

The Effectiveness of Mindfulness-based Cognitive Therapy on the Psychological Symptoms of Students with Social Anxiety Disorder: A Randomized Clinical Trial

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Abstract

Introduction: Social anxiety is a prevalent disorder among university students which interferes with their functions. Mindfulness-based cognitive therapy is one of the new approaches for treating psychological disorders. This research aims to study the effectiveness of group mindfulness-based cognitive therapy in university students suffering from social anxiety.

Method: The design of this study was quasi-experimental with pretest, posttest and follow-up assessments for control and intervention groups. For this purpose, 24 students diagnosed with social anxiety were randomly allocated to control and intervention groups. The intervention group received 8 sessions of mindfulness-based cognitive therapy. The students completed the Social Interaction Anxiety Scale (SIAS), Interpersonal Sensitivity Measure (IPSM) and the Self-Compassion Scale (SCS) in both pretest and posttest. Follow-up assessments were done after 2 months. The data were analyzed using SPSS.

Results: According to the findings of the present study, mindfulness-based cognitive therapy reduces social anxiety and interpersonal sensitivity significantly. Also, it can increase the components of self-compassion significantly in the intervention group compared to the control group.

Conclusion: Due to the effectiveness of mindfulness-based cognitive therapy in reducing social anxiety in students, considering and utilizing this kind of psychotherapy is of great importance.

Keywords: Mindfulness-based Cognitive Therapy, Social Anxiety, Interpersonal Sensitivity, Self-compassion

Introduction

Having social contact with other fellowmen as one of the basic needs of human beings is of great importance. Therefore, people are usually afraid of the others' negative appraisal or judgement [1]. Social anxiety disorder is known as an extreme and apparent fear in one or several social or functional situations in which the person is observed and is afraid of doing anything embarrassing. Social anxiety disorder is one of the most common anxiety disorders and is known as the third most common psychiatric disorder after depression and alcoholism [2, 3]. This disorder is more common among women [4] and is most common between the ages of 18 to 29 [5]. Its lifetime prevalence is reported to be about 13% [6]. If not treated, this disorder may become chronic and will as a result interfere with daily life and even relationships and personal activities [7, 8].

One of the problems among social anxiety sufferers is high personal sensitivity. Some

researchers have pointed out to personal sensitivity as an important factor in anxiety, depression and substance dependence [9]. Personal sensitivity has been defined as a general kind of sensitivity towards social feedback, increased worrisome around the other people, fear of personal insufficiency or being criticized plus frequent interpersonal misinterpretations [10].

Another significant element in socially anxious people is low self-compassion. Self-compassion is an important structure which is highly correlated with mental well-being and is related to mental health and positive features such as self-kindness, self-possession, generosity, empathy and sympathizing with other people. It helps people treat themselves properly while facing problems and difficulties during life and to be more hopeful [11]. One of the clinical settings where self-compassion can be assessed is social anxiety [12]. Werner et al. concluded that socially anxious people have less self-compassion in comparison to non-sufferers and that self-compassion is related to the intensity of social anxiety and fear of being evaluated [12].

Various theories and methods have been presented to treat social anxiety disorder [13], including medication, behavior therapy, psychoanalysis and cognitive therapy; among which cognitive behavior therapies have attracted more attention [14]. One group of the third wave cognitive behavior therapies are mindfulness-based interventions. Mindfulness is a non-judgmental present-focused kind of awareness. This state is opposed to focusing on the past in depressed patients or on the future in anxious patients and includes educating people for having a new perspective, non-judgmental acceptance, being in closer touch with feelings, thoughts and body sensations, in order to get rid of negative mood states [15].

