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Original Article

Correlates of impulsive and hostile behavior in patients with borderline personality disorder and bipolar II disorder

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Abstract
Introduction: Patients with borderline personality disorder (BPD) suffer from a higher degree of impulsive and hostile behavior, compared with other psychiatric disorders. On the other hand, the impulsive behavior in these patients is different from the patients with type II bipolar disorder (BMD II). This study aimed to investigate the differences between patients with BPD and patients with bipolar disorder in the aggressiveness and impulsivity scales.
Methods: A descriptive-analytical study through a convenience sampling method was conducted on 117 patients with BPD (30 patients) and BMD II (87 patients) who completed the Buss and Perry's Aggression Questionnaire as well as the Barratt Impulsiveness Scale. The obtained data was analyzed in SPSS using Student's t-test, and its results were considered significant at $P < 0.05$ level.
Results: The two groups were significantly different in terms of attention and cognitive complexity of Barratt Impulsiveness Scales, hostility, and physical aggression. In addition, they significantly differed in terms of the total score of Buss and Perry's Aggression and Hostility Questionnaire. The scores of patients with BMD in the above-mentioned scales were higher compared with the BPD. Moreover, the marital status variable was significantly correlated with age, physical aggression, anger, anxiety, cognitive complexity, and perseverance.
Conclusion: The patients with BMD II experienced a higher degree of excitement in terms of hostility, violence and impulsivity measures; it is also different from the patients with borderline disorder in terms of type of aggressiveness.

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Introduction

The prevalence rate of borderline personality disorder (BPD) is estimated 5.9% among the general population, 10% for outpatients, and 20% among hospitalized psychiatric patients.[1,2] The disorder ranges between 30 to 60 percent among the clinical populations suffering from personality disorder.[3]

Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-V) defines BPD as a pervasive pattern of instability in interpersonal relationships, self-concept and emotions, which is characterized by impulsivity and starts at early youth. The disorder is characterized by a heterogeneous system of symptoms, involving problems in interpersonal, cognitive, emotional and behavioral aspects.[4]

The BMD in DSM-V is isolated from mood disorders and encompasses a diagnostic class, locating between the psychotic disorders and depressive ones. The 12-month prevalence rate in the United States is estimated to be 0.6% for BMD I, as defined in

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DSM-IV. The 12-month prevalence of BMD I in 11 countries varies between 0.0% to 0.6%. The lifetime prevalence of this disorder has a male to female ratio of 1.1: 1. The average age for the onset of BMD I is 18.[2] The prevalence of the BMD II is 2.4%. BMD causes disability, illness, and mortality due to suicide. It is characterized by episodic recurrences that causes perturbations in mood, sleep, behavior, perception, and cognition.[2]

Patients with BPD may suffer from anxiety, depressive or bipolar disorders. The BPD may have several symptoms similar to BMD, which even leads to misdiagnosis between the two. The study by Ruggero et al. indicated that approximately 40% of the patients with borderline personality have already been misdiagnosed as bipolar disorder, and the main reason is that the diagnostic criteria are similar in these two disorders.[5]

The relationship between these two disorders is challenging, which would make it difficult to distinguish BPD from different and distinct types of the BMD.[6,7]

Some reports have shown that the overlap between the two structures indicates that the BPD is, in fact, a part of the bipolar spectrum,[6,7] a model in which the BMD I and the BPD are placed on the opposite sides of a spectrum and the BMD II is placed between these two types, posing the greatest similarity between the borderline personality and the BMD II.

Also, another approach considers this misdiagnosis as a result of failure in the classification systems; these broad criteria lead to a misdiagnosis in BPD.[8] Another approach considers BMD as a risk factor for BPD, so that BMD in early adolescence may increase the risk of BPD.[9] Meanwhile, BPD might play a key role as a more common risk among patients with BPD than other personality disorders.[10] The common root of these disorders like the shared genes might be an explanation for symptom overlapping between these two disorders,[11] that requires further studies in this area. Also, the overlap between these two disorders in a 4-year longitudinal study has proven that the diagnosis of the BMD, rather than BPD, is significantly greater than other personality disorders.[10,12] The overlapping symptoms between the BPD and the BMD are also related to the emotional instability and the impulsivity criteria.[13]

