EFFECTIVENESS OF MINDFULNESS BASED ON COGNITIVE THERAPY (MBCT) ON REDUCING SEVERITY OF SYMPTOM IN PATIENT WITH IRRITABLE BOWEL SYNDROME

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Abstract

Irritable Bowel Syndrome (IBS) is considered among the functional gastrointestinal disorders that is characterized by abdominal pain and altered bowel habits (diarrhea and constipation) and causes functional disability, affecting the life quality in a negative way and high health care costs. In addition to medications, behavioral therapies have recently been discussed. The purpose of the present study was to investigate the effect of mindfulness-based cognitive therapy (MBCT) on depression, anxiety and the severity of symptoms among patients with IBS. For this purpose, a population of 30 patients with IBS was randomly assigned into two groups of experimental and control. First, Beck Depression Inventory-II (BDI-II), Beck Anxiety Inventory (BAI) and Gastrointestinal Symptom Rating Scale (GSRS) were filled by the participants. Then, the participants in the experimental group passed eight sessions of MBCT and the duration of each session was two hours. Due to the reduction of participants to 9, the same number was chosen for the control group as well. At the end of therapy, the posttest was administered. In order to analyze data, descriptive statistics and analysis of covariance were used. After the intervention, the mean scores of depression, anxiety and the severity of symptoms were significantly decreased. In addition to medication, MBCT can be effective as a part of the treatment of patients with IBS and it decreases the severity of symptoms as well as psychological problems of patients with IBS.

Keywords: mindfulness-based cognitive therapy, depression, anxiety, irritable bowel syndrome

1 INTRODUCTION

Gastrointestinal disorders are a group of physical diseases that are characterized by unknown reason, long and unpredictable illness periods and few drug affects (Harrison, 2011). Among these disorders, IBS is the most common, costly and disabling one (Lackner, 2005). IBS is among the most unrecognized gastrointestinal disorders that is characterized by abdominal pain and changes in bowel habits (diarrhea and constipation) and can be detected in the absence of structural abnormalities. IBS is a disease specific to young people and most often occurs before the age of 45 and affects women 2 to 3 times more than men (Harrison, 2011) and its frequency has been reported as 9-22% among various societies (Dean et al., 2005). It has been shown that those patients with severe IBS have low life quality and IBS problems are the same as severe gastrointestinal diseases. IBS has been the second reason of absence after cold and those

affected by this problem have left their work 3 times more than others (Hasler et al., 2003).

Most of the studies have shown the remarkable combination of IBS with mental disorders (Jart et al., 1998). Blanchard et al. (2006) in a comprehensive study concluded that 55% of patients with IBS have a mental disorder in axis I. Meanwhile, mood disorders (depression and dysthymia), anxiety disorders (specially generalized anxiety disorder and panic), and somatization disorder (hypochondriasis) are among the most common mental disorders (Yates et al., 2005). The relationship between IBS and psychiatric disorders has been investigated in various cases. In a study by Yates (2010), the psychiatric status of patients with severe intestinal problems was compared with those without gastrointestinal symptoms and it was shown that depression and anxiety was more common among those who had more gastrointestinal symptoms. In a study by Whitehead et al. (2004), IBS patients were compared with the matched control group based on age and sex. In this study, 30/5% of those with IBS had depression and 15/5% were suffering from anxiety disorder compared to control group that indicated 16/7% and 5/75%, respectively. Moreover, other studies have indicated that 70% to 90% of patients with IBS, at the same time suffer from mental problems, specially mood and anxiety disorders (Jones et al., 2006). Many studies have been conducted on investigating the role of psychological factors in IBS. Stress, anxiety and depression have been common among patients and are related with the onset and severity of symptoms (Ishigy Chi et al., 2003).

