Research Paper

Investigating the Relationship Between Psychological Flexibility, Mindful Ability, and Self-compassion With the Severity of Depression in Patients With Mood Disorders

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ABSTRACT

Objectives: Considering the prevalence and importance of depression, it is necessary to study the new psychological variables involved in its formation, persistence, and recurrence. Accordingly, this study aims to investigate the relationship between psychological flexibility (PF), mindful ability (MA), and self-compassion with the severity of depression in patients with mood disorders.

Methods: This cross-sectional study was conducted from October to January 2018. A total of 80 patients with various mood disorders were selected via a purposive sampling method based on the inclusion and exclusion criteria from the psychiatric wards of Noor Hospital and clinics affiliated with Isfahan University of Medical Sciences. They completed the self-compassion scale, acceptance and action questionnaire, Freiburg mindfulness inventory–short form, and the Beck depression inventory-II. The data were analyzed using the SPSS software, version 24. Meanwhile, the Pearson correlation coefficient and multiple regression were applied as well.

Results: The correlation coefficient between PF and depression was -0.79. This coefficient was -0.91 and -0.87 between self-compassion and depression and MA and depression, respectively. This indicates a strong inverse relationship between depression scores and these variables. Stepwise regression analysis showed that gender and MA were respectively the best predictors of depression ($P<0.05$).

Discussion: Based on the results, there was a significant relationship between low self-compassion, PF, and MA and depression in patients with mood disorders.

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Highlights

• Psychological factors, such as psychological flexibility, mindful ability, and self-compassion have a significant relationship with the severity of depression in patients with mood disorders.

• Mindful ability and gender are respectively the best predictors of depression.

• Psychological flexibility is not a good predictor of the severity of depression.

Plain Language Summary

The ability to accept and have a non-judgmental attitude toward thoughts, feelings, and experiences in our life (mindfulness ability and acceptance) as well as kindness to ourselves (self-compassion) affects the severity of depression. A total of 80 patients with mood disorders who experienced depression and hospitalization filled out the questionnaires that measured their mindful ability, acceptance, and self-compassion. The results of the study showed that patients who have less non-judgmental attitudes toward internal experiences (such as thoughts and feelings) and external events (such as daily activities) have higher severity of depression. Also, females experience more depression compared to men.

Introduction

The number of incident cases of depression worldwide increased from 172 million in 1990 to 258 million patients in 2017, showing a 49.86% increase [1]. Major depressive disorder (MDD) includes a severely depressed mood or loss of interest that lasts for at least 2 weeks and has various symptoms, such as feelings of worthlessness and disturbances in some bodily functions such as sleep patterns, appetite, weight, and energy [2]. Some demographic characteristics, such as age, gender, and marital status affect the prevalence of depression. The prevalence of adults with MDD is the highest among individuals in the age range of 18 to 25 [3]. Also, females are twice likely to experience depression when compared to men [4, 5]. Marital status has a significant effect on depressive symptoms. Compared to married individuals, subjects who are separated/divorced/widowed/never-married might be the high-risk population in terms of depressive symptoms [6].

According to the statistics in the field of depression, the importance of psychotherapy for this disorder has become increasingly important; therefore, identifying variables related to this disease has been considered for effective treatments. New psychotherapies, including the third wave of behavioral therapies (after classical behavior therapy and cognitive behavior therapy), have focused on structures, such as acceptance of inner experiences, mindfulness, and compassion. The common denominator of these therapies is the concept of mindfulness which relates to non-judgmentally paying attention, on purpose, to the present moment. Mindful ability (MA) reduces anxiety and depression [7, 8] and is effective in reducing the recurrence of depression [9]. MA means focusing and maintaining attention to external and internal experiences (thoughts, feelings, memories, urges, or bodily sensations) with an accepting and non-judgmental attitude [10].

Research has demonstrated a relationship between low acceptance of inner experiences or psychological flexibility (PF) and reducing depression and its recurrence [11-13]. According to acceptance-based therapies, individuals' psychological problems are because of the lack of PF (with components of not being mindful of their inner experiences, accepting them, avoiding them, and avoiding valued living) [14].

