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Original Article

Effectiveness of Mindfulness-Based Cognitive Therapy on Body Image Anxiety and Suicidal Ideation of Adolescent Girls with Body Dysmorphic Disorder

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Abstract

Background and Objective: Body dysmorphic disorder (BDD), known as an obsessive-compulsive disorder, is considered a risk factor for mental health and well-being, especially during adolescence and particularly among adolescent girls. Body image anxiety and suicidal ideation are two categories of complications that have been linked to BDD. The present study aimed to investigate the effect of mindfulness-based cognitive therapy on body image anxiety and suicidal ideation of adolescent girls with BDD.

Materials and Methods: This study was a quasi-experimental longitudinal study in the form of a pretest-posttest design with experimental and control groups. It was conducted from April 9, 2020, to August 18, 2020. The participants included 25 adolescent girls with a BDD score of more than 25, who were randomly selected from among the adolescent girls studying in schools of District 5 in Tehran, Iran. Data were analyzed in the SPSS software (version 22) using the one-way ANCOVA test.

Results: The findings revealed that by removing the effect of pre-test scores as a covariate variable, the main effect of treatment on post-test scores (is significant for body image anxiety ($P<0.01$), determined at 16%. The findings also showed that by eliminating the effect of pre-test scores as a covariate variable, the main effect of treatment on post-test scores was significant for suicidal ideation ($P<0.01$), estimated at 10.2%.

Conclusions: The results suggest that this approach can be helpful in effectively helping to improve body image anxiety, as well as reducing suicidal ideation, in adolescent girls with BDD.

Keywords: Body dysmorphic disorder, Body image, Cognitive therapy, Mindfulness, Suicidal ideations

Background

Body dysmorphic disorder (BDD) falls into the category of obsessive-compulsive and related disorders [1]. It is defined as a severe mental concern about a minor or invisible physical defect; however, it results in distress and impaired occupational, as well as social functioning [2]. The BDD is associated with various types of mental disorders, such as decreased self-esteem, depression, social anxiety, eating disorders, and sexual dysfunction [3]. Critical mental concern about physical appearance can cause a distorted self-appearance, which can increase to such an extent that can lead to BDD [4].

The prevalence of this disorder in women is significantly higher than that in men [5]. In addition, in terms of evolution, evidence suggests a higher prevalence of BDD in adolescents than in other evolutionary ages [6]. Therefore, adolescent girls are one of the most vulnerable populations in danger of this disorder.

One of the most important aspects of self-image that emerges in social situations is people's body image, which refers to the thoughts, beliefs, feelings, and behaviors associated with one's perceived body [7, 8]. One potentially significant source of distress is that of negative body image, a construct regarding a person's subjective opinion about his/her body appearance [9, 10]. Body image includes perceptions and attitudes of the self about the body that is related to self-esteem, interpersonal trust, eating patterns, physical activities, sexual experiences, and emotional stability [11]. Concerns about body image is associated with a negative assessment of body size, shape, as well as weight, and refers to the distinction between real and ideal body image [12].

The mental image of the body is one of the most

central dimensions of self-appearance and self-assessment in this period of life, which includes not only physical, emotional, social, and attitude perception but also various aspects of psychological, social, sexual, family, as well as adaptive identity [13]. Dissatisfaction with the body is also an aspect of body image, which refers to a negative assessment of body size, shape, as well as weight, and the distinction between real and ideal body image [12].

Body satisfaction in adults is associated with perfect interpersonal interactions, overall happiness in life, choosing a healthy diet, proper physical performance, increased sexual pleasure, and an abundance of physical activity. However, anxiety about body shape and weight in adolescents leads to an increase in psychological illnesses, ranging from eating disorders to major depressive disorders [14]. Patients with malformations often suffer from anxiety and dissatisfaction with their body image. In addition to concerns about the body, research has shown that long-term BDD is often associated with negative moods and symptoms of quasi-depression in girls, one of the most important features of which is anxiety about body image and suicidal ideations [6, 15]. Suicidal ideations are related to mental attitude towards and plans to commit suicide. These ideations include the desire to die and the desire for active or passive suicide [16]. According to the findings of previous studies, suicidal ideation occurs in 36% of people, and up to 80% [17] of patients suffering from BDD. Considering the consequences of anxiety about body image and suicidal ideation in patients with BDD, it seems necessary to design and use psychological treatment packages to reduce the above effects.

