



Investigating the relationship between mindfulness, emotional regulation, and theory of mind in bipolar patients

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Abstract

Introduction: Bipolar disorder is a debilitating illness. Bipolar patients often have problems regulating emotions, which leads to poor social skills. Therefore, we investigated mindfulness, emotional regulation, and theory of mind in bipolar patients.

Materials and Methods: In this present study, the statistical population consisted of all patients with diagnosed bipolar disorder referred to the rehabilitation center for chronic neuropsychiatric patients in Mashhad City, Iran, in March-April 2024. We analyzed the data using SPSS 20, Pearson coefficient test, and regression analysis.

Results: We found a significant relationship between mindfulness and emotion regulation. The relationship between the conscious mind and adaptive emotional regulation was positive, while there was a negative relationship between the conscious mind and maladaptive emotional regulation.

Conclusion: There is a relationship between mindfulness, emotional regulation, and theory of mind in bipolar patients.

Keywords: Bipolar disorder, Emotional regulation, Mindfulness, Theory of mind

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Introduction

Bipolar Disorders (BDs) are severe and debilitating psychiatric disorders due to chronic duration and presented by depression or mania episodes. Patients with bipolar disorders have lower psychosocial function than general populations (1).

Approximately 40 million individuals in the world suffer from BDs, and 15-20% of these patients die by suicide (2,3).

Although pharmacological treatments are effective in reducing symptoms of BD, 50% of

bipolar patients are not adherent to medical treatment. Meanwhile, appropriate diagnosis and optimal treatment significantly impact the prognosis of this disorder (2). Patients with bipolar disorders experience significant mood fluctuations and instability. They have problems regulating emotions and almost use maladaptive emotional strategies (4,5).

People who use maladaptive emotional regulation strategies, such as rumination, catastrophizing, and self-blame, are more vulnerable to emotional problems, in contrast,

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people who use adaptive strategies, such as positive reappraisal, are less susceptible (6).

One of the neuropsychological models that has been considered in the explanation of psychological symptoms in recent years is the theory of mind defect model, which was first proposed for people with schizophrenia (7). This model was proposed to explain the ability of humans to predict their behavior and that of others. Studies on the ability to decode the mental states of others show that depressed and bipolar patients are impaired in matching facial expressions of emotion and show a bias in recalling negative social stimuli (8,9).

Based on the evidence, patients with bipolar disorder or major depressive disorder have great problems in emotional regulation and mindfulness-based approaches to cope with difficulties (10).

Mindfulness-based interventions are used frequently in patients with severe mental illnesses such as bipolar disorder (11-14). However, there are some controversies in the results of studies that assessed the mindfulness and clinical symptoms of bipolar disorders (15). So, the present study aimed to investigate the relationship between mindfulness, emotional regulation, and theory of mind in bipolar patients.

Materials and Methods

In this descriptive and correlational study, all patients diagnosed as bipolar patients referred to the rehabilitation center for chronic neuropsychiatric patients in Mashhad City, Iran, in March-April 2024, considered as a statistical population. We calculated the sample size based on a formula and Musket et al.'s study (10).

We selected eighty female patients through non-random sampling. The inclusion criteria included having a net diagnosis of bipolar disorder, being female, aged 17-40 years, being in the euthymic phase of the disorder, lack of comorbidity of other major psychiatric disorder, having bipolar disorder at least for two years, having a history of hospitalization in a psychiatric hospital at least one time, having writing and reading ability, and lack of addiction to substance or alcohol. The exclusion criteria included having suicidal attempts or ideas, having psychosis, incomplete questionnaires, and unwillingness to continue participation. Research instruments.

A) Demographic Checklist: A demographic questionnaire was prepared from the patient's files, including age, education, duration of illness, medication, and concurrent illness.

B) The Cognitive Emotion Regulation Questionnaire (CERQ): Garnefski and Kraaij developed this questionnaire in 2007 to measure emotional regulation strategies in response to threatening and stressful events in life. This tool has 18 items scored on a five-point scale from 1 (never) to 5 (always).

These emotional regulation strategies are divided into two categories: adaptive and maladaptive. The subscales of undercounting, positive refocusing, positive reappraisal, acceptance, and refocusing on planning are adaptive strategies, and subscales of self-blame, other-blame, rumination, and catastrophizing are non-adaptive strategies. This tool has good validity and reliability, with Cronbach's alpha between 0.75 and 0.87 (16). Also, the Persian version of the CERQ has good internal consistency (Cronbach's alpha: 0.76-0.92) (17).

C) Theory of Mind Test: A mind reading test through the eyes (Baron-Cohen) is a neurophysiological test on mind reading. The revised form of this test (36-item form) includes photos of the eyes of male and female actors. Each item presents four mental state descriptions, one target state, and three deviant states with the same emotional value. Using only visual information, respondents are asked to choose the word that best describes the thought or feeling of the owner of the eyes. Each correct answer is given one point and the scores range from zero to thirty-six.