In BPD, the emotional instability involves mood reactivity (e.g. the intensity of periods of lack of enjoyment, anxiety and irritability), but like depression, the days and hours do not take as much as what has been proposed by the DSM-IV-TR. This definition should distinguish between emotional instability in patients with borderline personality and the cyclic emotional instability involving the depressed mood.[14] In BMD, the emotional instability involves the frequency of rapid mood variations (happiness, sadness, irritability), which is stable for a few days as the time passes.[15]

The studies conducted to determine the difference between the two disorders indicated that patients with bipolar depression are mostly suffering from depression, mania and/or turning of depression and mania to each other, while in patients with borderline personality, anger, anxiety, mood reactivity, aggressiveness, and impulsivity are dominant.[16]

BPD and bipolar mood disorder II have a high rate of simultaneity.[17] So far, several researchers have reached the conclusion that BPD is an individual illness,[16,18] but some others have suggested that BPD may occur along with a range of emotional changes.[19,20]

Some researchers have chosen the center of these views and have suggested that BPD may be a cycling form of the BMD II.[21]

In the area of simultaneity between BPD and BMD II diagnostic criteria, both are characterized by increasing levels of impulsive behavior, emotional instability, and irritability. But a closer examination of these criteria shows that these features appear when we compare the disorders separately. For example, BPD is characterized by the "emotional instability" feature, which is generally defined as a mood persistence

reaction and the tendency towards "extreme restlessness, irritability, or anxiety", while the BMD II is characterized by the recurrence and a certain period of mood reactivity with a less reactivity.[22] Also, it seems that an impulsive act is a relatively stable aspect of BPD, but it is considered as a hypomanic-dependent measure of BMD II.[23]

According to the findings, the patients with BPD suffer from a higher degree of impulsive behavior and hostility, compared with the non-BPD patients.[24]

Also, in another study it was concluded that the impulsive behavior in patients with BPD is distinct from that in the BMD II patients.[16,25]

Methods

The study was of a descriptive-analytical type and the samples were selected conveniently as 87 and 30 for the BMD II and BPD groups, respectively. Due to assimilation, the samples of the BMD II group were selected in the depression phase. The data were analyzed using SPSS (version 20, SPSS Inc., Chicago, IL, USA) by the descriptive [mean, standard deviation (SD), frequency distribution tables and charts] and inferential (Student's independent t-test) statistics and $P < 0.05$ results were deemed to be significant.

The inclusion criteria were as follows: the diagnosis of BPD and BMD II, having a middle school education at minimum to answer the questions in the questionnaires, age of at least 18 (as the people younger than 18 are unable to perceive the diagnosis of personality disorder); the exclusion criteria were as follows: the concurrent diagnosis of BPD and BMD II, the risk of abuse or dependence diagnosis, the presence of psychotic symptoms, severe head trauma, mental retardation or some other cognitive impairments which lead to difficulty in understanding the test materials, and unwillingness to continue the study for any reason.

The Buss and Perry's Aggression Questionnaire and the Barratt Impulsivity Scale: The Buss and Perry's Aggression Questionnaire is a new version of the hostility questionnaire revised by Buss and Perry. This questionnaire is a self-reporting tool, which involves 29 items and four sub-scales: physical aggression, verbal aggression, anger, and hostility.[26]

In Samani's sectional study, the coefficient of reliability in this questionnaire through retest method was equal to 0.78. Also, comparing the factors between boys and girls revealed that the former scored significantly higher than the latter in three factors: aggressiveness ($P < 0.001$), anger ($P < 0.001$) and paranoia ($P < 0.001$). Also, the high correlation of the factors with the total score of the questionnaire, the weak correlation of the factors with each other, and the values of alpha coefficient indicated the good efficacy and efficiency of this questionnaire used by researchers, specialists and psychologists in Iran. This questionnaire has an acceptable reliability and validity. The results of retest coefficient for the four subscales (an interval of 9 weeks) were 0.80 to 0.72, and the correlation results between four subscales were 0.38 to 0.49. The Cronbach's alpha coefficient was used to measure the internal reliability of the scale, and the results showed the internal consistency in physical aggressiveness 0.82, verbal aggressiveness 0.81, anger 0.83, and hostility 0.80.[27]