One of the most widely used and newest treatment approaches is mindfulness-based cognitive therapy (MBCT). It [18] has been developed as a goal-oriented approach to working with depressed individuals (with a history of depression and recurring vulnerabilities). Clients can benefit from counseling with the cognitive-behavioral approach since it helps them develop skills to change behavior, communicate with others, solve problems, change non-useful beliefs, as well as attitudes, and reconstruct their cognition [19]. This treatment approach aims to empower participants who are in a period of relative recovery and teaches them how to become aware of physical feelings, thoughts, as well as emotions, and how to respond appropriately to the early signs of recurrence risk. This program has mindfulness at its core, as well as its structure, and its core processes stem from the mindfulness-based stress reduction program, which incorporates some aspects of cognitive-behavioral therapy (CBT) for depression. The program is available as an 8-week course for up to 12 participants [20]. The CBT involves the review of the mutual and multifaceted effect of interactions and the application of behavior tracking or re-framing techniques to facilitate changes in the perceptual state of events and behaviors [21].

Mindfulness is a therapeutic process that focuses on purposeful and non-judgmental attention along with accepting experiences, confessing to them, living in the moment, as well as reducing consciousness and distressing behaviors significantly [22]. The most common approach to preventing relapse is to continue taking antidepressants after recovery. The MBCT challenges the functional assumptions of CBT, yet integrates with some of its other aspects, creating a different perspective of patient education so that the need for positive thinking replaces negative thinking and prevents the recurrence of chronic symptoms [23, 24].

The MBCT reduces the symptoms of anxiety and depression [25]. It has also been effective in physical, mental, emotional, and spiritual well-being [26], improving sleep quality [27], high quality of life, enjoyment of life, as well as lowering physical symptoms [28]. Given the effectiveness of mindfulness-based approaches on the treatment of anxiety [29] and the obviousness of anxiety symptoms in BDD, the main question of the present study is whether the use of MBCT can affect body image anxiety and suicidal ideation in adolescent girls with BDD.

For this purpose, a quasi-experimental study was designed including participants from among female students in schools of District 5 in Tehran, Iran. An attempt was made to test the effect of this method on suicidal ideations and body image anxiety by using MBCT intervention on female students referred to the transplant clinic, affiliated with the School of Behavioral Sciences and Mental Health (Tehran Institute of Psychiatry), Iran University of Medical Sciences, Tehran, Iran.

Objectives

This study aimed to evaluate the effectiveness of this therapeutic intervention method on the mentioned variables among female students with BDD in order to investigate the possibility of presenting this method as a fruitful therapeutic approach.

Materials and Methods

The present study was a quasi-experimental study in the form of a pretest-posttest design with experimental and control groups, which was conducted from April 9, 2020, to August 18, 2020. Participant selection and their grouping were done after administering a BDD questionnaire among 50

adolescent girls who were studying at schools of District 5 in Tehran, Iran. It is noteworthy that the criterion for evaluating the selection of groups was obtaining a score of above 25 (i.e., the highest score of BDD). Participants were randomly assigned to two experimental and control groups (n=25) using pre-test questionnaires. The experimental group underwent eight sessions of therapy for 2 h a week with an MBCT approach, and the control group did not receive any treatment. In the end, the questionnaires were re-administered to both groups one week after the intervention, and then, the data was collected.

The inclusion criteria included: 1) a score of above 25 in the BDD questionnaire, 2) diagnosis of BDD, according to the DSM-5 diagnostic interview by a clinical psychologist, 3) absence of other psychological disorders or chronic neurological disorders at the same time, 4) the age range of 12 to 16 and satisfaction with participation in the study, and 5) absence of any other medical and psychological intervention during the research. On the other hand, participants who violated any of the inclusion criteria, did not attend two or more sessions of the treatment protocol, or had defects in completing research questionnaires were excluded from the study.

After collecting the data, it was analyzed in the SPSS software (version 22) by running the one-way ANCOVA test.

Body Image Anxiety Questionnaire (Littleton et al., 2005)

Body Image Anxiety Questionnaire was compiled in 2005 by Littleton et al., and its psychometric properties were studied in Iran [30]. This self-report questionnaire includes 19 items, with scores ranging from 19 to 95 (a higher score indicates more concern about the body). The reliability of the questionnaire was measured by the internal consistency method and was determined at 0.93. The correlation coefficient of each question with the total score varied from 0.32 to 0.73, and the mean correlation was 0.62. Convergent validity of this scale was obtained by calculating its correlation with the obsessive-compulsive disorder questionnaire and the eating disorder questionnaire at 0.62 and 0.40, respectively [14]. In Iran, the validity of the questionnaire was obtained by administering it to 209 high school students using split-half and internal consistency methodologies and was determined at 0.66 and 0.84, respectively [30].

