

Prediction of Suicidal Ideation in Patients with Bipolar Disorder by the Role of Borderline Personality High Traits in Zanjan (Northwest of Iran)

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ABSTRACT

Background & Objective: Borderline personality disorder (BPD) is a mental health disorder that affects the way people think and feel about themselves and others, causing problems in everyday life functions and attributes. BPD has a high comorbidity with mood disorders such as bipolar disorder (BD). The people with borderline personality traits (BPT) are not diagnosed as personality disorder but they have the traits of this personality disorder that can affect their mental health and function. The goal of this study was to investigate the role of BPT as a predictor of suicidal ideation in patients with BD.

Materials & Methods: This cross-sectional study was carried out on 50 individuals (25 women and 25 men) who were hospitalized in Shahid Beheshti psychiatric hospital, Zanjan, Iran. The patients were selected by structural clinical interview and then examined by borderline personality inventory (BPI) and Beck scale for suicide ideation (BSSI). The diagnosis of bipolar disorder was made by psychiatrists and clinical psychologists.

The collected data were analyzed by descriptive statistical methods and inferential statistics including independent t-test, Pearson correlation coefficient and Multivariate regression analysis with stepwise methods.

Results: The results indicate that there is a significant relationship between BPT and suicidal ideation in patients with BD. Pearson correlation coefficient results revealed that there is a positive and significant relationship between the component of primary defense mechanisms as one of the BPT components and suicidal ideation in patients with BD. The results also showed that the type of mood disorder along with BPT and gender are not determinants of suicidal ideation in patients but, there is a relationship between BPT and suicidal ideation in bipolar patients.

Conclusion: We showed a relationship between BPT and suicidal ideation in BD patients. Our study also showed that a high level of BPT which could lead to the diagnosis of BPD may be a risk factor for suicidal ideation. Thus, it seems that one of the central modifiable risk factors for suicidal ideation severity is BPD features.

Keywords: Borderline personality disorder, Suicidal ideation, Bipolar disorder



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Introduction

Suicide is an action in which a human being causes his or her own death intentionally. Suicide is the 13th leading cause of death worldwide and more than 1 million people commit suicide every year. Suicide is a most preventable cause of preventable death. The highest risk factors are included: psychological, cultural, and environmental ones. The impact of suicide on community can be devastating and apprehensive and people should be concerned on it. It is common in individuals with chronic mental illnesses. Furthermore, people who have severe clinical depression and alcohol use disorders are the highest risk groups if untreated (1).

Borderline personality disorder (BPD) is a mental health disorder that affects the way people think and feel about themselves and others, causing problems in everyday life functions and attributes. It comprises self-image issues, difficulty managing emotions, excitations and behavior, and unstable relationship pattern. With BPD, an individual has an intense fear of abandonment or instability and may have difficulty tolerating being alone. Yet inappropriate behavior, timeless anger, impulsiveness and frequent mood swings may push others away, even if the person with BPD wants to have lasting relationship and good loving behavior. The prevalence of suicidal

ideation and attempts is high in patients with BPD and this personality disorder can usually be initiated as early as 12 years by if the symptoms persist at least for one year. However, most diagnoses are made late adolescence or early adulthood. The people with borderline personality traits (BPT) are not diagnosed personality disorder but they have the traits of this personality disorder that can affect their mental health and function (2).

Many researchers have related suicide to mood disorders, which are associated with certain personality traits and, because personality traits are relatively constant, can be important in predicting a person's likelihood of suicidal ideation (3).

Bipolar disorder (BD) is a chronic disorder which is associated with disabilities and weakening symptoms that can effects on patients and their caregivers (4). This disorder usually begins in adolescence or early adulthood and could have life-long harmful and damaging effects on the patient's life in many dimensions such as mental and physical health, educational and occupational functioning, employment and interpersonal relationships (5). BD puts a heavy strain on the shoulders of the society and its economic burden is tremendous. In 2009, for example, there was about \$120 billion in financial pressure in the United States government. These costs include the direct and indirect costs of treatment. Indirect costs means reduced productivity, employment, and decreased functioning (6). Due to the burden of disorder pressure on the individual and society, the need for treatment and improving the care of bipolar patients is important. Early diagnosis can lead to more effective treatment, which in turn can limit the short-term and long-term consequences of the disorder. (7).