The non-judgmental and compassionate relationship with internal experiences has been introduced with the concept of self-compassion which is defined as a way of relating with kindness to oneself in times of suffering or failure. It has 3 constructs, including self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification [15]. Self-compassion is a protective factor against depressive symptoms. There is a negative association between self-compassion and depressive symptoms in both cross-sectional and longitudinal studies [16-18]. There were significant correlations found between MA, self-compassion, depression, and anxiety in the general population [19].

Although the concepts of the acceptance of internal experiences, MA, and self-compassion have been separately studied in mental disorders [7-13, 17-19], based on our literature review, the relationship between these variables and MDD has not been studied. Also, it is not clear which construct is the better predictor. The answer to this question may indicate the adoption of specific treatment approaches along with a specific type of psychotherapy. In this case, instead of confusing different treatment approaches arising from the philosophy of mindfulness and acceptance, a specific treatment approach will be used for subjects with mood disorders. On the other hand, if all the studied components show strong correlations and predictability for mood disorders, adopting a combinatory therapy approach would be a better suggestion to treat these patients. Accordingly, this study aims to investigate the relationship between acceptance of internal experiences, MA, and self-compassion with the severity of depression in patients with mood disorders.

Materials and Methods

This cross-sectional study was conducted from October 2018 to January 2019 A total of 80 patients who received a definite diagnosis from a psychiatrist and their current phase of the disorder was major depression were selected from the psychiatric wards of Noor Hospital and clinics affiliated with Isfahan University of Medical Sciences. The inclusion criteria were having MDD or bipolar disorder with a current episode of MDD, the stable status of hospitalized patients, consent to participate in the study, no mood disorders with psychotic features, no mood disorders because of medical conditions, no suicidal ideation, and no substance-related disorders. Based on the previous study [20], the sample size with the first type error of 0.01, the second type error of 0.1, the expected correlation coefficient of 0.44, and C=0.47, and according to the Equation 1, was calculated at 70 patients.

$$1.\ n=\{z_{1-\alpha/2}+z_{1-\beta})/C\}^2+3$$

The patients completed the self-compassion scale (SCS), acceptance and action questionnaire (AAQ), Freiburg mindfulness inventory-short form (FMI-SF), and the Beck depression inventory-II (BDI-II). The data were analyzed using the SPSS software, version 24. Meanwhile, the Pearson correlation coefficient and multiple regression were applied.

The SCS was developed by Neff [15] and includes 26 items in 6 subscales of self-compassion (5 items), self-judgment (5 items), common human feelings (4 items), isolation (4 items), mindfulness (4 items), and meta-cognition (4 items). The items of this questionnaire are scored based on a 5-point Likert scale. The validity of this questionnaire was obtained by Neff [15] using the Cronbach α coefficient method at 0.92 and at 0.84. The Cronbach α coefficient in the Iranian version was reported by Khosravi et al. at 0.83 [21].

AAQ was designed by Bond et al. [22] and measures the structure that refers to the diversity of acceptance, experimental avoidance, and PF. Higher scores indicate more PF. The reliability of this questionnaire via the Cronbach α coefficient method was obtained at 0.84 [22]. The reliability of the Persian version of AAQ was equal to 0.89 [23].

FMI-SF was initially designed by Buchheld et al. with 30 questions. The 14-item short form, which is more suitable for use in the general population, was later developed by Walach et al. [24]. The long version of this questionnaire is more suitable to implement in groups that are familiar with the Buddhist culture and meditation practices. The short form can be used in different cultures and covers all aspects of mindfulness. This questionnaire is based on a 4-point Likert scale (rarely=1 to almost always=4). Walach et al. obtained the Cronbach α coefficient of 0.86 for FMI-SF [24]. The Cronbach α coefficient in the Persian population was 0.92 [25].

BDI-II was developed by Beck et al. [26] to measure the symptoms of depressed patients and is more compliant with the diagnostic and statistical manual of mental disorders than the first version and covers all elements of depression based on the cognitive theory [26]. The questionnaire consists of 21 questions and subjects must answer based on a 4-point scale from 0 to 3. Accordingly, the scores range from a minimum of 0 to a maximum of 63, thus different degrees of depression are determined from mild to very severe. The reliability of BDI-II using the Cronbach α coefficient was obtained at 0.86 [26] and in Persian papulation at 0.91 [27].

The data were analyzed using the SPSS software, version 24 and the Pearson correlation coefficient along with multiple regression were applied as well.