The Suicidal Ideation Scale (Beck et al., 1988)

The Suicidal Ideation Scale was designed by Beck et al. (1988) to measure suicidal ideation, which contains 19 questions, with scores ranging from zero to two; therefore, respondents' scores vary from 0 to 38 [16]. The Persian version of this scale has high validity and reliability for examining suicidal ideations and its standardization was done in Iran. The results showed that the concurrent validity of this scale with the general health questionnaire was 0.76 and its validity was estimated at 0.95 using Cronbach's alpha [31].

In order to prepare the treatment plan and package, a cognitive therapy guide was used, which was based on mindfulness, written by Segal et al. (2002), and

Table1. Summary of the Training sessions content

Subject	Intervention
Session 1: Automatic guidance	Body examination (drawing participants' attention to different parts of their body by breathing, which takes about 45 min) Homework: A mindful daily activity for 6 days and a physical examination every day, presenting a booklet on the BDD, automatic guidance, and mindfulness exercises
Session 2: Facing the obstacles	Thoughts and feelings practice (by visualizing ambiguous situations, focusing more on the body, mental whispers, and an awareness of the wandering mind), which leads to greater control over one's reaction to daily events. Homework: Recording pleasant events and presenting a booklet about the purpose of the meeting and strategies for better homework
Session 3: Breathing	Familiarization of the participants with the fact that their thoughts have behavioral consequences exactly the same as emotional consequences, and that these behavioral consequences, by themselves, maybe ineffective. Homework: Recording unpleasant events and practicing breathing
Session 4: Staying in the present	Participants should be able to identify 10 common types of negative schemas and categorize their beliefs into those 10 common categories. Homework: Practicing breathing space whenever they feel stressed and providing booklets about attending and staying in the present. Homework: record sheet.
Session 5: Permission to attend	An increase in participants' awareness of their thoughts and feelings, pleasant and unpleasant events, and identifying their reactions to them without direct judgment and intervention. Homework: Practicing and recording guided sitting meditation, providing a session booklet, and extensive instructions for using the breathing space
Session 6: Thoughts are not facts	Participants must accept that beliefs are changeable and they can pay attention to their beliefs objectively. Homework: Practicing breathing for 3 min while experiencing unpleasant emotions and presenting session booklets
Session 7: Take care of yourself	Participants' understanding of the relationship between worries and negative thoughts with daily activities Homework: Making a list of activities that increase mood and energy
Session 8: Overcoming Fear	The act of planning for the future and using the techniques of the present to continue living and generalizing them to the whole flow of life.

translated by Mohammadkhani et al. (2005). This intervention was held in 8 weekly 2-h sessions.

Results

In the control group, the mean scores of body image anxiety were 51.2 and 51.16 in the pre-test and post-test, respectively. On the other hand, in the experimental group, the mean scores of the same variable were 51.6 and 37.2 in the pre-test and post-test, respectively. The standard deviations of this variable in the control group were 23.45 and 22.2, respectively. In the experimental group, the standard deviations were 23.25 and 17.21 in the pre-test and post-test, respectively.

Table 3. shows the results of the statistical analysis of suicidal ideations in the statistical sample. In the control group, the mean scores of suicidal ideations in the pre-test and post-test were 4.68 and 4.72, respectively. On the other hand, in the experimental group, the mean scores of the same variable in the pre-test and post-test were 5.96 and 5.04, respectively. The standard deviations of this variable in the control group were 3.078 and 2.86 in the pre-test and post-test, respectively. In the experimental group, the standard deviations were 2.56 and 1.97 in the pre-test and post-test, respectively.

Additionally, the research hypotheses were tested. First, the statistical assumptions necessary to test the effectiveness of MBCT interventions on body image anxieties and suicidal ideation were designed, the results of which are presented in Table 4.

Table 2. Mean±SD of body image anxiety and suicidal thoughts in the pre-test and post-test scores of the experimental and control Group

Variables	Groups	Mean±SD	
		Intervention	Control
Body Image Anxiety	Pre-test	51.60±23.250	51.20±23.452
	Post-test	37.72±17.271	51.16±22.203

Table 3. Mean±SD of suicidal ideation in pre-test and post-test scores of the experimental and control group

Variables	Groups	Mean ± SD	
		Intervention	Control
Suicidal Ideation	Pre-test	5.96±2.557	4.68±3.078
	Post-test	5.04±1.968	4.72±2.865

Table 4. Levene's test of homogeneity of variance analysis

	F	df2	df1	P
Body Image Anxiety	1.869	48	1	0.178
Suicidal Ideation	2.11	48	1	0.153

The results of the covariance test for the effectiveness of MBCT on body image anxiety are presented in Table 5, and the results of the covariance test for the effectiveness of MBCT on the suicidal ideation of female adolescent students are presented in Table 6.

