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Comparison of Borderline Personality Disorder Patients' Emotion Regulation, Mindfulness, and Self-compassion with Healthy Individuals

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Abstract

Introduction: People with Borderline Personality Disorder (BPD) experience extreme mood swings, unstable relationships, and difficulty controlling emotions. The present study investigated the comparison of emotion regulation, mindfulness, and self-compassion with healthy individuals.
Method: The present study was conducted by using a causal-comparative research design. A 149 convenience sample of the adolescent general population was recruited in the healthy group with no known psychiatric disorders and BPD via psychiatrists and clinical psychologists by utilizing snowball sampling in the year 2021-2022 in Tehran. Participants were recruited with age, gender, and education matched healthy control. The research tools included the Difficulties in Emotion Regulation Scale (DERS), the Five Facet Mindfulness Questionnaire (FFMQ), and the Self-Compassion Scale (SCS). A MANOVA and an ANOVA test were performed to analyze the data using SPSS version 25 with a two-tailed 5% level of significance.
Results: The findings showed that the mean scores of emotion regulation (34.44±5.86), mindfulness (96.47±14.79), and self-compassion (71.30±9.08) were lower in the group with borderline personality disorder compared to emotion regulation (48.54±7.33), mindfulness (136.74±13.41), and self-compassion (91.50±10.81) of the healthy group. In this study, a p-value <0.05 was considered statistically significant.
Conclusion: BPD patients reported poor emotion regulation, mindfulness, and compassion compared to a healthy control group. To these results, we suggest that teaching emotion regulation skills, mindfulness, and self-compassion to BPD patients can be crucial in the treatment of BPD.

Keywords: Emotion Regulation, Mindfulness, Self-compassion, Borderline Personality Disorder, Healthy, Adolescents

Introduction

A severe personality disorder characterized by distinct features, Borderline Personality Disorder (BPD), can be identified as early as adolescence [1]. The prevalence of moderate BPD in the population is estimated at 1.6% but may be as high as 5.9% [2]. Chapman (2019) has shown that borderline personality disorder is characterized by a disorder of controlling emotions. In other words, it is the inability to regulate emotions in a way that allows one to pursue important goals or behave effectively in many different settings [3]. BPD symptoms are associated with poor physical health symptoms (such as headaches, dizziness, and stomach pain) eight months later, according to the results of a study [4]. According to the study, emotional dysregulation, particularly an inability to access emotion regulation strategies, and emotional clarity, mediates the relationship [4]. Compared to the Health Control (HC) group, people with BPD had statistically significantly higher levels of emotional dysregulation, used more maladaptive emotion-regulation strategies, and had lower levels

