Predicting of borderline personality disorder (BPD) based on emotional intelligence, apathy and empathy among the soldiers admitted to a military hospital

Predicción del trastorno límite de la personalidad (DBP) basado en inteligencia emocional, apatía y empatía entre los soldados ingresados en un hospital militar

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Abstract

Due to the prevalence of BPD among soldiers and the importance of their mental health, the purpose of the study was to examine the relationship between emotional intelligence, alexithymia and empathy with BPD among the soldiers and to evaluate whether these variables could predict PBD. The study was cross-sectional with descriptive design. In this study, 150 soldiers with BPD admitted to 505 Army Psychiatric Hospital, Tehran were selected by convenience sampling and answered the following questionnaires: Bar-On Emotional Quotient Inventory (EQ-I), Toronto Alexithymia Scale (TAS-20) and Mehrabian and Epstein Empathy Questionnaire (EQ) with data analysis done in SPSS. The aspects of EQ had a reverse and significant relationship with BPD (r=-0.81), (p=0.01) and the relationship between alexithymia and PBD was direct and significant (p = 0.46) r), (p = 0.01), and the aspects of empathy and BPD were related inversely and significantly (r = -0.26), (p = 0.01). The results showed that the symptoms of BPD could be predicted somehow based on EI, alexithymia and empathy in soldiers with this disorder. From among the aspects of the variables studied, ability to solve problem, self-respect, self-actualization and optimism, objective thinking and difficulty in emotion recognition, emotional susceptibility, reactive empathy, participatory empathy and empathy toward others had the greatest roles in the prediction of BPD, but the subscale of independence with BPD examined among the soldiers was insignificant. These results are predictable in the context of emotional maladaptation, emotional distress, and mental impairment in BPD.

Keywords: BPD, EI, Alexithymia, Empathy, Soldiers

Resumen

Debido a la prevalencia de BPD entre los soldados y la importancia de su salud mental, el objetivo del estudio fue examinar la relación entre la inteligencia emocional, la alexitimia y la empatía con BPD entre los soldados y evaluar si estas variables podrían predecir la PBD. El estudio fue transversal con diseño descriptivo. En este estudio, 150 soldados con BPD ingresados en el 505 Army Psychiatric Hospital, Teherán fueron seleccionados por muestreo de conveniencia y respondieron los siguientes cuestionarios: Inventario de Cociente Emocional Bar-On (EQ-I), Toronto Alexithymia Scale (TAS-20) y Mehrabian and Epstein Empathy Questionnaire (EQ) con análisis de datos realizado en SPSS. Los aspectos de EQ tuvieron una relación inversa y significativa con la DBP (r = -0.81), (p = 0.01) y la relación entre la alexitimia y la PBD fue directa y significativa (p = 0.46) r), (p = 0.01), y los aspectos de empatía y BPD se relacionaron de manera inversa y significativa (r = -0.26), (p = 0.01). Los resultados mostraron que los síntomas de la DBP podrían predecirse de alguna manera en función de la IE, la alexitimia y la empatía en los soldados con este trastorno. De entre los aspectos de las variables estudiadas, la capacidad para resolver problemas, la autoestima, la autorrealización y el optimismo, el pensamiento objetivo y la dificultad en el reconocimiento de emociones, la susceptibilidad emocional, la empatía reactiva, la empatía participativa y la empatía hacia los demás tuvieron los roles más importantes en el mundo. La predicción de BPD, pero la subescala de independencia con BPD examinada entre los soldados fue insignificante. Estos resultados son predecibles en el contexto de mala adaptación emocional, angustia emocional y deterioro mental en la DBP.

Palabras clave: BPD, EI, Alexitimia, Empatía, Soldados.