The Barrat Impulsiveness Scale: The Barrat Impulsiveness Scale (30 items) is a test employed for measuring the methods (attention, motor, self-control, cognitive complexity, perseverance, cognitive instability) on which people think and behave. Participants responded to it based on a 4-point scale: Rarely/never (1), sometimes (2), often (3), and almost always (4).[28]

Reliability and validity of Barratt Impulsiveness Scale has been studied by Ekhtiari et al. and the Cronbach's alpha value was 40% to 83%. A meaningful correlation has been reported between other questionnaires and the Barratt scale. With respect to these findings, this questionnaire is of desirable reliability and validity for measuring the impulsivity and risk-seeking behaviors.[28]

Results

In the selected samples, the gender distribution was 66 males and 51 females. Table 1 shows the demographic data.

The average age in all participants was 29.75 with the SD of 7.37, the mean age ± SD in the borderline group and bipolar group were 25.20 ± 4.72 and 34.30 ± 10.02 respectively and the difference between the two groups was statistically significant.

The information in table 2 shows the average scales and the independent t-test results between the two groups, which in most scales, the bipolar II group had a higher average compared with the borderline one.

Table. 2 shows that the two groups were different in the measures of physical aggression, hostility, aggressiveness, and attention scale of the impulsive behaviors and results were statistically significant. But, there was no significant difference in the measures of Buss and Perry's verbal aggression and anger, as well as in the scales like the motor or motion, self-control, cognitive complexity, perseverance, instability, and total Barratt Impulsiveness.

In the above-mentioned measures, whether significant or not, the average BMD II group was higher than BPD patients.

Demographic variables, aggression and impulsivity were studied separately in two groups, using the Pearson and Spearman's correlation coefficient with $P < 0.05$.

In patients with BPD, the age variable was negatively correlated with rage, anger, self-control, and perseverance; the gender variable was positively correlated with physical aggression and cognitive instability; the education variable negatively correlated with verbal aggression, attention and perseverance, and the marital status was negatively correlated with verbal aggression, anger, motor (motion), self-control, cognitive complexity, and perseverance.

Female patients with BPD suffered from physical aggression and cognitive instability more than the males.

In patients with BMD, the age variable was positively correlated with verbal aggression, anger, attention, cognitive complexity, perseverance, and cognitive instability; also, the gender variable was correlated with physical aggression, verbal aggression, anger, attention, motor (motion), self-control, cognitive complexity, and perseverance; the education variable with age, anger, attention, motor (motion), self-control, cognitive complexity, and cognitive instability; and finally, the marital status variable was significantly correlated with age, physical aggression, anger, anxiety, cognitive complexity, and perseverance.

Married bipolar patients had higher scores in physical aggression, rage and anger in comparison with the singles.

Discussion

Not many resources are available on the subject of the study; hence, it is feasible to compare them with the quantitative studies.

So far, such a study has not been conducted and it has received little attention from other researchers.

According to the results bipolar patients suffered from a higher degree of excitement than the patients in the borderline group, in terms of hostility, violence and impulsivity acts.

Table 1. The descriptive demographic statistics

Variables		Borderline group [n (%)]	Bipolar group [n (%)]
Gender	Male	12 (40)	54 (62.06)
	Female	18 (60)	33 (37.93)
Education	Illiterate	0 (0)	0 (0)
	Primary school	0 (0)	6 (56.89)
	Guidance/high school	12 (40)	26 (29.88)
	Diploma	9 (30)	28 (32.18)
	Academic	9 (30)	27 (31.03)
Marital status	Single	18 (60)	34 (39.08)
	Married	12 (40)	53 (60.91)