of mindfulness and self-compassion [5].
Previous research has shown that individuals suffering from BPD experience difficulties with mindfulness [6]. In a previous study, by controlling demographic (age and gender) and psychopathological variables, the results showed that the dimensional scores for schizotypal, narcissistic, and obsessive-compulsive personality disorders were characterized by deficiencies in mindfulness; antisocial personality disorder was characterized by deficiencies in self-control; paranoid personality disorder was characterized by deficiencies in mindfulness and self-compassion; histrionic personality disorder was characterized by deficiencies in mindfulness and self-control; avoidant and dependent personality disorders were characterized by deficiencies in self-knowledge and self-compassion; and finally, the dimensional scores of borderline personality disorder were characterized by deficiencies in all variables [7]. Mindfulness and self-compassion are related to psychological well-being and can be regarded as personal resources [8]. Mindfulness implies being aware of the present moment and paying purposeful attention to one's actions, thoughts, emotions, and physical states without judging them [9]. Self-compassion and mindfulness can be regarded as personal resources; they can also promote psychological well-being [10]. Thus, they have the potential to influence (i.e., moderate) how stressors are perceived and handled [11]. A study conducted by Scheibner et al. demonstrated that self-compassion mediated the relationship between mindfulness and BPD symptom severity, as well as between mindfulness and emotional dysregulation. Self-compassion seems to be one psychological process that could explain the relationship between mindfulness and BPD symptoms [6]. Self-compassion is thought to originate in early childhood interactions with caregivers who model compassion in the context of a secure attachment relationship, thereby facilitating the development of compassionate inner dialogues in the child [12, 13]. It is a healthy way of relating to oneself based on a desire to do good rather than harm [14]. Research has shown again and again the importance self-compassion in a person's life, and the list of evidence keeps growing. Self-compassion is connected with more happiness, greater life satisfaction, better emotional regulation, a muted sense of self-criticism, and a better interpretation of academic failure, to mention just a few of the advantages [12, 14]. Adverse experiences in childhood have been established as a risk factor for developing borderline features, and self-compassion has been proposed as a protective factor [1]. The previous results indicated that self-compassion was strongly associated with well-being among adolescents, as well as adults [12]. A study among a sample of Portuguese adolescents exhibited higher borderline features, higher self-judgment, isolation, identification, and common humanity. These findings showed which self-compassion mechanisms should be particularly cultivated, possibly having a positive effect on adolescents who had childhood experiences of subordination and threat and current borderline features [1]. BPD in the Iranian society has not been compared with a Healthy Control (HC) recently. However, clinical observations speak to an increase in the prevalence rate of the disorder in the Iranian adolescent society. BPD is associated with an increased risk of self-harm, suicide, and non-suicidal injury, and has serious repercussions for patients, their families, and the whole o society. Further studies are warranted to examine factors that contribute to the Iranian society's development of this disorder. The results of such investigations are not only useful in improving our theoretical understanding of the disorder and developing prevention and intervention programs but are also relevant to social problems. This study aims to examine how BPD patients differ from those without the disorder in terms of mindfulness, self-compassion, and emotion regulation in light of the relationship between emotion regulation, mindfulness, and self-compassion.

Method

The present study was conducted by using a causal-comparative research design. A 149 convenience sample of the adolescent general population was recruited in the healthy group with no known psychiatric disorders and BPD via psychiatrists and clinical psychologists and by utilizing snowball sampling in the year 2021-2022 in Tehran. Participants were recruited with age, gender, and education matched HC. Based on G power software's alpha of 0.05 and 80% power, a minimum of 200 participants were needed to determine group comparisons. Participants were enrolled into the study if they passed the following inclusion/exclusion criteria: verified age under 18 years old; no suicidal attempts during the past six months; no history of neurological disorders or psychiatric disorders with psychotic features; passing common exclusion criteria; lack of consent to complete questionnaires, incomplete questionnaires, and provided written informed consent to participate in this study. Accordingly, data has been gathered from 69 participants diagnosed with BPD and from 80 healthy participants. Eventually, 149 questionnaires were filled out and formed the basis for statistical analysis. To collect samples from the university, necessary arrangements were made after preparing the questionnaires. All participants were met individually. Participants were informed of the purpose of the research, the confidentiality of the information, and their voluntary participation upon arrival. All participants who consented to take part in the study received questionnaires. It should be noted that to eliminate the fatigue effect, the questionnaires were presented in random order. The participants were informed about all ethical considerations, such as the aims of the study, their right to withdraw at any time during the study, and the confidentiality of their data. A MANOVA and an ANOVA test were performed to analyze the data using SPSS version 25 with a two-tailed 5% level of significance.
The tools used in the present study were as follows:

Cognitive Emotion Regulation Questionnaire (CERQ): This questionnaire is a 36-item questionnaire measuring

cognitive emotion regulation strategies applied after having experienced negative life events or situations [15]. Cognitive emotion regulation strategies are measured on a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). The instrument assesses nine 4-item dimensions: Self-blame, Blaming others, Acceptance, Refocusing on planning, Positive refocusing, Rumination, Positive reappraisal, Putting into perspective, and Catastrophizing. Therefore, subscale scores can range from 4 to 20 with higher subscale scores indicating greater frequency of use of the specific cognitive strategy. Cronbach's alpha coefficients of the subscales in this study ranged between .60 (acceptance) and .89 (positive refocusing) [15]. The Iranian version of the questionnaire has been validated by Dadkhah et al. [16]. In the present study, Cronbach's alpha coefficient was 0.81 for the scale.