As mentioned, the prevalence of suicidal ideation is high in people with BPD, and there is a strong comorbidity between BPD and BD. Therefore, the important question in this study was whether there is a significant relationship between BPT and suicidal ideation in patients with BD? Another question that the researchers of the present study tried to answer is whether BPT can predict suicidal thoughts in BP patients. The third aim of the study was to examine the severity of suicidal ideations in BD patients with and without BPT.

Materials and Methods

Firstly, a total of 1,432 participants were entered into the population study consisted of 50 bipolar patients (25 women, 25 men) who were selected by sampling method using Cochran's sample size formula. 55 to 75 years old patients with minimum education of legibility were included in this study. The patients were selected according to their psychiatric diagnosis and clinical interview from the patients who referred to Zanjan Psychiatric hospital and its clinics. The patients completed the questionnaires and finally the collected data were statistically analyzed by independent t-test, Pearson correlation coefficient and, Multivariate regression analysis with stepwise methods.

Research questionnaires

Borderline personality inventory (BPI) was developed by Leishnering in 1999 to assess BPT in clinical and non-clinical samples. This questionnaire is basically a 53-item scale based on Kernberg concept of borderline personality organization and has been developed according to diagnostic and statistical manual of mental disorders (DSM) criteria. BPI includes factors for measuring identity disorder, primary defense mechanisms, impaired reality testing, and fear of intimacy. The last two questions of this questionnaire were not placed in any of the factor classes or other categories of this questionnaire and their score was not calculated in the final score of the person and for this reason it has been removed in the Iranian version of the questionnaire (8). The validity and reliability of this questionnaire were examined in the research of Mohammadzadeh and his colleagues. Simultaneous validity was obtained with a coefficient of 75% and the correlation of the subscales with the whole scale and with each other with coefficients of 71% to 45% and three types of validation of test-retest, split-half and internal consistency with coefficients of 40%, 43% and 45%, respectively (9).

Another questionnaire used in this study was Beck scale for suicide ideation (BSSI) which is a 19-item self-assessment tool. This questionnaire has been prepared to reveal and measure the severity of attitudes, behaviors and plans for committing suicide during a week before. Based on factor analysis with psychiatric patients, it was revealed that the BSSI is a combination of three factors: propensity to die, suicidal readiness, and propensity for actual suicide. This scale has a high reliability. Test reliability of 54% was obtained using Cronbach's alpha method, and coefficients of 87% to 97% and test-retest method (10).

Results

The mean and standard deviation of age in BD patients was 32.94 (10.2%). 16 (32%) of BD patients were single, 32 patients (64%) were married, 2 patients (4%) were divorced. 12 patients (24%) were graduated from Primary school, 19 (38%) were middle school graduated, 12 (21%) were high school graduated. 5 (10%) were BA or BS, and 2 (4%) were master of sciences. Finally 22 (44%) were housewives, 3 (6%) were unemployed, 7 (14%) were self-employed, 10 (20%) workers and 8 (16%) were employees. The mean score and standard deviation of suicidal ideation in BD patients were 6.38 and 9.14. 68% (34 patients) of the group of BD patients were low risk in suicide, 14% (7 patients) were high risk and the rest would have been considered as very high risk (9 patients).

In this study we found that 28% (14 patients with bipolar disorder) had borderline personality traits and 72% (36 patients with bipolar disorder) did not have borderline personality traits.

The mean and standard deviation of total score of borderline personality traits in BD patients were 19.16

and 11.35 respectively. The mean and standard deviation in the component of identity confusion were 3.58 and 2.79, in the component of primary defense mechanisms were 3.46 and 2.24, in the component of reality testing were 1.2 and 1.63, and in the component of fear of intimacy were 3.24 and 2.01.

The relation between BPT and suicidal ideation in BD patients was assessed by Pearson correlation coefficient. As the results show, there was a positive and significant

relationship between the primary defense mechanisms component of borderline personality and suicidal ideation in BD patients ($p \leq 0.05$) but there was no significant relationship between BPT total score and suicidal ideation and other BPT components such as identity confusion, reality check and fear of intimacy. It means that only primary defense mechanisms increase the possibility of suicidal thoughts in BD patients ([Table 1](#)).