By relying on mindfulness techniques, mindfulness-based cognitive therapy as one of the most important third wave treatments, can activate areas of the brain which concentrate on variables such as anxiety tolerance or management, anxiety exposure and changing the anxiety provoking beliefs and factors [16]. During therapy, patients learn how to interrelate with their own irrational thoughts, feelings and beliefs and focus on changing their content so that they become more rational [17]. Effectiveness of this type of treatment has been reported in different studies [18-21]. During a study comparing medication with mindfulness-based cognitive therapy, 23 patients diagnosed with panic attack disorder, were assessed by Kim et al. [21] for eight weeks. Follow-up assessments were done on the second, fourth and eighth weeks and it was concluded that mindfulness-based cognitive therapy was significantly more effective than medication [21].

Since social anxiety is prevalent among university students and can interfere with their interpersonal relationships and educational functions, and due to the lack of sufficient studies about effectiveness of mindfulness-based cognitive therapy concerning the mentioned combination of variables among university students, the current research aims to find out if mindfulness-based cognitive therapy is effective in decreasing symptoms of social anxiety and interpersonal sensitivity and increasing self-

compassion in university students.

Method

This study was a quasi-experimental clinical trial with control and treatment groups. This study was approved by the ethics committee of Kermanshah University of Medical Sciences (IR.KUMS.REC.1397.952). The intervention protocol and method were registered in the Iranian Registry of Clinical Trials (IRCT20190222042797N1). The sample was collected from all students suffering from social anxiety in Kermanshah University of Medical Sciences using purposive sampling. The sample size was determined based on the average number of previous mindfulness-based cognitive therapy published studies [22]. Twelve people were needed for each group.

First, the participants were informed of the research via announcements in university's social media and posters in different faculties and also the dormitory; in addition, some with symptoms of social anxiety, were invited by the counselling center of the university to participate in a free session of psychological assessment. A diagnostic interview was done by a clinical psychologist according to the Anxiety Disorders Interview Schedule (ADIS-IV) for all the participants. After considering the inclusion criteria and exclusion criteria, the ones interested, were randomly assigned to control and experimental groups based on the codes of a random number generator (<http://stattrek.com/statistics/random-number-generator.aspx>). Some of the inclusion criteria were as follows: being diagnosed with social anxiety disorder, having informed consent by the participants, not having participated in psychotherapy sessions during the last year, not having been on psychiatric medication during the last year, not being diagnosed with other comorbid anxiety disorders, not being diagnosed with mood disorders or other severe psychiatric or neurologic disorders and not being addicted to substance or alcohol. The exclusion criteria included not being interested in participating in the therapy sessions or participating simultaneously in another therapy program.

In the experimental group, eight 150 minute sessions were held according to Segal et al.'s mindfulness-based cognitive therapy protocol [22], (Table 1). Before the beginning of the treatment phase, participants in the MBCT group were invited for a pre-class interview with the therapist to prepare them for the course. The intervention was performed by a MSc in clinical psychology (first author) who had received specialized training in this area under the supervision of a PhD in clinical psychology. In the control group, no intervention was done. One of the participants in this group, due to lack of availability, did not complete the follow-up assessment. Participant's allocations have been showed in Figure 1.

For having respected ethical principles, before the beginning of the sessions, all the participants were informed of the procedure of this study and handed in their informed consent form. After finishing the sessions, the participants were referred to other psychotherapists or psychiatrists for receiving complementary therapy sessions if needed.

