVA test also showed that the regression model is significant ($F = 333.15$, $p < 0.001$). The results of regression coefficients furthermore show that the depressed, anxious, cyclothymic, bored, quirky, obsessive, excited, and irritable affective temperaments positively predict self-harming behavior, while indifferent, cheerful, unrestrained, and intoxicated emotional traits negatively predict self-harming behavior.

Table 4. Results of regression analysis of predicting self-injurious behaviors in borderline personality through emotional temperament components

Criterion variable	Predictor variable	R^2	F	Sig of F	B	SEB	β	T	Significance level
Self-injury		0.473	27.75	0.001					
	Constant				52.66	6.11		8.61	0.001
	Volition				0.38	0.079	-1.02	4.84	0.001
	Anger				0.40	0.085	-1.00	4.75	0.001
	Inhibition				-0.89	0.108	-0.80	-8.31	0.001
	Sensitivity				-0.23	0.099	-0.45	-2.34	0.02
	Dealing				-0.43	0.068	-0.66	-6.40	0.001
	Control				-0.51	0.096	-0.71	-5.41	0.001
	Desire				-1.50	0.22	-0.54	-5.45	0.001

The results of Table 4 show that about 47% of the total variance of self-injurious behaviors in borderline personality is explained by the components of emotional temperament. The results of the ANOVA test also showed that the regression model is significant ($F = 27.75$, $p < 0.001$). The results of regression coefficients also indicate that whereas the components of the emotional temperaments of volition, inhibition, sensitivity, coping, control, and desire negatively predict self-harming behavior, the emotional temperament of anger positively do so.

Discussion

Intentional self-harming behaviors are one of the most common problems in people with borderline personality disorder, and are associated with negative health consequences. The aim of this study was to determine the role of emotional-affective temperament in predicting self-injurious behaviors in people with borderline personality disorder. The results of correlation analysis showed that self-injurious behaviors positively correlated with depressed, anxious, cyclothymic, obsessive, excited, irritable, uninhibited, bored, and quirky temperaments; however, indifferent, cheerful, and euphoric temperaments have a negative correlation with self-injurious behaviors. The results of regression analysis also indicate that 95% of the total variance of self-injurious behaviors in borderline personality disorder is explained by affective temperament. These results are consistent with the results of a study by Beatens, Church, and Willem (2011), who found that their most important reason of harm for men and women was to reduce negative emotions and excruciating excitations. In addition, the results of Akiskal (2005), who has studied emotional temperament, state that the concept of affective temperament is based on Cyclothymia, mania, irritability, and depression, which represent pre-pathological traits (Akiskal, 2005). Furthermore, the results of research by Solov (2003), Mesklozky (2009), and Chapman (2010) showed that people with borderline personality disorder have an impulsive temperament (McCloskey et al, 2009). The results of Joyce's research also point out to the relationship between impulsivity and dopamine in borderline personality disorder, which is also indicative the effect of bio-temperamental factors on borderline personality disorder (Joyce, 2009). In Lara's classification, depressed and anxious affective temperaments are rendered as internalized, and choleric, phlegmatic, and quirky temperaments are unstable. Internalization can lead to the suppression of emotions and anger, and ultimately to self-harming behaviors. Affective instability, according to the Diagnostic and Statistical Manual of Mental Disorders, is the main diagnostic criterion for borderline personality disorder, which leads to inappropriate anger, chronic feelings of emptiness, and a high rate of mood swings. The indifferent temperament is characterized by inactivation, and therefore this factor can act as a deterrent to self-injurious behaviors. Cheerful temperament is similarly characterized by emotional stability, which is the opposite of affective instability as the main feature of borderline personality disorder, and finally, addictive temperament is one of the externalized temperaments, mostly accompanied by external anger and impulsivity.

The results of correlation analysis related to the relationship between emotional temperaments and self-injurious behaviors in patients with a borderline personality disorder also showed that among the components of emotional temperament, volition, anger, and sensitivity are positively correlated with self-injurious behaviors; however, the emotional natures of inhibition, coping, control, and desire negatively correlated with self-injurious behavior. The results of regression analysis also showed that 45% of the total variance of self-injurious behaviors in borderline personality disorders is explained by emotional temperament. These results are consistent with Cloninger's studies of temper, which have linked four

dimensions of temperament, including innovation, harm avoidance, reward, and perseverance, to the four major emotions of fear, anger, dependence, and ambition (Malayeri, Asadi, & Hosseini, 2008).

In the present study, components such as anger and sensitivity are positively associated with self-injurious behaviors in borderline patients; and inhibition, coping, and control are negatively associated with emotions such as ambition, aggression, and, on the other hand, attachment and fear, which are based on Cloninger's biological dimensions. Also, in Lara's combined model of emotional-affective temperament, which related the concept of temperament to emotions such as anger, fear, and desire (Clark, 2005), it is shown that the convergence of emotional temper components in borderline patients can be related to self-injurious behaviors in these patients. In addition, the studies of Millon, Grossman, Meiger, and Ramens (2004) which show that patients with borderline personality disorder have uncontrollable anger, and are never able to predict the effect of their mood on others, are consistent with the results of this study on emotional temperament. Emotional temperaments of volition and anger are two elements of the behavioral activation system that according to Jeffrey Gray's theory are related to the amount of dopamine in the brain and create tendencies and active avoidance behaviors in the form of anger and destructive behaviors. Sensitivity, according to Lara (2012), also causes extreme stimulation of the person in the face of experienced events, which in turn can lead to anger. On the contrary, the nature of inhibition is fear and caution, which can act as deterrents to self-harming behavior. Coping, control, and desire can also be a defensive factor against self-injurious behaviors by activating coping strategies. These emotional tempers also ensure high adaptation to the environment through self-regulation and stress management.

Conclusion

The results of this study show that self-injurious behaviors of patients with borderline personality disorder are more associated with internalized and unstable affective temperament. Among the emotional temperaments, those of activation (volition and anger) and sensitivity can be the motivating factors for self-injurious behaviors. Also, strengthening stable affective traits and the emotional traits of coping, control, and desire can be deterrents to self-injurious behaviors.

This research had several limitations. The use of correlation method that does not allow the inference of causal results, the use of patients with borderline personality disorder and inability to control some disturbing variables such as the type of punishment set, severity of the disease, etc. were the main limitations of the present study. Therefore, it is suggested that non-prisoner subjects be used in future studies. The results of this study suggest improving the temperament and mood characteristics of patients with borderline personality disorder to deal with their self-injurious behaviors.

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