Table 1. Pearson correlation coefficient between BPT and suicidal ideation in BD patients (n=50)

	Total Score of Borderline personality	Identity confusion	Primary defense mechanisms	Reality testing	Fear of intimacy
Correlation coefficient with suicidal ideation	0.172	0.149	0.301	-0.117	0.227
R					
Sig	0.232	0.301	0.034*	0.419	0.112

To evaluate whether the BPT and its components can predict suicidal ideation in bipolar disorder patients, multivariate regression analysis (stepwise method) was used. The results of this method suggested two models for predicting suicidal ideation by BPT in BD patients. The first and the best predictor model was the primary defense mechanisms with a coefficient of 0.301 and the second one was the reality test component. Other components of borderline personality (identity confusion and fear of intimacy) have been removed from the model. As indicated in [Table 2](#), according to

the first model, the component of primary defense mechanism was able to explain 9% of the variance of suicidal ideation. In other words, the coefficient of determination ($R^2 = 0.09$) indicated that 9% of the dependent variable changes (suicidal ideation) were explained by the component of primary defense mechanisms. In the second stage (second model), the reality test component has been added to the regression. Totally, these two components with a coefficient of 0.463 have been able to explain 21.4% of the variances of suicidal ideation in BD patients ([Table 2](#)).

Table 2. Results of the multivariate regression analysis (stepwise method)

Model	Criterion variable	Predictive variable	R	R ²	adjusted R
1	Suicidal Ideation	Primary defense mechanisms	0.301	0.09	0.071
2	Suicidal Ideation	Primary defense mechanisms Reality Testing	0.463	0.214	0.181

As the results of ANOVA, according to the values of F (4.77, 6.41) and P-value (0.034, 0.003), both models are significant ([Table 3](#)).

Table 3. Results of analysis of variance (ANOVA)

Model		SS	df	MS	F	P
1	Regression	370.75	1	370.758	4.77	0.034*
	Remaining	3731.026	48	77.73		
	Total	4101.78	49			
2	Regression	879.76	1	438.88	6.41	0.003*
	Remaining	3222.015	48	68.55		
	Total	4101.78	49			

Model	SS	df	MS	F	P
**P<0/01,*p<0/05					

The results of regression of coefficients model indicated that the component of primary defense mechanism is the first and foremost, and the

component of reality-testing is the second predictor of suicidal ideation (Table 4).

Table 4. The regression of coefficients model

Model	Model coefficients	Not standardized coefficients		standardized coefficients	t	P
		B	Std. Error	Beta		
1	Constant	2.136	2.309		0.925	0.36
	Primary defense mechanisms	1.22	0.562	0.301	2.184	0.034*
2	Constant	1.68	2.17		0.777	0.441
	Primary defense mechanisms	2.229	.0643	0.546	3.46	0.001**
	Reality testing	-2.398	0.88	-0.429	-2.27	0.009**

**P<0/01,*p<0/05

To compare suicide ideation in bipolar disorder patients with BPT (n= 14) and without BPT (n=36), we used t-test and the result has shown that BD patients had more suicidal ideation than patients without BPT

.The mean of suicidal ideation in BD patients with BPT was 4.63 points higher than BD patients without BPT but his difference was not statistically significant (Table 5).

Table 5. T-test results to compare suicidal ideation in BD patients with BPT (n=14) and without BPT (n = 36)

	BD with BPT		BD without BPT		MD	df	t	p
	M	SD	M	SD				
Suicidal ideation	9.71	10.8	5.08	8.22	4.63	48	-1.63	0.109

**P<0/01,*p<0/05

Discussion

There was a significant relationship between BPT and suicidal ideations in patients with bipolar disorder. The findings of this study indicate that the best predictors for suicidal ideation in BD patients were the component of primary defense mechanisms as one of the traits of BPD and in the component of reality testing as another trait respectively. Also Pearson correlation coefficient results manifested that there was a positive and significant relationship between the components of primary defense mechanisms and suicidal ideations in patients with bipolar disorder.

Several studies have shown that cluster B personality disorders such as BPD, narcissistic personality disorder, antisocial personality disorder, histrionic personality disorder ,and their associated traits may act

as intermediate factor of suicidal behavior (11-17) BPD is associated with a high risk for suicide and mortality rate which is 45 times higher than in general population. BPD patients present an emotional dysregulation characterized by depressive symptoms and they can precipitate suicidal ideations and behaviors (18).

People with borderline personality disorder show frequent suicidal behaviors, expressive gestures, threats, or self-harming behavior. Scratching the hands with a razor, scratching the wrists and forearms with sharp tools, stabbing injuries to the abdomen, neck and chest, burning the skin with a cigarette and banging the head against the wall are examples of intentional injuries.

However, Bayes and colleagues differentiates BPD from BD undertaking a machine learning (ML) approach to distinguish the conditions. The study distinguishes BP and BPD based on differences in cognitive and behavioral domains, emotion regulation strategies and parental behaviors (19).