A score between 22 and 30 indicates an average theory of mind, and a score below 22 indicates a low theory of mind and a score higher than 30 indicates a high theory of mind (18). The internal validity and consistency was reported to be 0.72 in Persian populations (19).

D) The Five Facet Mindfulness Questionnaire (FFMQ-15): This 15-question self-report scale measures mindfulness regarding thoughts, experiences, and actions in daily life. It measures five subscales of mindfulness: observing, describing, acting with awareness, non-judgment, and non-reactivity (20). The Persian version of this scale has good internal consistency ($\alpha=0.55$ to 0.83) (21).

We analyzed the data using descriptive statistics, regression correlation, and SPSS 20 software.

Results

The demographic findings revealed that the youngest participant was 25, and the oldest was 36. The mean age was 30.20 ± 3.09 years. The mean duration of the disorder was 5.22 ± 3.72 years. The descriptive statistics of the variables indicated the mean scores of mindfulness, theory

of mind, adaptive strategies, and maladaptive strategies were 34.35 ± 2.67 , 15.01 ± 3.70 , 2.63 ± 0.36 , and 3.84 ± 0.79 , respectively. To assess the normality of the data, we used Kolmogorov-Smirnov test. The results indicated the normality of all variables ($P > 0.05$). Table 1 shows the Pearson correlation between the variables.

Table 1. The correlation between the variables with mindfulness

Variable	Pearson coefficient	P
Adaptive strategies	0.65	0.001
Maladaptive strategies	-0.66	0.001
Theory of mind	0.38	0.001

According to the findings, there was a positive relationship between adaptive strategies and theory of mind with mindfulness. Maladaptive strategies were negatively related to

mindfulness. Below are the regression results (Table 2). Table 3 presents the results of predicting mindfulness based on the studied variables.

Table 2. The results of the regression

Model	Correlation	Correlation squared	F
1	0.80	0.64	46.20

Table 3. The results of predicting mindfulness based on emotional regulation strategies

Variable	B	Standard error	Beta	t
Theory of mind	0.33	0.05	0.46	6.68
Maladaptive strategies	-0.72	1.52	-0.17	-0.48
Adaptive strategies	5.05	2.08	0.88	2.42

Discussion

The results of the present study indicated a positive relationship between adaptive strategies and the theory of mind and mindfulness. Maladaptive strategies were negatively related to mindfulness. In this line, Koc and Uzun assessed 608 young adults in Turkey. They concluded significant relationships between dispositional mindfulness, adaptive and maladaptive emotional regulation strategies, symptoms of emotional disorders, and psychological well-being (22).

In this line, Fakhari et al. in Tabriz, Iran, compared the deficiency in theory of mind and emotion regulation in 40 patients with bipolar disorder, 40 patients with major depressive disorder, and 50 controls. They revealed that bipolar patients and depressed patients have decreased scores in theory of mind than normal individuals, and they use more maladaptive strategies than normal people. These findings are consistent with the present study (23). We reported higher scores in maladaptive strategies

than adaptive strategies and low scores in theory of mind in bipolar patients. However, we did not assess the depressed patients or normal individuals. In addition, the results of another study indicated that bipolar patients had a deficiency in theory of mind, but after treatment, they have better cognitive function (24).

In the field of mindfulness and difficulties in emotional regulation in bipolar patients, Carruthers et al. assessed 28 controls and 66 outpatients with bipolar disorder. They evaluated these cases through the Mindfulness Attention Awareness Scale, Difficulties in Emotion Regulation Scale, Seven Up, Seven Down, and the Quality of Life in Bipolar Disorder Questionnaire. They found bipolar patients received lower scores in mindfulness than controls. Also, lower mindfulness scores in bipolar patients predicted higher clinical symptoms and poorer quality of life.

Difficulties in emotional regulation mediated the association between mindfulness, depressive tendencies, and quality of life. These findings

support the effectiveness of mindfulness-based interventions for bipolar patients (25).

These findings are consistent with our results regarding the positive relationship between adaptive strategies and the theory of mind with mindfulness and the negative relationship between mindfulness and maladaptive strategies.

One limitation of this research was access to a limited number of patients, which made it impossible for the researcher to homogenize the participants in the group in terms of severity, economic status, and education level.

Considering that the sampling method was convenient and random selection was impossible, caution should be observed when generalizing the results.

The sample examined in this research was a sample of people with bipolar disease, so caution should be used in generalizing to other populations.

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Conclusion

It seems that there is a relationship between mindfulness of people with bipolar disorder and emotion regulation and theory of mind.

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Conflict of Interest

The authors declare no conflict of interest.

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Ethical Considerations

This study was approved by Neyshabour branch, Islamic Azad University. We considered ethical considerations such as voluntary participation, confidentiality of personal information, and informed consent.

Authors' Contributions

First author: Designing and supervising research, preparing and revising the article; Second author: Data gathering, data analyzing, preparing and revising the article.

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