Introduction

Having a desirable personality is an ideal and significant point for the military forces. The studies have shown the prevalence of psychiatric disorders in modern society, especially among military personnel given the nature of their job, so that many people suffer from these problems and spend a lot on the cost of treating these disorders annually (Maleki et al., 2011). The latest studies in Iran show that of every 10 soldiers, 5 have mental and health problems (Khederi, 2014). Meanwhile, BPD with antisocial personality disorder is the most prevalent among soldiers in barracks and military centers (Rahnejat et al., 2006). In a study to examine the causes of psychiatric absenteeism in staff members referring to the medical commission in a military center from 2007 to 2013, 5233 soldiers were examined, of whom about 52.8% (2690) had personality disorder and the most common personality disorder were BPD (91.5%) and antisocial personality disorder (7.1%) (Shahmiri et al., 2014). In a study by Black et al. (2006) to examine the prevalence of BPD among 576 soldiers, it was found that about 43% of them (247) suffered BPD. BPD is known as a pattern of learning from instability in interpersonal relationships, self-image, emotions, and impulsivity beginning from early adulthood manifested in many areas (American Psychiatric Association, 2013). Although the cause of this disorder has remained unknown (Dubovsky & Kiefer, 2014), according to researchers, this disorder is due to factors like inheritance (Amad et al., 2014), Brain abnormalities (Tebartz van Elst et al. 2003; Schmahl et al., 2003) and early life experiences (Lobbestael & Arntz, 2015; Martín-Blanco et al., 2014). Significant cases of suicide cases (Nakar et al., 2016), severe functional degradation (Skodol et al., 2002), and multiple psychological disorders (Fornaro et al., 2016; Kohling et al., 2015) associated with this common disorder are among the psychological side effects imposing costly burdens on societies (Kazanasmaz H, Calik M. 2017). Moreover, self-mutilation and suicide among the soldiers are not accidental, so a flow of thoughts, behaviors, situations and interpersonal relationships often start before the duty begins (Sağ, S., Nas, Ö. F., Öztürk, A., Yeşilbursa, D., & Erdoğan, C. (2017). In addition, the availability of weapons and the opportunity to use them in places away from others is a major risk of suicide in the military forces (Mahon et al., 2005). Hosseini et al., in a study in 2004, examined the self-infliction characteristics of the soldiers admitted to 506 Army Hospital in Tehran, and 150 of the hospitalized patients and military outpatients who had self-infliction were among the sample.

The results showed that 74% of these patients had BPD and most of them had self-infliction in their upper extremities (93.3%). Furthermore, most (85.1%) self-inflicting patients had their self-infliction symptoms beforehand and the average cases of self-infliction were 9 times, and patients with a history of self-indulgence of 2 times were the most frequent. It is argued that signs of BPD are all indicative of problems in the process of emotional regulation, and symptoms such as impulsivity, self-harm, fear of abandonment, and analytical signs are abnormal responses to emotions. People with this disorder show these due to lack of enough skill to identify and control emotions (Zeidner, Matthews & Roberts, 2009). In other words, BPD is a disorder characterized by significant deficiencies in the ability to understand and regulate emotions and mood (Yen, Zlotnick & Costello, 2002) and have significant deficiencies in emotional abilities (Hertler et al., 2009; Sinclair & Feigenbaum 2012). One of these deficiencies is the issue of emotional intelligence (EI). Meyer, Salvey and Caruso (2008) consider IE to have four interrelated abilities: emotion perception in oneself and others, using emotions to facilitate decision making, emotional comprehension and emotion management. In a study by Shahmiri et al. (2016) to examine EI of duty staff, EI was associated with mental health disorders and its components such as physical symptoms, anxiety symptoms, social dysfunction, and depression symptoms. Thus, one of the factors directly affecting the mental health of a person during this period is EI. Intelligence is a structure that regulates emotions, so it is related to BPD (Webb & Mcmurran, 2008). Leible & Snell (2004) showed that students who had symptoms of BPD had a lower score in creativity than the control group, and that the boundary personality was associated with different aspects of EI including emotional clarity, emotional understanding, emotional regulation, personal emotional awareness, private emotional thought and emotional control. In their study, they concluded that those with BPD have a weaker perception of their emotions and have less capacity to overcome negative emotional experiences, which means less EI. Another factor that can be mentioned for these shortcomings is alexithymia. Alexithymia is defined as the difficulty in identifying and describing emotions (physical), difficulty in distinguishing between emotions and feelings, the ability to conceive and an outward and meaningless thought (Parker et al., 2003; Taylor et al. 1997). High levels of alexithymia are associated with high levels of general psychological pathology and ineffective interpersonal in those with BPD (Nicolò et al., 2011). The components of alexithymia create psychological distress in the individual placing the person in a vicious circle that ultimately causes alexithymia. The process of this vicious circle is thus that first, by creating a psychological inability in the person, his cognitive processing system is disrupted and the process of identifying and describing emotions becomes difficult (Bagby et al., 1994). A study by Antonia et al. (2012) on alexithymia in patients with BPD concluded that the disorder was associated with alexithymia and BPD patients had higher levels of alexithymia than the control group. Another factor in these disorders is the empathy skill. Empathy refers to the individual's ability to understand the psychological and mental conditions of others in the development and guidance of interpersonal relationships (Zaki & Ochsner, 2012).