Five Facet Mindfulness Questionnaire (FFMQ): Baer et al. developed the FFMQ, a self-report questionnaire with 39 items [17]. The purpose of this questionnaire is to evaluate five aspects of mindfulness in daily life (i.e., observing, describing, acting with awareness, non-reactivity, and non-judging). Likert scales are used to score the FFMQ. A total of five aspects of mindfulness are assessed on the FFMQ, including acting with awareness (Items 5, 8, 13, and 18), describing (Items 16, 22, 32, and 37), observing (Items 15, 20, 26, and 31), non-judgment (Items 14, 25, 30, and 35), and non-reactivity (Items 9, 19, 21, and 24). Items were rated from 1 = never or very rarely true to 5 = very often or always true [17]. The internal consistency of the factors was good, and the alpha coefficient for the non-reactivity, description, observation, action with mindfulness, and nonjudgmental was 0.75, 0.91, 0.83, 0.87, and 0.87, respectively [18]. Furthermore, in a study conducted on the validation and reliability of this questionnaire in Iran, the test–retest correlation coefficients of the FFMQ were between r = 0.57 and r =. 084 [19]. In the present study, Cronbach's alpha coefficient was 0.86 for the scale.

Self-Compassion Scale (SCS): The tool is a 26-item self-report scale developed by Neff in 2003 [20]. It includes six subscales of self-kindness (5 items), self-judgment (5 items), sense of common humanity (4 items), mindfulness (4 items), and over-identification (4 items). Participants are required to answer the questions on a five-point Likert scale from 0 (almost never) to 4 (almost always)[20]. The average score of these subscales (reverse scores included) gives the overall score of self-compassion. Research on the preliminary validation of this scale has shown that all six subscales have a high internal correlation, and the confirmatory factor analysis has shown that a separate factor of self-compassion explains this internal correlation. There is a vast body of evidence for the reliability of the scale [20]. The internal reliability of the SCS is consistently high in different studies with a wide variety of populations, suggesting that all SCS items are inter-correlated satisfactorily. Results from a study showed that the scale had an internal consistency of 0.92 and a test-retest reliability of 0.93 [12]. The results of a study applying confirmatory factor analysis for an Iranian sample supported the 6-factor structure of the scale [18]. For an Iranian sample, the Cronbach alpha coefficient was estimated to be over 0.80 for the total scale [21]. In this study, Cronbach's alpha was reported as 0.69 for the reliability of the questionnaire.

Results

The current study examined self-compassion among BPD adolescents (N = 69; Mage = 16.2) and included a sample of healthy adults as a comparison group (N = 80; Mage = 15.1). Regarding educational level, these adolescents were in grades seven to 12. There were 104 females (69.7%) and 45 males (30.2%). The two groups did not differ significantly on gender (chi-square test: $\chi 2 = 1.4$, $p = 0.18$) in levels of education (chi-square test: $\chi 2 = 8.4$, $p = 0.16$) or age (ANOVA: ($F(1,147) = 0.3$; $p = 0.52$).

In Table 1, the means and standard deviations of the scores for emotion regulation, mindfulness, and self-compassion are given for both groups. As observed, at the level of descriptive statistics, the mean scores for all variables are lower in the BPD group compared to the HC group.

Multivariate analysis of variance (MANOVA) was used to compare emotional disorders in both groups. Before applying MANOVA, the assumptions of this test must be met. Therefore, Box's M tests were used to check the similarity matrix of variables between groups. The results showed that this condition was met (P = 0.5, F = 1.36, Box's M = 23.41). Levene's test was also used to measure the equality of error variance of variables between groups. The results showed that the significance level for all variables is greater than 0.05, which fulfills the condition of homogeneity of variances. The results of the MANOVA showed a significant difference between the groups in the linear combination of all variables (P>0.001, F=53.394, Wilks' Lambda=0.201).

As it can be seen in Table 2, the significance levels of all tests allow the use of MANOVA. This indicates that there is a significant difference between patients with BPD and healthy people in terms of one of the dependent variables.