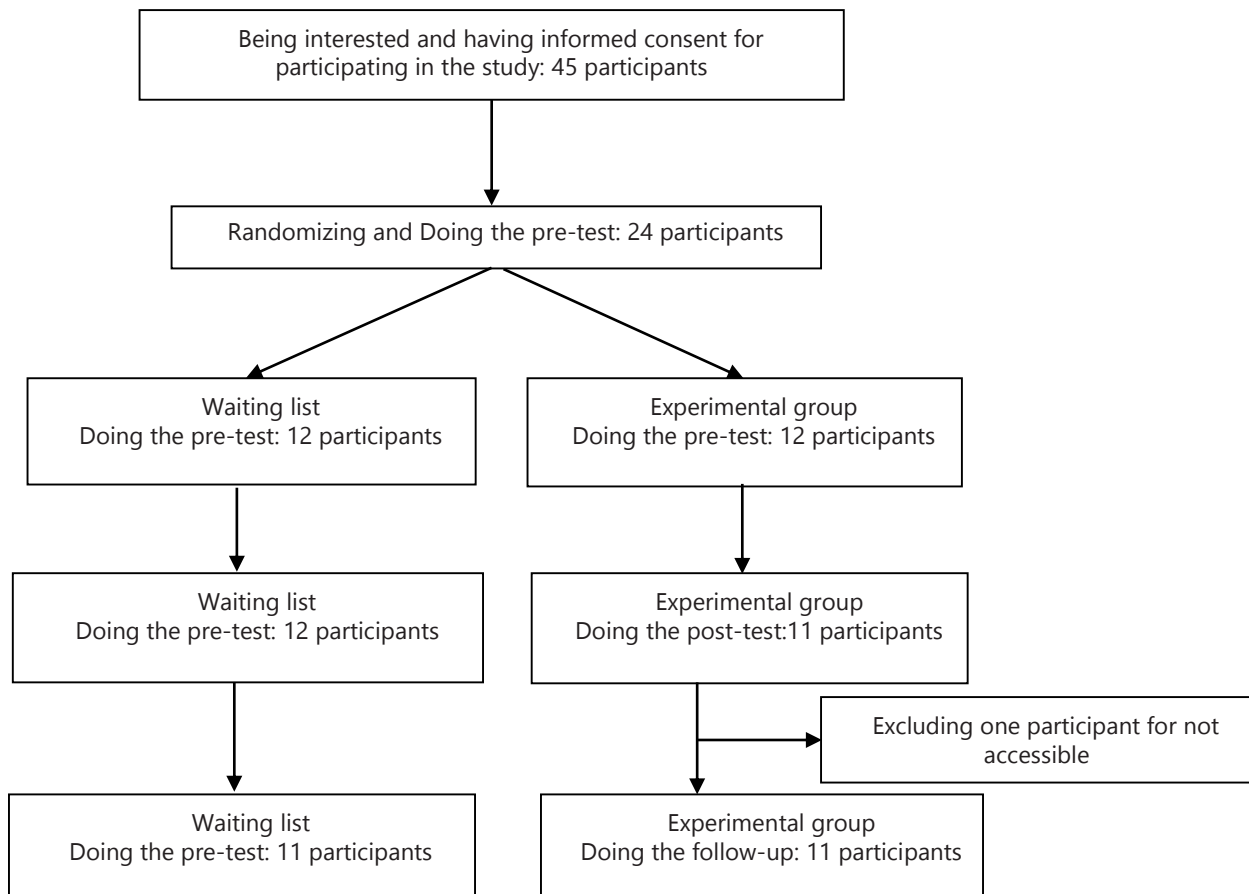


Figure 1. The participants' diagram during pre-test, post-test and follow-up

Anxiety Disorders Interview Schedule for DSM-IV Adult Version (ADIS-IV)

This scale is a semi-structured clinical and diagnostic interview for anxiety disorders which was prepared by Brown et al. in 1994 [23]. In addition to anxiety disorders, it includes mood disorders, somatoform disorders, psychosis and substance abuse disorder. Clinician Severity Rating is measured between zero (no symptoms) to eight (highly disturbing symptoms). Clinician severity rating of ADIS-IV is used for differentiating clinical and sub-clinical diagnoses. According to it, rates of four or more, show that the symptoms of the patient, are enough for the diagnostic threshold of DSM-IV-TR or even higher than that (It means complete concordance with the diagnostic symptoms of that disorder). Rates of three or less, lead to diagnoses of relative or complete recovery. In result oriented research where ADIS-IV is used, clinician severity rating is usually used as a parameter for recovery after therapy and follow-up [23]. The content validity of the Persian version of this scale has been approved and its test-retest reliability coefficient after a week, is reported to be 0.83 [24]. In the current research, this scale was used for screening and confirming the mentioned clinical diagnoses, plus for rating the severity of social anxiety disorder.