Empathic abnormalities in BPD patients are related to mentalizing (understanding the behavior of others) (Bender & Skodol, 2007; Choi-Kain & Gunderson, 2008; Fonagy & Luyten, 2009).

Jeung & Herpertz (2014) investigated the interpersonal abnormalities of empathy and intimacy in BPD patients, aiming at comprehensive and widespread understanding of inferiority (empathy and intimacy) of patients with BPD based on biopsychological and behavioral studies to that time. The results showed that despite some contradictions, behavioral studies on BPD show a cognitive and emotional empathy and low quality of intimate relationships in borderline patients due to the low cognitive and subjective empathy abilities. In addition, the results of various studies show that the level of empathy in patients with BPD is variable, so that the patient showing higher degree of emotional expression while expressing nonverbal emotions, this increases the incidence of misunderstandings and inappropriate social behavior (Neidtfeild, 2017). Indeed, the patients with BPD show many emotional reactions, but they are inadequate in identifying and describing emotions (Antonia, 2012).

As BPD is one of the main syndromes of emotional problems with a crucial role in this regard, the study was conducted to identify emotional deficits in this disorder. Furthermore, due to the importance of improving the mental health of soldiers in duty, increasing their social function and their responsibility and preventing social and service injuries such as self-infliction and suicide and conflict in them, the study examined the different emotional aspects of these patients. This is done to provide an opportunity for a better understanding of their status and treatment interventions. Here, the discussion of emotional and social skills is important in BPD patients, because knowing the underlying processes of this disorder can help in understanding and treating it.

Materials and methods

The study was descriptive using a correlation design. This cross-sectional study was done on soldiers admitted to 505 Army Psychiatric Hospital the Islamic Republic of Iran Hospital in 2013, based on psychiatrist diagnosis and a structured clinical interview. Furthermore, getting a cut off score in BPD Questionnaire and the validity of diagnostic criteria, the fifth edition of the Diagnostic and Statistical Manual of Psychiatric Disorders (DSM-5) with BPD were the reasons for doing so. Moreover, 150 of these soldiers were selected through targeted convenient sampling. Having at least third grade guidance education, at least 18 years of age, and having a willingness to participate in the research were criteria for entering the study. Three to five admitted soldiers were trained each day, after explaining the objectives of the plan for the clients with the mentioned criteria; they were placed in the research and the confidentiality of recorded information were explained and the importance of their collaboration was emphasized. If they did not want to participate in the research, they would be excluded and after obtaining informed consent from them, (the verbal consent was enough) as a sample of research, entered the study. The patients with aggression were excluded due to lack of cooperation. Demographic information was completed with a questionnaire including age and education, number of self-reported and its causes, and then other questionnaires were provided to soldiers with the inclusion criteria. The research tools of this research were the following questionnaire: Iranian normed Bar-On EQ-I, with 90 questions and 15 subscales. The validity was calculated by Cronbach's alpha for male students as 0.74 and for female students 0.68 and for the total population 0.93 (Dehshiri, 2003), the validity of this questionnaire was calculated by exploratory factor analysis in Dehshiri (2003). From among the 13 factors in the factor structure of the North American sample (Bar-On, 1997), eight factors were valid for Iranian subjects. There is also a direct and significant relationship between the mean scores of each subscale and the total score of the whole questionnaire. All subscales in the questionnaire are directly related to the emotional intelligence variable. Toronto Alexithymia Questionnaire (TAS-20) has 20 questions, which is summarized in three subscales.