Results

The demographic characteristics of individuals are provided in Table 1. In addition, the Mean±SD of patients' scores on SCS, AAQ, FMI-SF, and BDI-II by gender are shown in Table 1. The score of depression is higher in women but other scores did not differ significantly.

Table 1. The characteristics of the participants

Variables	Groups	No. (%)
Age	<25	8(10)
	25-50	61(76.25)
	>50	11(13.75)
Gender	Male	51(63.75)
	Female	29(36.25)
Marital status	Single	26(32.5)
	Married	30(37.5)
	Widow	6(7.5)
	Divorced	18(22.5)
Education	<Diploma	4(5)
	Diploma	12(15)
	Under-graduate	35(43.75)
	Postgraduate	29(36.25)
Job	Unemployed	34(42.5)
	Student	8(10)
	Housewife	12(15)
	Employee	7(8.75)
	Self-employed	19(23.75)

Variables	Mean±SD		
	Male	Female	Total
AAQ	25.4±6.8	26.7±7.1	26.23±6.99
FMI- SF	32.6±6.5	32.4±6.4	32.47±6.44
SCS	33.5±5.9	35.1±6.3	34.52±6.15
BDI-II	33.8±11.7	35.4±13.1	34.82±12.59

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Abbreviations: AAQ: Acceptance and action questionnaire; FMI-SF: Freiburg mindfulness inventory-short form; SCS: Self-compassion scale; BDI-II: Beck depression inventory-II.

After confirming the normal distribution of the data via the Kolmogorov-Smirnov test, the Pearson correlation coefficients for the data were calculated and the results were presented in Table 2. According to the obtained correlation coefficients and significant P, a strong inverse relationship was found between the score of depression and the scores of the three independent variables of self-compassion, MA, and PF.

To determine which demographic variables have to be entered into the regression model, the analysis of variance was used. The results in Table 3 showed that only

Table 2. The correlation coefficients of the variables

Variables	BDI-II	AAQ	FMI-SF	SCS
Age	0.038	-0.052	0.17	-0.21
Gender	0.24*	0.013	0.06	-0.08
Marital status	0.071	-0.15	0.22*	-0.12
Education	-0.062	-0.068	-0.07	-0.03
Job-status	0.006	-0.10	-0.16	-0.18
AAQ	-0.79	1	-0.013	-0.12
FMI-SF	-0.91	-0.013	1	0.081
SCS	-0.87	-0.12	0.08	1

Abbreviations: AAQ: Acceptance and action questionnaire; FMI-SF: Freiburg mindfulness inventory-short form; SCS: Self-compassion scale; BDI-II: Beck depression inventory-II. *The correlation is significant at P<0.05.

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Table 3. Comparing the scores of dependent variables (BDI, SCS, FMI, AAQ) based on demographic variables

Variables		Sum of Squares	Degree of Freedom	Mean Square	F	Sig.
Gender	BDI-II	421.713	1	421.713	4.838	0.031*
	SCS	17.895	1	17.895	0.535	0.467
	FMI-SF	11.929	1	11.929	0.316	0.576
	AAQ	104.058	1	104.058	2.008	0.160
Marital status	BDI-II	860.938	3	286.979	3.430	0.021*
	SCS	215.802	3	71.934	2.269	0.087
	FMI-SF	196.952	3	65.651	1.807	0.153
	AAQ	37.238	3	12.413	0.230	0.876
Education	BDI-II	34.869	3	11.623	0.123	0.946
	SCS	126.476	3	42.159	1.282	0.287
	FMI-SF	45.821	3	15.274	0.399	0.754
	AAQ	210.143	3	70.048	1.353	0.264
Job status	BDI-II	299.197	4	74.799	0.811	0.522
	SCS	257.513	4	64.378	2.039	0.097
	FMI-SF	162.487	4	40.622	1.090	0.368
	AAQ	394.566	4	98.642	1.972	0.107

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Abbreviations: AAQ: Acceptance and action questionnaire; FMI-SF: Freiburg mindfulness inventory-short form; SCS: Self-compassion scale; BDI-II: Beck depression inventory-II. *Significant in level P<0.05.