Social Interaction Anxiety Scale (SIAS)

This questionnaire has been made by Heimberg et al. in 1992. It includes 20 phrases related to people's reactions towards group social or interpersonal interactions. The scores are measured via a five point Likert scale and the higher the scores are, the more anxiety there is during

social interactions. The measured validity and reliability for this questionnaire are 0.84 and 0.91 [25]. Allah Yari et al. have translated and standardized this scale in Persian. The calculated test-retest reliability and Cronbach's alpha coefficient in their study, are 0.79 and 0.90. Its validity measurements with the Brief Fear of Negative Evaluation Scale and Social Phobia Inventory are reported as 0.54 and 0.68 respectively [26].

Self-Compassion Scale (SCS)

Having a five point Likert scale, this scale includes 26 phrases which measure three dual components in six subscales. These subscales include self-kindness, self-judgment, mindfulness, common humanity, isolation, and over identified items [11]. Cronbach's alpha coefficient of this scale (0.92) shows the high internal consistency of its first version; plus, acceptable convergent validity, divergent validity and test-retest reliability have been reported for this scale [11]. In a Persian student sample, the six-element structure of SCS has been confirmed and the calculated Cronbach's alpha coefficient in this study, was 0.86. The range of Cronbach's alpha coefficient for each of the subscales, was 0.79 to 0.85 [27].

Interpersonal Sensitivity Measure (IPSM)

This scale was designed by Boyce and Parker to evaluate (1989) the basic elements of interpersonal sensitivity. It has 36 questions and five sub-scales. Each phrase is rated in a four point Likert scale. The five mentioned subscales include: interpersonal awareness (being sensitive to interpersonal interactions and the person's understanding of the impact he/she may have on the others and the consequences of receiving a criticizing or negative

response from someone), need for approval (reflects a person’s tendency to please others and have a compromising relationship with them, separation anxiety (high scores in this factor, show feeling anxious while having interpersonal contact), timidity (this subscale shows lack of assertiveness; high scorers, are unable to receive a rewarding reinforcement because of their bashfulness) and fragile inner-self (a person’s feeling of being unlovable and having to hide from the others).

Studies have shown proper psychometric features for IPSM; high scores of internal consistency, test-retest reliability, convergent validity and divergent validity have been reported. According to Boyce and Parker , the test-retest reliability coefficient of the scale is 0.85 and the measurements for the subscales, range from 0.55 to 0.76 [28]. In a study carried out by Mohammadian et al. in Iran, 0.86 was reported for the test-retest reliability coefficient and the range for subscales was between 0.51 to 0.71 [29].

Table 1. The summary of mindfulness-based intervention session contents

Session number	Aims	Session content	Expected behavior change	Homework
1	Introduction and goal setting	Mindfulness exercise - body scan exercise	Awareness towards moments	Breathing exercise (three times a day)
2	Concentrating on body and controlling daily events	Body scan meditation – thoughts and feelings exercise – writing down the desirable events	Coping with barriers	Writing down reports of desirable daily events
3	Breathing and stretching exercise	Mindful walking – listing undesirable events	Mindful breathing	Identifying and writing down undesirable experiences – repeating the first stage
4	Learning to breathe	Sitting meditation – three minute breath	present in the moment	Sitting meditation
5	Acceptance and letting the presence	Sitting meditation – emphasizing on focus on thoughts, feelings and body sensations	Reacting to thoughts and feelings	Sitting meditation-repeating the first stage
6	Awareness of breath and body	Moods, thoughts, alternative attitude exercise -determining signs of relapse	The effect of breath on body	Repeating stage five
7	Self-care in the best possible way	Becoming aware of the relatedness of activities and mood- daily list of thoughts and feelings- identifying relapse symptoms and coping with them	Dealing with mood	Repeating stage five-relapse prevention
8	Regular mindfulness exercise and keeping life balanced	Body scan exercise- reviewing the whole program- sitting meditation- handing out questionnaires (post-test)	Mindfulness and relapse prevention	Repeating the stage