Besharat (2007) developed the Persian version of this scale and reported its validity using Cronbach's alpha for each sub-scale and the total score as 0.82, 0.75, 0.72 and 0.85, respectively. Hosseinzadeh et al. (2012) examined the scale validity through exploratory factor analysis and three factors were introduced as the main factors. According to the studies, one can conclude that this scale has a satisfactory internal consistency and a good validity. Mehrabian and Epstein's (EQ) empathy questionnaire has 33 questions and 7 subscales. Mehrabian and Epstein (1972) reported a coefficient of reliability of the scale of 0.84 and Cronbach's alpha of the questionnaire was 0.88. In addition, the test-retest method with a time interval of 20 days was also used with a reliability coefficient of 0.599, $P<0.001$. The positive and significant correlations between the scores of the scales with the scores of the balanced emotional empathy questionnaire showed the validity of this tool. In addition, all three questionnaires were designed in the form of a Likert scale. Finally, the data and variables were entered into SPSS20 and then analyzed by means of frequency, percentage, mean and standard deviation, analysis of variance and Kolmogorov-Smirnov tests, Pearson correlation and regression analysis and statistical analysis.

Results

The results of demographic analysis showed that of the 150 soldiers examined, 90.7% were single and 9.3% were married, and the mean and standard deviation of the participants' age were 22.50 and 3.36, respectively. In addition, the mean and standard deviation of the participants' service record were 7.02 and 6.30 months, respectively. Of them,17.3% of them had third grade guidance school education, 13.3% high school, 27.3% diploma, 6.7% associate' degree and 35.3% had a bachelor's degree and higher, and 75.3% of them were self-employed during the military service and 24.7% did not commit self-infliction during the period of service.

One of the main assumptions of regression analysis is the normal distribution of data. This presumption was examined by Kolmogorov-Smirnov test, and the results showed the insignificance at the level (P<0.05), meaning that the distribution of data is normal.

Table 1: Kolmogorov-Smirnov test to examine the normality of the variables.

p value	statistic	variables
0.095	0.068	EQ
0.13	0.124	Alexithymia
0.14	0.116	Empathy

Pearson correlation test was used to determine correlation between aspects of EI, alexithymia and empathy with BPD. Table 2 shows the correlation matrix of the variables examined in this study.

Table 2: Matrix of correlation between aspects of EI, alexithymia and empathy with soldiers' BPD.

Ratio coefficients r	Aspects	Mean	SD
**-0.68	4.809	18.45	Problems solving
**-0.58	6.251	16.62	Happiness
**-0.06	3.597	19.12	Independence
**-0.49	5.353	14.59	Bearing pressure
**-0.61	4.911	17.93	Self-flourishing
**-0.57	4.891	16.66	Emotional self-awareness
**-0.33	4.200	15.82	Realism
**-0.56	5.818	19.45	Interpersonal relations
**-0.56	5.270	17.81	Optimism
**-0.60	5.147	18.67	Self-respect
**-0.61	5.697	13.75	Impulse control
**-0.40	4.506	15.34	Flexibility
**-0.48	4.779	20.81	Social accountability
**-0.27	5.426	21.17	Sympathy
**-0.81	4.507	16.80	Self-expression
**-0.36	57.587	262.77	Total score of emotional intelligence
**-0.30	7.080	24.54	Difficulty in recognition of emotions
**-0.37	4.139	16.57	Difficulty in describing feelings
**-0.46	3.915	23.45	Objective thinking
**-0.36	12.388	64.57	Total score of Alexithymia
-0.16	5.210	20.43	Reactive empathy
**-0.34	2.749	15.86	Expressional empathy
**-0.12	3.835	17.66	Participatory empathy
**-0.120	4.184	18.91	Emotional susceptibility
**-0.25	2.272	12.63	Emotional stability
**-0.33	2.811	12.96	Empathy towards others
0.11	1.763	6.38	Control
**-0.26	12.711	104.83	Total score of emotional empathy

Figure 2: Dispersion between total score of alexithymia with BPD
Figure1: Dispersion between total score of alexithymia intelligence with BPD
Chart 1: Dispersion between total intelligence scales with BPD