Depression is a behavioral disorder and in the most common usage, this term is used for low or sadness. Nowadays, depression is the fourth most common disease in the world and according to the information released by the World Health Organization (WHO), 340 million people around the world suffer from depression. According to the estimates, it is predicted that by 2020, this disease becomes the world's second most common disease (Ghaemmohammadi, 2004). Various studies indicate that the prevalence of clinical depression in Iran is more than other countries. Women's risk of depression (30/5%) is higher than those of men (16/7%) (Kaviani, Ahmadi, Nazari and Hormozi, 2002). The results of studies have shown that the states of confusion and misuse of drugs have been so common (Canoy and Camton, 2006). Also, depression is often accompanied by dangerous medical diseases such as heart disease, heart attack (stroke), cancer, AIDS and diabetes. Various studies have shown that depression has negative consequences in physical disease. These consequences include increased disability, increase complexity of treatment and prognosis, increased duration of illness, increased levels of health care costs, functional problems, increased mortality and low quality of life (Sichansky, Canon and Rooso, 2000).

Among the other factors related to IBS, one can be referred to anxiety. Anxiety is defined as worrying due to the problem. Anxiety is among the most common mental disorders that has physical symptoms (tremors in hands and feet, palpitation, nausea, diarrhea and dry mouth), cognitive symptoms (low concentration, hover, feeling confusion, fear of madness), and behavioral symptoms (irritability and staying motionless) (Omidvari et al., 2012). Low levels of anxiety lead to increased concentration and awareness. On the other hand, severe anxiety disrupts the behavioral stability of person and avoids any logical response (Yaghmaei et al., 2012). The prevalence of anxiety in Iran is the same as depression (Kaviani, Ahmadi, Nazari and Hormozi, 2002). Also, some of the studies indicate that comorbidity of depression and anxiety in Iran is a little bit lower than 60% and their overlap is very high (Kaviani and Ghasemzadeh, 2003). The term "stress" points to the existence of a threatening event and person's evaluation of the available resources while dealing with that event and the term "coping" is defined as cognitive and behavioral attempts to dominate threatening situations such as challenges of the disease. According to the reports, defect in coping strategies is considered as one of the risk factors in severity of IBS symptoms. Patients with IBS have greater reliance on passive coping strategies and experience higher levels of psychological distress (Jones et al., 2006).

In addition to medical treatment methods that their complications of abuse are inevitable, the use of non-pharmaceutical methods and complementary therapies effective in anxiety and controlling its clinical signs are recommended by the specialists (Mousavi, Mirzaei and Soltani, 2010). Methods such as avoidance, dodging, mental preparation, mental positive suggestion, light exercise, muscle relaxation and listening to music help to reduce anxiety (Hasanpour et al., 2010). One of the non-medical treatments to control and treatment of anxiety is MBCT (Rabiei and Malekmahmoudi, 2007). The researchers have indicated that enhancing the mindfulness is related to a variety of health outcomes such as decreased pain, anxiety, depression, eating disorder and stress. Mindfulness can be effective in releasing automatic thoughts, habits and unhealthy behavioral patterns. Therefore, it has an important role in the behavioral adjustment. Moreover, adding to life experiences can bring health and happiness. Mindfulness is defined as a particular and targeted attention at the present time without prejudice and judgment. In mindfulness state, at any moment of the subjective way, the person becomes aware and learns useful identification skills. For the mind, two main approaches are considered: one is "doing" and another is "to be." In mindfulness we learn