Table 1. Descriptive Variables

Groups	Variables	Mean ± SD	Min	Max
BPD	Emotion regulation	34.44±5.86	10	67
	Mindfulness	96.47±14.79	39	190
	Self-compassion	71.30±9.08	26	130
Healthy Controls	Emotion regulation	48.54±7.33	11	70
	Mindfulness	136.74±13.41	39	195
	Self-compassion	91.50±10.81	27	127

Table 2. Results of Multivariate Variance Analysis on the Scores of Variables in Both Groups

Test Statistic	Value	F	df	df error	P
Pillai's Trace	0799	313.394	3	147	0.001
Wilks' Lambda	0.201	53.394	3	147	0.001
Hotelling's Trace	3.984	53.394	3	147	0.001
Roy's Largest Root	3.984	53.394	3	147	0.001

Table 3. Results of One-variable Analysis of Variance in the text of Manova on the Scores of Variables in Two Groups

Dependent Variable	SS	DF	MS	F	P-value
Emotion regulation	6208.60	1	6208.60	48.38	0.001
Mindfulness	4888. 267	1	4888. 267	43.09	0.001
Self-compassion	5126.604	1	5126.604	46.39	0.01

As it can be seen in Table 3, there is a significant difference between patients with BPD and healthy people in terms of emotion regulation, self-compassion, and mindfulness, (F=48.38; P<0.001), (F=43.09; P<0.001), (F=46.39; P<0.001), respectively. In other words, in terms of variables, the healthy group is higher than patients with BPD.

Discussion

This study aimed to investigate emotion regulation, mindfulness, and self-compassion abilities in BPD, compared to HC. The results confirmed our hypothesis that people suffering from BPD had lower levels of emotional regulation, mindfulness, and self-compassion levels than HC participants. The first findings showed that BPD, compared to HC, have lower emotion regulation.

In the present study, the findings are consistent with those of earlier studies [1, 5, 6, 22]. Moreover, the findings of the study are in line with the results of a meta-analysis conducted by Daros and Williams [23], which found that symptoms of BPD were associated with a lower frequency of adaptive emotion regulation strategies (i.e., problem-solving and cognitive reappraisal) and a greater frequency of strategies that reduce negative affect less effectively (e.g., suppression, ruminating, and avoidance [23].

Researchers identified 55 studies comparing BPD patients with psychiatric and non-psychiatric comparison groups for emergency management strategies. Compared to non-psychiatric controls, individuals with BPD reported more use of maladaptive and less use of adaptive ER strategies. In comparison with psychiatric comparison groups, BPD individuals reported a greater degree of self-criticism and avoidance [24]. Based on self-reported ER choice profiles, Varma et al. concluded that patients showed maladaptive ER choice profiles compared with HCs. On the behavioral level, there was no difference between the groups when it came to distraction and reappraisal [22]. A different result was found in an adolescent sample by Ibraheim et al., in which only two subscales ("limited access to strategies" and "impulse control difficulties") differed significantly [25]. The BPD group is also characterized by negative appraisal biases towards interpersonal information when compared to a healthy or clinical group [22, 26], as well as a negative bias in emotion recognition, attributing negative emotions to neutral facial expressions [27].

To explain these results, it can be stated that one aspect of emotion regulation in BPD is emotional expression, which includes the language or verbal and nonverbal behaviors used to communicate one's emotional experiences [28]. The biosocial model of BPD theorizes that during development, individuals with BPD are alternately reinforced by caregivers for heightened emotion or the negative valence of emotional expressions (e.g., I'm "enraged" versus "annoyed"). Such early environments are theoretically incapable of training individuals with BPD to understand, accurately identify, and express their emotions [29]. Such misrepresentation appears to lead to misunderstandings and discrediting of individuals with BPD, exacerbating their emotional dysregulation over time [22, 29].