Ruifan Zeng et al. concluded that the coexistence of borderline personality disorder with bipolar disorder in adults and adolescents exposes a person to a higher risk of increasing suicidal behavior, including self-harm and suicide attempt which is consistent with the results of our research (20).

The present study has shown that there was no significant relationship among the total score of borderline personality and the components of identity disorder, reality testing and fear of intimacy with suicidal ideation in BD patients. However, a positive and significant relationship was found among the components of primary defense mechanisms of borderline personality and suicidal ideation in BD patients, which is consistent with the results obtained from the study of Rahimi (21).

According to the research done by Apfelbaum et al. (22), patients with bipolar disorder with comorbidity of cluster B personality disorders had an earlier onset and more severity in suicide attempts, hospitalization and self-harm behaviors. Comparing BD and BPD alone with BD+ BPD, patients who had comorbidity in bipolar disorder and borderline personality disorder present a more severe type of emotional dysregulation. They presented more characteristics of cyclothymic and irritable temperament. It means that the score of manic symptoms were higher than patients with depression and lower than bipolar disorder patients.

In fact, it can be argued that having a borderline personality may not necessarily be associated with suicidal ideation, but the type of defense mechanisms used by individuals can be related to suicidal ideation. Also, the presence of two components of BPT, including the component of primary defense mechanisms and the component of reality testing, can predict suicidal ideation in BD patients. The analysis suggests two models for predicting suicidal ideation by BPT in BD patients. The first model which is the best predictor of suicidal ideation is the primary defense mechanisms component, and the second one is the component of reality testing. It means that according to a Person's score in these two scales, the suicidal ideation can be predicted. So, the results of our study are consistent with some studies in this field (23, 24).

Soderholm et al. reported that there was a difference between the lifetime prevalence of suicide attempt in 4 groups of patients: major depressive disorder (MDD), major depressive episode (MDE), bipolar disorder (BD) and, MDE with BPD (MDE+ BPD). They concluded this by examining the risk factors for suicidal ideation and behavior in these 4 groups of patients. The severity of BPD features has

independently relation with risk of lifetime suicide attempts and during the major depressive disorder. By using regression models, they found that hopelessness is the most consistent independent risk factor for severe suicidal ideation, whereas more severe traits of BPD and younger age were consistently associated with suicide attempts (25).

Suicidal ideation is a multifaceted concept and how it is defined and measured determines how many suicidal ideas are present in a specific sample (26). The findings of our study are consistent with the study of Söderholm et al., which can show that patients with borderline personality disorder are more likely to have suicidal ideation than other patients with mood disorders, but the difference in suicidal thoughts between BD patients with BPD and BD patients without BPD in our study was not significant. Therefore, this finding indicated that suicidal ideation in BD patients is an independent factor that is not related to BPT. As a result, BPT in BD patients cannot be a determinant of suicidal ideation. Consequently, suicidal thoughts in BD patients should be considered without focusing on their personality.

One of the limitations of our research was that the research has been conducted only in one city (Zanjan, Iran), therefore, in order to increase the generalizability of the results, we suggest repeating the research in other cities with larger sample.

Another limitation of this study was that only the BD group was examined so, it would be better to use other groups of mood disorders in future studies to assess the relationship between suicidal ideation and BPT in patients with mood disorders.

In this study, only suicidal ideation was examined, not suicide attempt, therefore, it is suggested that this issue be considered in future studies.

Practical suggestions of this study include the following: due to the importance of the studied variables in pathology and suicidal prevention, it is suggested that BD patients would be given special care to diagnose comorbidity of BPD at the time of diagnosis. It is recommended to give special attention and treat this disorder in advance.

Diagnosis of personality disorders associated with mental illnesses has a significant role in the treatment and controlling of mental illnesses. According to this process, physicians and psychologists can plan variety of psychiatric treatments based on patients' circumstances and effective interventions can be performed more rationally.

Conclusion

The results demonstrate that there was a relationship between BPT and suicidal ideation in BD patients. This study showed that high level of BPT which can lead to diagnosis of BPD can be a risk factor for suicidal ideation. Thus, one of the central modifiable risk

factors for suicidal ideation severity is BPD features. Therefore, clinically, assessment of borderline features may help the evaluation of suicide risk, and treatment of these features definitely can help suicide prevention.

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Conflict of Interest

There is no conflict of interest.

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