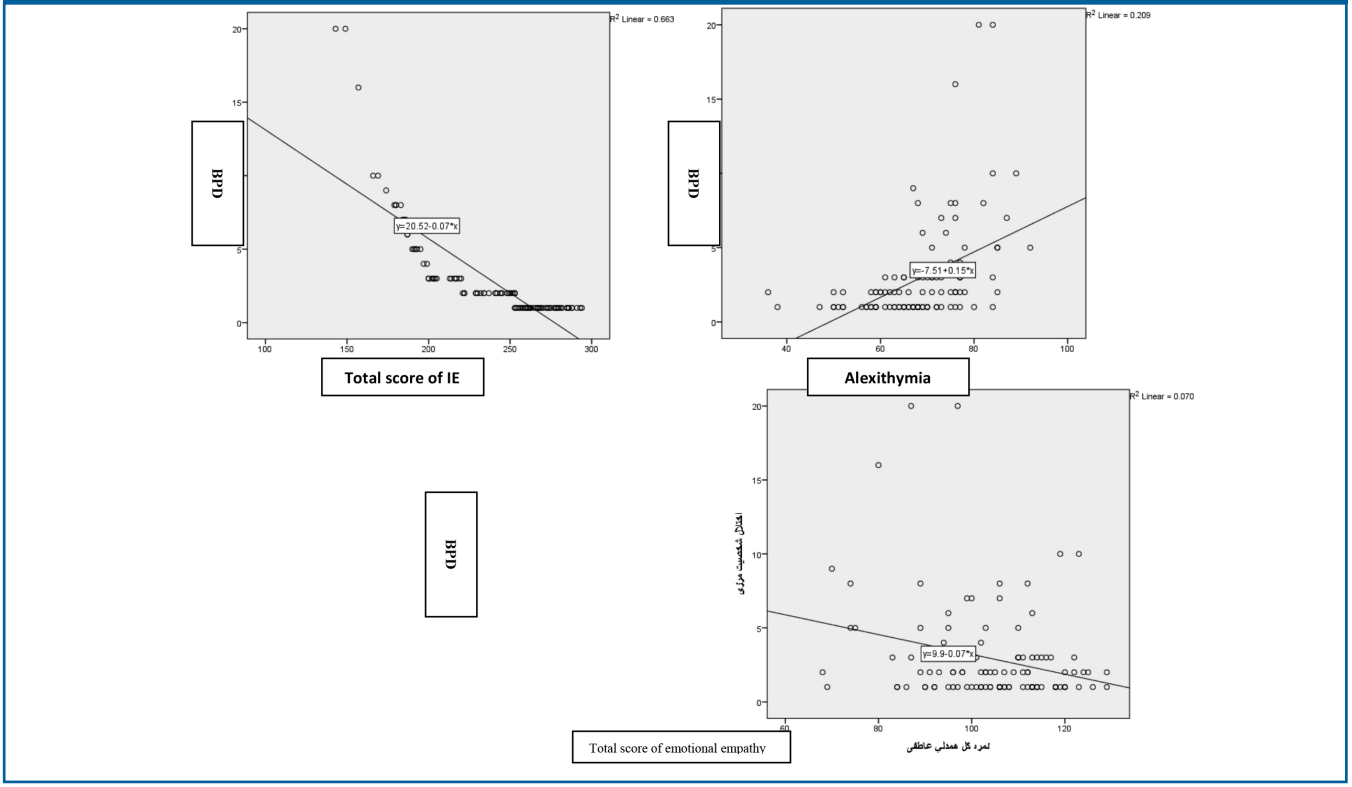

Chart 3: Distribution of total EI with BPD

According to the results of Table 2, the correlation of the variables was significant except for the independent scale, which provided the possibility of further analysis. There is another presumption for regression studies: the discussion of the relationship between the variables studied. This presumption is also confirmed regarding the research background in the field of EI, alexithymia, empathy, and signs of BPD. In addition, Scatterplot was used to plot schematic correlations.

In these charts, the middle line of the slope shows the relationship between total score of intelligence, alexithymia and empathy with soldiers' BPD. Since the relationships are reverse in Chart 1 and Figure 3, the gradient relationship shows that soldiers with BPD have less EI and empathy. In Figure 2, the relationship is direct, and the gradient relationship shows that soldiers with BPD have more alexithymia.