Table 2. The average scales

Variables		Borderline group		Bipolar group		F	T	df	P
		Mean	SD	Mean	SD				
Buss and Perry's Aggressiveness Questionnaire and hostility	Physical aggressiveness	24.80	7.78	28.41	8.75	3.92	-2.00	115.00	0.040
	Verbal aggressiveness	16.20	3.80	17.20	3.53	0.09	-1.27	47.42	0.200
	Anger	23.30	5.95	24.71	4.75	7.57	-1.31	115.00	0.190
	Hostility	20.80	6.15	26.35	5.86	0.006	-4.31	48.40	< 0.001
	Total scales of aggressiveness and hostility	85.10	18.97	96.69	17.44	0.23	-2.94	47.05	0.01
Barrat Impulsive Scale	Attention	11.20	4.01	13.81	2.98	6.53	-3.77	115.00	< 0.001
	Motor or motion	16.30	4.94	14.51	4.86	0.14	1.71	49.72	0.090
	Self-control	14.10	3.50	15.36	4.42	0.001	1.59	63.20	0.110
	Cognitive complexity	12.80	2.26	14.20	2.61	2.98	-2.81	57.58	0.060
	Perseverance	9.30	2.57	8.96	1.59	14.64	0.83	115.00	0.400
	Cognitive instability	7.60	2.45	7.70	3.21	3.61	-0.17	65.66	0.850
	Total Barrat impulsivity	71.30	13.59	74.57	13.18	0.03	-1.14	49.13	0.250

SD: Standard deviation; df: Degree of freedom

DSM-V introduces the BPD as a pervasive pattern of instability with impulsivity in the early adulthood. Our study also showed relatively high levels of impulsivity in these people and the obtained mean age of 25.20 was lower than BMD II group, but it was higher compared with that of the DSM-V.

The average age for the onset of BMD in the DSM-V has been reported 18,[2] while in our study, the mean age of the people in the study was 34.30, which is not consistent with the previous findings. However, it is noteworthy that the mean age of participants in our study has been determined based on their current age, not on the onset age of the illness.

Zimmerman and Morgan associated the overlapping symptoms of BPD and BMD with emotional instability and impulsivity criteria.[13] Considering this overlap and referring to the above study in our research, the degree of impulsivity among BMD II participants was higher than BPD, indicating that people in the BMD II group experienced higher and significant degree of this dimension.

The studies conducted to determine the difference between these two disorders in patients with BPD have reported great and dominant anger, anxiety, mood reactivity, aggression and impulsivity.[29] In our study, in contrast to these findings, the impulsivity and aggressiveness measures among BMD II patients have been significantly higher than BPD people.

Swann et al. considered impulsivity as a symptom of BMD,[29] which was present in both groups, and the patients with BMD had a higher degree of impulsivity.

Some suggest that impulsivity is a stable feature of BPD.[30] Benazzi has reported relatively higher impulsivity in BPD, which is inconsistent with our findings, because the impulsivity has been higher in BMD II.[25]

Comparing the tempers and schemes, among which was irritability, Nabizadeh-Chianeh et al. have pointed out that these traits were higher in BPD patient, compared with BMD,[31] which is inconsistent with our findings.

Along with the study of Khosravi and Rahmatinejad which has not reported a significant difference among BPD and BMD people in terms of anger,[32] though, the average score of anger has been relatively higher in BMD than BPD.

Conclusion

In our study, patients with BMD II experienced a significantly higher degree of excitement in terms of hostility, aggression and impulsivity measures. They were also different from the patients with BPD in terms of the type of aggressiveness. In these patients, aggressiveness occurred mostly in the form of physical and corporal aggression.

With respect to the theories which assume that the type II BMD and BPD are in the same range, it seems that type II BMD is the most severe kind of BPD in terms of impulsive behaviors, hostility, and aggression.

Married bipolar patients had higher scores in physical aggression, rage and anger in comparison with the singles. While, more female patients with BPD suffered from physical aggression and cognitive instability than the males.

In the future studies, samples with the same numbers in terms of gender may be used. Due to the deficit in the emotional processing, this variable will be added to the studied ones in either category of the future studies.

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Authors' Contribution

Ali Reza Shafiee-Kandjani and Asghar Arfaie designed the study, Amir Bozorg-Esfangareh and Aydin Arfaei collected the data, Salman Safikhanlou analyzed and interpreted the data, Mohsen Jafarzadeh- Ghareziaaddin and Salman Safikhanlou drafted the work and all authors have revised and read the final draft.

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Conflict of Interest

Authors have no conflict of interest.

Ethic Approval

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