Another finding showed that mindfulness was lower in BPD groups. The finding is consistent with the current literature, which shows mindfulness across both clinical and nonclinical populations was different [6, 8]. Scheibner et al., using behavioral tasks to characterize problems in mindfulness in BPD showed that although people with BPD tend to mind-wander longer and more frequently, their awareness of mind-wandering seems unaffected. This suggests that mindfulness difficulties can be reported by people with BPD and that therapists can build this awareness through mindfulness-based treatments for BPD [30]. Previous research suggests that both rumination and low mindfulness contribute to the development and maintenance of BPD symptoms. Increased BPD symptoms predicted both decreased mindfulness and increased rumination. These findings suggest that low mindfulness, rumination, and BPD are closely related [31]. Furthermore, Fossati et al. showed that mindfulness scores were negatively related to the need for approval and relationships as secondary attachment scales. Finally, mindfulness scores were negatively correlated with several BPD features. Mediation analyses revealed that the relationship between the need for approval and BPD was fully mediated by the effects of mindfulness [32]. In this study, three diagnostic groups among individuals with Obsessive-Compulsive Disorder (OCD), major depressive disorder, or BPD scored lower on all the aspects of mindfulness compared to the HC group. The OCD group had a higher overall score of mindfulness aspects compared to the BPD group and scored higher in the description of the FFM compared to the BPD and MDD groups. The scores of non-judgmental aspects were significantly lower in all three diagnostic groups compared to the HC group [33].

To explain this finding, Schmidt Gómez stated that

metacognitive awareness has been described as a primary cognitive mechanism within mindfulness meditation that is associated with an individual's decentering ability. Decentering is defined as the capacity to observe one's thoughts and feelings in a non-attached manner [34]. Decentering allows people to shift their perspective and to dis-identify themselves from the contents of their experience (thoughts and emotions), while perceiving these experiences as transitory mental events, instead of identifying with them or believing that they are reflections of a static self or reality [35]. Decentering capacity has been proposed as a mediating mechanism in patients with BPD, which is diminished [36].

According to the research results, self-compassion has been lower in the BPD group. This finding is consistent with previous studies [1, 5, 6]. Self-compassion components mediate the relationship between adverse experiences in childhood and borderline features in adolescents [23], also emotion regulation, mindfulness, and self-compassion among patients with BPD have lower scores, compared to HC subjects [5]. Additionally, Scheibner et al., showed that self-compassion mediates the relationship between mindfulness and BPD symptoms [6]. Moreover, research literature showed that self-compassion is associated with adaptive emotion regulation and coping across both clinical and nonclinical populations, who may experience varying degrees of invalidation in their developmental experiences. The findings suggest that self-compassion acts as a general correlate of psychological health, likely through promoting healthier coping strategies (e.g., less avoidance]), which in turn is associated with lower symptoms of BPD. For individuals who underwent repeated experiences of invalidation, adopting a self-compassionate perspective or predisposition may help lower the degree of shame and self-invalidation that may result from these experiences [11].

Gilbert theorizes that it is the inability to flexibly move between these affected regulations systems, often manifested as having limited capacity to access the soothing system, which results in psychological distress and mental ill health. His theory is grounded in neuroscience, attachment theory, and evolutionary psychology [37]. According to Gilbert [37], self-compassion acts as a protective factor by increasing individuals' capacity to access and activate the self-soothing system, resulting in balanced and adaptive responses to life's adversities, rather than less-adaptive responses such as anger, shame, or intolerance of distress. Self-compassion is an emotionally positive self-attitude that should protect against the negative consequences of self-judgment, isolation, and rumination (such as depression). Because of its non-evaluative and interconnected nature, it should also counter the tendencies towards narcissism, self-centeredness, and downward social comparison that have been associated with attempts to maintain self-esteem [12].

Given the potential for manipulation of study variables, it is imperative to augment the study variables related to borderline personality disorder (BPD) to mitigate adverse personal and interpersonal effects experienced by individuals utilizing diverse therapeutic approaches. Considering the utilization of a non-random sampling method and the limited number of samples analyzed in this investigation, it is conceivable to claim that the external validity of the study has been impacted by these factors. An additional aspect that was not examined within the confines of this study pertains to the evaluation of demographic variables among the research subjects. One of the limitations of this study pertains to the susceptibility of self-report questionnaires to engender biased responses in individuals, which in turn could introduce bias into the recorded data. This implies that the precision of the responses is diminished.

Conclusion

It appears that the findings of this study provide support for comparing the symptoms of healthy people with those of people with BPD. The study also showed that emotional regulation, mindfulness, and self-compassion were lower compared to an HC group.

Conflict of Interest

The authors declare no conflicts of interest.

Ethical Approval

The Ethics Committee of Central Tehran University approved the project (IR. IAUCTB. REC.1401.068).

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