Table 4. Regression analysis for the score of BDI-II through scores of gender, marital status, AAQ, SCS, and FMI-SF

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	SE			
1	(Constant)	15.729	6.345	0.342	2.479	0.015
	Gender	5.106	2.438	0.224	2.094	0.040*
	Marital	0.024	0.925	0.003	0.026	0.979
	FMI-SF	0.422	0.172	0.270	2.457	0.016*

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Abbreviations: AAQ: Acceptance and action questionnaire; FMI-SF: Freiburg mindfulness inventory-short form; SCS: Self-compassion scale; BDI-II: Beck depression inventory-II; SE: Standard error.

*Significant at level P<0.05.

gender and marital status affect BDI-II. Accordingly, only these two variables entered the regression model.

Subsequently, the data were analyzed via the regression method. The correlation coefficient (R=0.929) and the coefficient of determination (R^2=0.862) showed that the regression model is appropriate. Also, the analysis of variance for the regression model demonstrated that the regression model is appropriate (F=905.158, P=0.000).

The results of the regression analysis for the score of BDI-II through scores of gender, marital status, AAQ, SCS, and FMI-SF are provided in Table 4. It shows that gender and MA can explain the degree of depression, but other demographic variables and scores of AAQ and SCS cannot explain the score of depression.

Discussion

The results of our study showed that PF is inversely correlated with depression. Accordingly, higher acceptance denotes lower depression. This finding is consistent with other studies that show a relationship between PF and reducing depression along with its recurrence [11-13, 28]. On the other hand, the results of our study showed that high MA is associated with a reduction in patients' depression. This finding is consistent with the results of previous studies [7-9]. Another finding of the study was the relationship between high self-compassion and low depression. Previous studies have also reported this result [16, 18, 19].

The three components of MA, PF, and self-compassion are strongly intertwined and MA is the most component of self-compassion and PF. Accordingly, decreased mindfulness makes people have difficulty understanding the root of their behaviors. Also, the way these individuals approach their experiences can be problematic. Patients with MDD are accustomed to making critical judgments about their unpleasant experiences and making increasing efforts to avoid them. These avoidance efforts often have contradictory effects and increase internal experiences and psychological distress, such as depression [29].

People with previous depression differ in their pattern of thinking from subjects who have never been depressed. Due to mild mood swings, this pattern of thinking reactivated and entered a patient into a new period of depression. MA helps people eliminate thought patterns that make them vulnerable to periods of depression [26]. Mindfulness decreases depression by increasing reappraisal and reducing rumination and suppression [8].

Our study showed that MA can predict the severity of depression, but not self-compassion and PF. While mindfulness is a key component in self-compassion, it relates more specifically to an awareness of negative experiences [30] that is the most important factor in realizing the primary signs of depression. Identifying the symptoms of depression, especially at its onset, plays an important role in preventing the recurrence and exacerbation of depression [31]. On the other hand, mindful ability is a multidimensional construct that includes observing and describing internal experiences and non-judgement non-reactivity attitude toward those experiences. Observing and describing the internal experiences are focused in mindfulness more than on self-compassion and these specific facets of mindfulness are the best predictors of depression [32]. This finding of our study is different from the studies that showed PF is the best predictor for mental health rather than self-compassion and MA [33,

34]. Both studies examine the predictive power of PF, MA, and self-compassion in the general population or patients with other diseases besides depression. In pure MDD, we face different mechanisms.

Also, our study showed that gender could predict the severity of depression in patients with MDD. Various studies showed this finding frequently [4, 5]. Gender differences in MDD are the strongest finding in the field of demographic variables related to MDD and depression symptoms.

Our study faced some limitations. First, the sample was gathered from the patients referred to hospitals, so their status was different from the other outpatients, such as individuals who had stable medical conditions or were referred to private clinics. Second, the collected data were cross-sectional and obtained through self-report measures; accordingly, future research that uses other assessment methods, such as clinical interviews, is suggested.

Conclusion

This study showed that PF, CS, and MA have a significant correlation with depression severity and CS and MA could predict the severity of depression in MDD patients.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of the Isfahan University of Medical Sciences (Code: IR.MUI.MED.REC.1397.003).

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Authors' contributions

Conceptualization, investigation, writing, reviewing and editing drafts: Fatemeh Zargar and Rozita Mansouri; Methodology, validation and formal analysis: Mohammad Javad Tarrahi; Resources, data curation: Fatemeh Zargar; Visualization, supervision, project administration and funding acquisition: Fatemeh Zargar.

Conflict of interest

The authors declared no conflict of interest.

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