how to move the mind from one approach to another. Mindfulness necessitates particular behavioral, cognitive and metacognitive approaches to focus attention process that leads to avoiding reductive spiral of negative mood, negative thoughts, tendency to worrying responses and the growth of new perspective and emergence of pleasant thoughts and emotions (Segal et al., 2002). Therefore, change in awareness and creating a new relationship with thoughts are confirmed. MBCT presents different methods of coping with emotions, pain and distress. The assumption is that the lack of relationship with negative thought, brings a skill by which the person will not be engaged with rumination (Omidi et al., 2008). This type of cognitive therapy includes various meditations, yoga, basic instructions about depression, training and several cognitive trainings and shows the relationship between mood, thoughts, feelings and body senses (Kaviani et al., 2005). Various studies have investigated the effectiveness of cognitive therapy in treating mental problems. For example Mousavian et al. (2010) investigated the effect of MBCT on weight loss. The results of this study indicated that MBCT is effective in weight loss and the results indicated a kind of stability. In this regard, Sadeghi (2008) investigated the effectiveness of MBCT in stress coping strategies and medication in reducing depression of divorced women. The results indicated that MBCT showed a significant difference compared to other interventions in reducing depression, dysfunctional attitudes and modifying coping skills of divorced women. Also, Bogels (2008) performed mindfulness exercises on teenagers with external disorders and after 8 sessions of training, they showed significant progress in setting personal goals, internal and external complaints, problems, happiness and knowledge of mind. Also, their parents confirmed these changes. Mathew et al. (2010) indicated that there is a negative correlation between rumination and mindfulness and the results of trainings were indicative of depression prevention in long-term period. Also, Graigie et al. (2008) used mindfulness training for treating Generalized Anxiety Disorder (GAD) and showed a significant improve in pathological anxiety, stress, quality of life and a number of other indications after treatment and follow-up meetings.

Due to the prevalence, importance and role of IBS in life quality and its social and economic costs, the present study seeks to answer to the this question that has MBCT any effect on depression, anxiety and clinical signs of patients with IBS? It is hoped that the findings of this study absorb the attention of national health policymakers in order to prevent the rapid growth of non-communicable disease.

2 METHODOLOGY

The design of the present study is quasi-experimental. The sample of this study consisted of women with IBS, from Tooba Specialized Clinic, who were categorized based on ROME II. Through non-random sampling method, a sample of 30 subjects was chosen. These participants were assigned into two groups of experimental and control (each consisted of 15 subjects). The instruments used in this study consisted of Beck Depression Inventory-II (BDI-II), Beck Anxiety Inventory (BAI) and Gastrointestinal Symptom Rating Scale (GSRS).

Beck Depression Inventory-II (BDI-II): BDI is among the most appropriate tools to evaluate depression. The second version of BDI is BDI-II that is the revised version of BDI and has been designed to evaluate depression (Beck, Brown and Steer, 2000). This questionnaire consists of 21 items that evaluate physical, behavioral and cognitive signs of depression. Each item has 4 options that are scored between 0 and 3 and determine different degrees of depression from mild to severe. The maximum and minimum scores of this questionnaire are 63 and 0, respectively. The version of BID is more consistent with DSM-IV. Moreover, the revised version of this questionnaire covers all depression elements based on cognitive theory of depression. The psychometric studies on the second version of this questionnaire indicate that it has an acceptable level of reliability and validity and can be considered as a suitable substitute for the first version. Beck, Steer and Brown have reported the internal consistency of this questionnaire as 0/73 and 0/72, with the mean of 0/86 and Cronbach's alpha coefficient of 0/86 and 0/81 for patients and non-patients, respectively. Also, Dasbon and Mohammadkhani (2007) obtained the Cronbach's alpha of 0/92 for outpatients and 0/93 for students as well as test-retest reliability coefficient of 0/93.

Beck Anxiety Inventory (BAI): this questionnaire has been designed to evaluate anxiety and consists of 21 items. Each item is a reflection of one of the anxiety symptoms and those who are clinically anxious or those who are in a state of apprehension experience. The subjects should read the list of symbols and mark the considered columns. This questionnaire consists of 21 items and each has 4 options that are scored based on 0 to 3 and determine different degrees of anxiety, from mild to severe. Scores range from 0 to 63 and high scores indicate the severity of anxiety. This scale has obtained an acceptable level of internal consistency and its correlation ranges from 0/30 to 0/71 (M = 0/60). This scale was administered on 83 patients with one week intervention and the high correlation of 0/75 was obtained. In a study by Kaviani and Mousavi (2008), the reliability and validity of this scale was confirmed as 0/72 and 0/92, respectively. The correlations of BAI

were significant compared to several clinical tests. The correlations of BAI results with HARS-R and HRSDR-R were 0/51 and 0/25, respectively. The correlation of BAI results with BDI was 0/48.