Table 3 shows the multi-correlation coefficient test and coefficient of determination related to the correlation between the total score of the research variables with BPD of the soldiers admitted to the military psychiatric hospital, based on which, the total score of EI, alexithymia and empathy with BPD of the admitted soldiers are correlated.

Table 3: Multiple correlation coefficient and coefficient of detection related to total score of intelligence, seduction and empathy with soldiers' BPD.

Estimated standard error	Adjusted coefficient of determination	Coefficient of determination	Multiple coefficient of correlation	
1.99	0.65	0.66	0.81	EI
1.89	0.20	0.21	0.46	Alexithymia
3.305	0.06	0.07	0.26	Empathy

Analysis of variance was used for confirming the linear relationship between the variables and BPD. The results in Table 4 show that as there is a significant linear relationship between total score of EI, alexithymia and empathy with BPD soldiers' admitted to military psychiatric hospital (P<0.01), regression model can be used for this data.

Table 4: Analysis of variance for confirmation of the linear relationship between total score of EI, alexithymia and empathy with BPD in soldiers.

P significance level	Relative value of F	Mean squares	Degree of freedom (df)	Sum of squares	Model
0.001(**)	218.08				Total score of EI
		863.684	1	863.684	Regression
		3.962	111	439.750	Residual
		----	112	1303.434	Total
0.001(**)	253.88				Total score of Alexithymia
		905.826	1	905.826	Regression
		3.582	11	397.607	Residual
		-----	112	1303.434	Total
0.001(**)	439.337				Total score of empathy
		1040.557	1	1040.557	Regression
		2.367	11	262.877	Residual
		-----	112	1303.434	Total

Significance at 0.01 (**)

Regarding the purpose of this study, the regression method was used to study the effect of variables on soldiers' BPD. The results of this test are presented in Table 5.

Table 5: The effect of EI, alexithymia and empathy on BPD.

P significance	t value	Beta coefficient	b coefficient	The variable inserted
0.001 (**)	17.015	-----	20.515	Constant value
0.001 (**)	-14.765	-0.81	-0.74	Total score of EI
0.001 (**)	-14.003	-----	20.515	Constant value
0.001 (**)	-15.902	0.46	0.36	Total score of Alexithymia
0.001 (**)	3.939	-----	20.515	Constant value
0.001 (**)	-2.887	-0.26	-0.29	Total score of empathy

The results of Table 5 show that the effect of EI on soldiers with BPD at the level (P<0.01) is statistically significant. In other words, soldiers with BPD have less EI. For one unit of SD in EI score, 0.81 unit increase will be observed in soldiers' BPD. In other words, EI is able to predict BPD. The effect of alexithymia on soldiers' BPD (P<0.01) is statistically significant. In other words, soldiers with a BPD have more alexithymia. For one unit of increase in standard deviation of alexithymia, 46.0 unit of increase of SD in BPD will be observed in soldiers admitted to the hospital. In other words, the alexithymia can predict BPD. The effect of empathy on BPD of soldiers referring to hospitals at the level of (P<0.01) is statistically and reversely significant. In other words, soldiers with BPD have less empathy. For one unit of increase in standard deviation of empathy, 0.26 unit of increase of SD in BPD will be observed in soldiers admitted to the hospital. In other words, empathy is able to predict BPD.

Discussion and conclusion

The results showed that EI can predict BPD, which is consistent with the results of previous studies (Mashhadi et al., 2010; Pirkhaleghi et al., 2014; Label and Snell 2004; Gardner & Calter, 2009), confirming the existence of emotional deficits in BPD patients. Some of the reasons and explanations associated with this consistency can be cited as a model that delivers a sense of intelligence. Bar-On does not only consider the internal relations of one with him in this model, but also examines elements such as interpersonal skills, adaptability, tolerance, and public creation (Bar-On, 2006). Correlation coefficient of EI aspects with soldiers' BPD showed that these individuals have low intrapersonal skills, including the aspects of emotional self-awareness, self-expression, self-respect, and self-actualization. However, the autonomy component in the present study could not the power to predict EI for BPD, whereas in one of the previous studies, the sub-independence scale had the highest relationship with BPD (Pirkhaleghi et al., 2014).