Results

Prior to covariance analysis, the assumptions of variance consistency, and normality and consistency of the data regression were performed to ensure that the test was appropriate for analysis. The results of Box’s M test showed that the matrix of covariance was equal in multivariate analysis of covariance (MANCOVA) ($P > 0.05$). Wilk’s Lambda test that measures the efficacy of the treatment in all target variables showed that the linear

combination of Self-Compassion components differed significantly between the control and experimental groups in the post-test stage (Wilk’s Lambda = 0.085, $P = 0.001$, $F = 19.66$) and the follow-up (Wilk’s Lambda = 0.110, $P = 0.001$, $F = 13.48$). Twenty-four subjects participated in this study, whose demographic characteristics are presented in Table 2. There was no significant difference in the age and education level between the two groups ($P > 0.05$).

Table 2. Demographic characteristics of the subjects

Parameters	Experimental group	Control group
Grade		
Bachelor	4 (33.3)	4 (33.3)
MSc	6 (50.0)	7 (58.3)
PhD	2 (16.7)	1 (8.3)
Age, y	22.83± 2.12	23.16± 1.85
Gender		
Male	7 (58.3)	8 (66.7)
Female	5 (41.7)	4 (33.3)

Table 3 presents the mean and standard deviation of the intervention and control groups. The results show that MBCT has been effective on the variables of self-kindness index, self-judgment, mindfulness, common humanity, isolation, over identified, IPSM and SIAS.

As Table 4 shows, the results of univariate and multivariate covariance analysis show that MBCT significantly improved self-kindness index, self-judgment, mindfulness, common humanity, Isolation, over identified, IPSM and SIAS in the intervention group.

Table 3. Comparison of mean and standard deviation of target variables in the control and experimental groups

	Intervention group			Control group		
	Pre test	Post test	Follow up	Pre test	Post test	Follow up
self-kindness	11.33 (1.37)	13.75 (1.28)	12.54 (1.03)	10.91 (1.31)	11.83(1.33)	10.91(1.08)
Self-judgment	17.50 (1.88)	16.58 (1.62)	17.18 (2.08)	17.66 (1.72)	18.33(1.49)	18.91(1.24)
Common humanity	9.66 (1.37)	12.08 (1.37)	12.04 (1.03)	10.08 (1.72)	9.91 (1.37)	10.25(0.96)
Isolation	14.83 (1.64)	12.50 (1.56)	13.27 (0.90)	13.58 (1.67)	14.91(1.37)	15.33(1.15)
Mindfulness	9.66 (1.61)	12.66 (0.77)	12.27 (0.78)	9.41 (1.44)	10.50(1.50)	10.83(0.93)
over identified	12.75 (1.76)	11.16 (1.19)	11.18 (1.25)	13.58(1.67)	13.16(1.08)	12.25(0.83)
IPSM	108.25(1.42)	104.08 (1.24)	104.83(1.46)	107.75(1.54)	107.00(2.41)	108.09(2.21)
SIAS	50.33 (3.57)	45.83 (1.11)	46.36 (1.12)	51.66 (1.49)	49.25 (1.21)	49.33 (1.43)

Table 4. Descriptive statistics and the effect of MBCT based on univariate and multivariate covariance analysis on target variables in the experimental group

	Variable	F	P Value	Effect size
Post test	self-kindness	34.69	0.001	0.684
	self-judgment	19.94	0.001	0.555
	Mindfulness	18.41	0.001	0.535
	common humanity	19.10	0.001	0.544
	Isolation	25.23	0.001	0.612
	over identified	24.62	0.001	0.606
	IPSM	44.77	0.001	0.681
Follow up	SIAS	45.51	0.001	0.684
	self-kindness	13.77	0.002	0.479
	self-judgment	24.73	0.001	0.622
	Mindfulness	28.55	0.001	0.656
	common humanity	16.88	0.001	0.529
	Isolation	12.40	0.003	0.453
	over identified	21.98	0.001	0.594
	IPSM	25.51	0.001	0.561
	SIAS	26.607	0.001	0.571