Gastrointestinal Symptom Rating Scale (GSRS): in order to measure the severity of gastrointestinal symptoms, GSRS that contains evaluation of 15 gastrointestinal symptoms, was used. The questions of this scale were at three levels of mild, moderate and severe which the score of 0 indicates the minimum signs and 93 indicate the maximum severity of signs. Reliability and validity of English version of this scale were confirmed by Tali and colleagues. In a study by Hazrati et al. (2005), in order to evaluate the reliability and validity of this scale, it was translated into Persian and was evaluated by competent professor and its validity was confirmed. The reliability of this scale was determined by internal consistency and Cronbach's alpha of 86% and 88%, respectively.

The content of training sessions: the content of training sessions was selected from "mindfulness-based cognitive therapy for depression", written and translated by Mohammadkhani et al. (2005). In this book, the eight sessions (MBCT) are comprehensively described. In MBCT, the first step is how to focus on a target, at the moment and without arbitration. The method is instructed in sessions1-4 and at the second phase (5-8), the instructors should note that whenever thoughts and feelings are appeared, before tricky answers let them to keep their thought in the same way. By doing so, the participant remember how to be aware of their own thoughts and feelings and would be able to focus on their breathing.

The subject and programs of each session

Technique	Content	Purpose	Topic	Sessions
Instructing physical checking techniques	Instructing the essence of anxiety and how to keep it	Changing old habits of mind and learning new ones	autopilot	Session 1
Breathing exercise with mindfulness, meditation at setting position	More awareness of feelings, thoughts and physical signs	Challenge with the barriers	Mental whispers	Session 2
Seeing and hearing practice, walking with mindfulness and breathing space	More attention to feelings and thoughts and developing them as well as accepting thoughts and unpleasant feelings	More awareness of mind	Uniformity	Session 3
Awareness of breathing meditation, body, voice and mind and breathing space	Identifying own thoughts and their role in the creation and continuation of depression and anxiety and instructing response skills for unpleasant thought and feeling	Coping with the distraction and change in attitude	Span	Session 4
Setting meditation, awareness of breath, body, voices and thoughts	Awareness training and its role in changing mood and redirecting attention as well as attention to wandering of mind when thoughts and feelings are disturbing	Experience without judgment or change	Different relationship	Session 5
Recognition of thoughts and separation training	Changing old habits such as recognizing automatic routines, frustrated feeling with the lack of interest in previous activities, escaping from anxiety	Change in mood and negative thoughts	Different perspective	Session 6
Using mindfulness practice tapes or physical inspection	Awareness and recognition of anxiety symptoms, selecting the activities and using the	Effective coping with		Session 7

	most efficient trainings			
Reviewing previous trainings and homework	Strengthening positive intentions, awareness of small changes in mood, discussion and planning about the motivation that has been created during the past 7 weeks	Regular mindfulness training in order to maintain balance in life	Balancing	Session 8

In order to implement the first phase (pretest), the purposes of study and the importance of correct answers were explained to the participants. Then, BDI-II, BAI and GSRS were administered, respectively (the participants were asked to mention their name and phone number). After determination of the sample and random assignment of subjects into two groups of control and experimental, the data of training sessions were appointed. In the second phase, MBCT was implemented. After the end of eight sessions (each was 2 hours) in eight week, the third phase (posttest) was performed and the results were analyzed.

Data Analysis: in order to analyze the obtained data, descriptive statistics including tables, mean and variable charts as well as inferential statistics including analysis of covariance were used. In order to run statistical analyses, SPSS 18 was used.