Results of the one-way ANCOVA test showed that by removing the effect of pre-test scores as a covariate variable, the main effect of treatment on post-test scores was significant for body image anxieties (P<0.01), determined at 16%.

Results of the one-way ANCOVA test showed that by eliminating the effect of pre-test scores as a covariate variable, the main effect of treatment on

Table 5. Results of the one-way ANCOVA test of the effectiveness of mindfulness-based cognitive therapy on body image anxiety

Sources	SS	DF	MS	F	P	Eta
Modified Model	9035.883a	2	4517.942	17.387	0.000	0.425
Intercept	2764.141	1	2764.141	10.638	0.002	0.185
Body Image-Pre	6777.963	1	6777.963	26.085	0.000	0.357
Group	2326.653	1	2326.653	8.954	0.004	0.160
Error	12212.437	47	259.839			
Total	119994.000	50				
Modified Total	21248.320	49				

Table 6. Results of the one-way ANCOVA test of the effectiveness of mindfulness-based cognitive therapy on suicide ideation

Sources	SS	DF	MS	F	P	Eta
Modified Model	241.380a	2	120.690	113.676	0.000	0.829
Intercept	4.873	1	4.873	4.590	0.037	0.089
Suicide- Pre	240.100	1	240.100	226.146	0.000	0.828
Group	5.677	1	5.677	5.347	0.025	0.102
Error	49.900	47	1.062			
Total	1482.000	50				
Modified Total	291.280	49				

post-test scores was significant for suicidal ideation (P<0.01), determined at 10.2%.

Discussion

The BDD has been identified as a chronic and debilitating mental disorder in adolescence [32]. This disorder exposes adolescents to the threat of social and psychological harm. In the present study, the psychological damage of BDD has been considered. Psychological knowledge is expected to reduce adolescents' vulnerability to this disorder through various approaches to therapeutic intervention. However, this is only possible when the impact of intervention approaches on this damage is scientifically investigated. The present study investigated the effectiveness of MBCT on body image anxiety and suicidal ideations in adolescent girls with BDD.

The results of the present study demonstrated the effect of the MBCT approach on reducing body image anxiety, as well as suicidal ideations. Additionally, these findings were consistent with the results of a study by Lavel et al. (2018) that have examined the effectiveness of this approach on BDD among Australian adolescents. Barghomadi et al. (2015) in a study entitled "Investigating the effect of mindfulness on BDD among homeless and poorly-supervised adolescents in Gorgan, Iran" revealed that the effect of mindfulness on body image anxiety or BDD is statistically significant [33]. Furthermore, Sadat Jafarpour et al. (2017) showed in their study that MBCT training in a group manner significantly reduces body image anxiety and depression in cancer patients [34].

Suicidal ideation is one of the most common threats among adolescents with BDD [35-37]. Severe BDD not only can reinforce suicidal ideations but can also lead to suicide. In particular, in this study, this disorder has been associated with adolescents. Theoretically, the MBCT approach is expected to be associated with a reduction in suicidal ideations, and despite the limited scope of research in this area, it was confirmed by previous research attempts. The results of a qualitative study by Hanasabzadeh et al. (2011) confirmed the effectiveness of MBCT in depressed patients with suicidal ideation [38]. In another study by Robert (2008), it was found that mindfulness-based intervention is effective in decreasing the level of suicidal ideation. Specifically, in the present study, the results showed that the MBCT approach has influenced suicidal ideations, as well as body image anxieties, among adolescent girls with BDD [39]. Previous studies by Wilhem et al. (2020), Hong et al. (2018), and Rasmosen et al. (2017) confirmed the effectiveness of this form of therapeutic intervention on reducing the complications of BDD. These results may indicate that this approach can be effective in helping to improve the mental health of adolescent girls with BDD.

Conclusions

In the present study, the findings showed that the MBCT approach has influenced suicidal ideations, as well as body image anxieties, among adolescent girls with BDD. These results may indicate that this approach can be effective in helping to improve the mental health of adolescent girls with BDD.

Compliance with ethical guidelines

The participants were informed about the purpose of the research, as well as its implementation, and their informed consent was also obtained. They have also been assured about the confidentiality of their information. Moreover, the participants were free to keep up or leave the research program process.

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Authors' contributions

Study concept and design [Farhad Kahrazei and Zahra Bahreini]; Analysis and interpretation of data [Farhad Kahrazei and Zahra Bahreini]; Drafting of the manuscript [Zahra Bahreini]; Critical revision of the manuscript for important intellectual content [Farhad Kahrazei, Zahra Nikmanesh , and Zahra Bahreini]; Statistical analysis [Zahra Bahreini].

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Conflicts of Interest

The authors declared no conflict of interest

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