Discussion

The aim of this study was to assess the effectiveness of mindfulness-based cognitive therapy on the psychological symptoms of social anxiety sufferers. The selected psychological symptoms were self-compassion, interpersonal sensitivity and severity of social anxiety. Based on the results of this study, mindfulness-based cognitive therapy can improve psychological symptoms of experimental group, compared to the control group. These findings are in accordance with previous studies [18-21,30, 31]. In a research in which mindfulness-based cognitive therapy was systematically studied, it was concluded that this therapy can effectively reduce symptoms of depression and anxiety in different mentally ill people [19].

In a clinical randomized controlled trial carried out by Ebrahiminejad et al., 60 female teenage students diagnosed with social anxiety, were randomly allocated to experimental and control groups. They found out that mindfulness-based cognitive therapy significantly affected the enhancement of self-esteem and reduction of social anxiety in participants [18]. In the current study, mindfulness-based cognitive therapy was found to be effective in decreasing social anxiety symptoms in patients. Based on the findings of the current study, it can

be concluded that mindfulness-based cognitive therapy, helps reduce the severity of social anxiety and interpersonal sensitivity and also leads to increased self-compassion in social anxiety sufferers.

In this study, mindfulness-based cognitive therapy led to lowered social anxiety which was the main aim of this research. The actual target of this treatment is informing the patient of the alternative responses to fear and anxiety. This awareness can effectively increase the emotional reactions of the patients by involving the high-level mental functions such as attention, awareness, tendency to kindness and compassion, curiosity and higher perception while preventing limbic system's operation [32].

The other finding of the present study was that MBCT led to higher self-compassion in patients. Various studies have mentioned self-compassion as a powerful predictor for the severity of symptoms and mental health which could be a considerable component in mindfulness-based interventions [33]. There are possible ways for enhancing self-compassion. The ones used in MBCT are known to be beneficial due to the nature of the employed techniques. These include special focus on self-acceptance and negative feelings without judgement towards personal reactions. Self-compassion is related to mental welfare

and mental health and is like a shield against harmful mental factors [34, 35].

When people are dealing with negative thoughts and feelings, they can't accept their emotional experiences as they are and therefore, begin having excessive negative ruminations, hating themselves and feeling unworthy [33]. In contrast, in mindfulness-based cognitive therapy, the patients are taught to have a more objective perspective towards insufficiency and failures; helping them obtain the needed mental atmosphere for understanding such experiences more properly [34].

The third finding of the present study shows that MBCT leads to lowered interpersonal sensitivity among the students diagnosed with social anxiety. High interpersonal sensitivity, is one of the main indicators of social anxiety [36]. These group of people, tend to change their behavior according to others' expectations to avoid being criticized or rejected [28]. On the other hand, according to Liebowitz et al. , lack of awareness about interpersonal actions and reactions, and fear of being judged or evaluated, are both intensifying factors of social anxiety[36]. [28]. This is while in mindfulness-based cognitive therapy there is emphasis on avoiding judgement, having purposeful awareness and focusing on the present time. Therefore, after educating patients on such skills, they seem to have a more objective perspective towards interpersonal interactions and become more aware of their own activities. Finally, after becoming dominant over thoughts and feelings, regardless of their anxiety, the patients show significant improvements in their interpersonal relationships.

During this study, researches faced a few limitations. The first one was related to the sample size. The sample size in the current research, limited the generalizability of the findings; therefore, it is recommended that higher number of participants be assessed for future studies, so that the results would be more reliable. The second limitation refers to the participants; as the whole sample, included only university students, the results cannot be used for all groups of the society. The third limitation was related to lack of therapy sessions for the control group and considering therapy sessions for these participants is what is recommend.

Conclusion

The results of the present study indicated that mindfulness-based cognitive therapy significantly reduced social anxiety and interpersonal sensitivity and increased self-compassion in students with SAD.

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