3 FINDINGS

In this section, the data obtained using tables are presented as descriptive and inferential and the results and research hypotheses are discussed.

3.1 Descriptive statistics

Table 1: frequency distribution based on each group of subjects

Frequency percentage	Frequency	Group
50	9	Experimental
50	9	Control
100	18	Total

The results of Table (1) indicate that from 16 samples, 50% of the subjects (9 individuals) were in experimental group and other 50% (9 individuals) were in control group.

Table 2: Summary of statistical indicators related to age

18	Number	
36.83	Mean	
11.036	SD	
121.794	Variance	
39	Range	
21	Minimum	
60	Maximum	
27.75	First	Quarters
36	Second	
46	Third	

The data of Table (2) indicate that the mean and median age are 36/33 and 36, respectively. SD and range of age are 11/036 and 121/794, respectively. The maximum and minimum age are 60 and 21, respectively. 25% of lower than 27/75 years, 50% lower than 36 years and 75% are lower than 46 years.

Table 3: Summary of statistical indicators related to scores of gastrointestinal complaints among control and experimental groups

Control		Experimental			
Anxiety posttest	Anxiety pretest	Anxiety posttest	Anxiety pretest		
9	9	9	9	Number	
23	24.78	23.67	29.33	Mean	
23	24	21	28	Median	
20	21	21	18	Mode	
3.873	4.604	7.194	6.892	SD	
15	21.194	51.75	47.5	Variance	
11	14	22	23	Range	
18	18	15	18	Minimum	
29	32	35	41	Maximum	
20	21	17.5	25	First	Quarters
23	24	21	28	Second	
26.5	29	29	34.5	Third	

The data of Table (3) indicate the intestinal complaints indicators of pretest and posttest in control and experimental groups. In experimental group, the means of anxiety pretest were 29/33 and 23/67, respectively. In the case of control group, the means were 24/78 and 23, respectively.

3.2 Inferential statistics

In order to examine the research hypotheses, the univariate analysis of covariance was used. Before run covariance analysis, the normality assumption and homogeneity of slopes were confirmed.

Hypothesis 1: MBCT leads to decreased severity of symptoms of patients with ISB.

Table 4: The results of covariance analysis for gastrointestinal symptoms

Significance level	F	Mean of squares) MS (	df	Sum of squares) SS (	
0.001	11.932	164.565	2	329.130	Revised version of posttest
0.582	0.316	4.358	1	4.358	Posttest separator
0.000	23.720	327.130	1	327.130	Depression pretest
0.153	2.262	31.200	15	31.200	Group
		13.791	18	206.870	Error
				10336	Total

The results of Table (4) indicate that the calculated F (F – 2/262) at the confidence level of 95% is larger than F in the table. Therefore, the null hypothesis is rejected and hypothesis 3 is confirmed. It is concluded that MBCT is related to decreased severity of gastrointestinal symptoms of patients with IBS.

4 DISCUSSIONS AND CONCLUSION

Since the prevalence of depression and anxiety in patients with IBS is very common, this study aimed to investigate the effect of MBCT on depression, anxiety and severity of gastrointestinal symptoms. In the case of the first research hypothesis (MBCT leads to decreased depression of patients with IBS), the results of univariate analysis of covariance showed that MBCT has been effective in decreasing depression of patients with IBS in experimental group. Therefore, the research hypothesis is confirmed. These findings are consistent with the research findings of Haghayegh et al. (2008), Sckelman (2004) and Kenny and Williams (2005). Depression is a mental disorder that has a comprehensive nature of several elements instead of an absolute feature. Depression is a state in which the mood is depressed and is accompanied by other mental and physical signs such as insomnia, eating disorders, difficulty in concentration and feelings of hopelessness and worthlessness. According to Beck, people would be depressed due to their negative thoughts. He stated that depression is related to having negative attitudes toward self, world and future. In the case of world, it is referred to the immediate environment of person. MBCT trains patients how to transform their ruminative, habitual and automatic mental pattern into thoughtful and deliberate pattern of mind, in a way that negative feelings and thoughts will be considered as simple events.