This part of the results needs more research, but according to the results of the present study, independence does not have a role in the prediction of BPD. It seems that the main problem of the soldiers is the severe experience of negative emotions, alexithymia and adjustment problems not a kind of extreme dependence on others that is another feature of those with BPD. Moreover, it can be concluded that these problems are predictable in line with the military life style, constraints, and stress in the military service, but the role of military training can be considered in terms of the independence component of these soldiers. For example, Danesh Fard and Zakeri (2011) examined the relationship between general education training and development of personality skills on 230 soldiers in one of the educational centers of NAJA and showed that military training had a positive and significant effect on personality skills and personal experience of soldiers. In addition, according to the results of the studies, among the fifteen aspects of EI, the ability to solve problem, self-respect, self-actualization and optimism had the highest share in the prediction of BPD. The weakness in problem solving is related to the compatibility problems of these individuals with the greatest relationship with BPD. Problem solving needs thinking and reflection on the nature of the problem, which is predictable due to the impulsiveness of these individuals. In addition, the mental factors of concern and anxiety in a military period can increase the likelihood of these problems. In addition, the overall creativity and personal emotions in these individuals are unstable, resulting in acute periods of depression, anxiety, or anger, and as a result they use self-infliction as a means of adjusting their personal emotions. As the results of the demographic questionnaire of these soldiers showed, about 75% of them had attempted self-infliction. According to Millon, these results show that the rapid and sudden changes in emotions and impulsive behavior in people with BPD can be verified due to the lack of organization and integration in personal psychological control, and the lack of coordination of behavior with the demands of the environment (Millon, 2004). The results on the aspects of alexithymia show that these aspects can predict BPD. These results confirm the previous studies (Berenbaum, 1996; Web and Macroman, 2008) in this regard, which explains the weakness in recognizing emotions as the main cause of the emotional problems of BPD patients. According to the results, objective thinking and difficulty in identifying feelings had the greatest share in relation to border troops, consistent with the theory of Taylor and Bagby (2000), stating that a person with high alexithymia has weakness in the cognitive processing system, making it difficult to identify and describe emotions. On the other hand, objective thinking is realistic and focuses on simple and objective things. A person with high alexithymia does not think logically and does not interpret the events, and instead of paying attention to his inner feelings and aspects cares about the uncertainties and external events. The inability in identifying emotions and focus on external aspects in identifying and describing them can lead to a person's weakness in differentiating emotions, which ultimately leads to a bipolar excitement, a feature found in BPD. Moreover, the results confirm the Linehan social biomedical theory of patients that states that BPD patients do not value self-esteem as a result of the discredited environment and try to think and feel in their surroundings not within themselves (Linehan, 1993). In addition, the results showed that empathy can predict BPD, and the subscales of emotional susceptibility, reactive empathy, participatory empathy and empathy toward others had the highest share in predicting BPD impairment, indicating a weakness in understanding the emotional conditions of others. These confirm the previous studies (Jong and Herpts, 2014) on empathy and BPD, showing a cognitive and emotional empathy in these individuals. Furthermore, the deficiency in empathy in these soldiers can be attributed to the inefficiency of subjectivity in patients with BPD, which can be discussed according to the studies by Bateman and Fongji (2004). They stated that BPD is a mental disorder, process mentalization which individuals use it to show the social world, which seems to be disrupted in patients with BPD.

The limitations of this study were the measuring tools limited to the questionnaire and the sample that could limit the generalizability of the results. In order to modify the limitations, it is recommended that other researchers apply these scales to non-soldiers and women with this disorder. In addition, in a structural equation modeling study, the results of this study should be extracted as a model so that it can be used as a therapeutic model for the initial prevention of trait or BPD at the community level. Given the behavioral problems in patients with BPD, a more comprehensive study with more soldiers should be done through systematic and continuous evaluation of mental health centers and military unit counseling. In case of similar results, appropriate therapeutic interventions and presentation should be provided to strengthen these variables to prevent or reduce trait signs or BPD.

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