In the case of the second research hypothesis that states MBCT leads to decreased anxiety of patients with IBS, the results of univariate analysis of covariance indicated that MBCT was effective in decreasing the anxiety of patients with IBS. Therefore, the second hypothesis is confirmed. These results are consistent with the results of studies by Kaviani et al. (2005), Sadeghi (2008) and Sckelman (2004). Anxiety is an unpleasant feeling and is accompanied by shortness of breath, palpitation, sweating, headache, restlessness and desire to move. Anxiety is an alerting sign that alerts the impeding danger and prepares person to confront threats. As Zin states, mindfulness is paying attention in a particular way, at the present time and without judgment. By mindfulness, the person learns to have awareness of his mental states and concentrate on his various mental aspects. As was stated in the previous hypothesis, mindfulness trainings and permanent monitoring of anxiety senses, without and prejudgment and avoidance, would lead to decreased emotional responses that usually arose by anxiety symptoms. Observing without judging thoughts related to anxiety can lead to understanding this point that these are only “thoughts” and do not indicate reality and should not necessarily lead to escape or avoidance. On the other hand, in MBCT trainings, subjects are asked to make a different relationship with their own unpleasant experiences and let feelings to stay in awareness state and see the presence of mind while responding to feelings. It seems that this relationship leads to decreased anxiety.

Finally, the third hypothesis states that MBCT leads to decreased symptoms of patients with IBS. As the results of covariance analysis indicate, MBCT decreases the gastrointestinal symptoms of subjects in experimental group which was significant. Therefore, the third hypothesis is confirmed. These are consistent with the findings of Kheiabadi et al. (2010), Hazrati et al. (2006) and Lutson et al. (2010). ISB is a gastrointestinal syndrome that is characterized by abdominal pain and change in bowel behavior without the presence of organic factor. Stress, anxiety and depression are common among these patients and are related to the severity of symptoms. Patients with severe IBS have low life quality and the problems of IBS are the same as those of severe gastrointestinal problems. IBS has been the second main reason of work absence after cold and those with this problem had left their work three times more than others. Stress can increase depression and anxiety of patients with IBS. The previous hypotheses indicated that mindfulness trainings can decrease depression and anxiety. As a result, the life quality of patients with IBS enhances and by decreased anxiety, the severity of gastrointestinal symptoms decreases as well.

The results indicate that MBCT is effective in depression, anxiety and the severity of gastrointestinal symptoms in patients with IBS. MBCT has been investigated from various aspects, but in the case of patients with IBS, no prominent study has been conducted. The results of this study showed that eight sessions of MBCT trainings have led to decreased depression and anxiety of patients as well as significant decrease of gastrointestinal symptoms. The evidence indicates that MBSR that MBCT has derived from it, works based on integrating the mind and body. By creating and enhancing non-judgmental view towards thoughts and feelings, these interventions help IBS patients to decrease gastrointestinal symptoms by decreasing depression and anxiety.

According to the above mentioned points, the present study was conducted in Tooba Specialized Clinic;

therefore, there is a limitation for generalizing the results of this study. About other limitations of this study, it can be referred to the impossibility to compare results with those of other studies in Iran.

Despite the mentioned limitations, it is suggested to use MBCT as a psychological therapy besides medications for patients with IBS. Also, since stress is one of the important reasons of increasing gastrointestinal symptoms, those who are working in dangerous jobs (e.g. doctors, nurses), should be identified and the related actions must be done. Also, it is suggested to conduct complementary studies on stressful jobs in order to generalize the findings. Moreover, due to shortness and applicability of mindfulness trainings, in is suggested to provide the health centers with related CD and booklets.

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