The effect of mindfulness-based stress reduction (MBSR) on depression and stress reduction in patients with asthma

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ABSTRACT

This study aimed to evaluate the effectiveness of training mindfulness-based stress reduction (MBSR) on reducing depression and stress in patients with asthma. The research method was a semi-experimental, pre and post-test. A total of 114 patients with asthma, completed perceived stress and Beck Depression questionnaires. 40 patients had high scores on relevant scales, among them 26 people were selected and 13 people who were willing to participate in sessions were trained in mindfulness-based stress reduction (MBSR). Covariance analysis on pre- and post-test scores showed that there was a significant difference between two control and interventiongroups in terms of stress and depression variables. The results of the study showed the effectiveness of training mindfulness-based stress reduction (MBSR) on depression and stress in patients with asthma.

Keywords: asthma, stress, depression, mindfulness-based stress reduction (MBSR)
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INTRODUCTION

The relationships of body and soul have long been discussed (1).In the early twentieth century,this relationship was highlightedmore. This resultedin the growing awareness to the importance of psychology in history disorders, prevention of disability and better treatment prognosis (2).Nowadays, most experts believe that human beings have psychological, social, and physical dimensions which should be considered as a whole (1).

Asthma is a psychosomatic disease (3), in which genetic factors, allergens, infection, and psychological factorsshould be noted (4).The disease is a multi-faceted disorder and many psychological factors are involved in the incidence and the severity of the disease.Psychological factors, including negative excitements could be indirectly threatening the health of the respiratory system (5).Asthma is a chronic inflammatory disease of the airways (3), which is characterized by extensive narrowing of the tracheobronchial tree. The symptoms of asthma are coughing, wheezing, chest pressure, and dyspnea (4).

More than 300 million people are suffering from asthma worldwide (6),in the United States; 14 million people are suffering from the disease (5)and in Iran, according to the Ministry of Health and Medical Education in 2008, 10% of the population (equivalent to 6.5 million people) had asthma (7).This disease is the most common chronic diseases in Iran (6) and its prevalence in Kurdistan province was around 2.3% in 2007 (8).

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One of the risk factors of asthma that affects the treatment process is stress (9).Stress is a condition that causes psychological distress or physiological functions of normal individuals (10).In asthma, anxiety and depression are the most common aspects of psychopathology of the patients (11).Between 20% and 35% of the patients with asthma have more serious course during stress periods. With emphasis on the fact that psychological and emotional factors including anxiety, depression, and stress are considered as asthma triggers; researchers can investigate a psychological treatment for the signs and symptoms of asthma in their study and research (12).Mindfulness is one of the psychological treatments. Mindfulness is an attribute of consciousness which is formed during the time when we attend our experiences on a particular issue.(13).Mindfulness training reduced psychological distress as well as symptoms of anxiety and depression.It improves psychological, physical, emotional, and spiritual well-being. It also improves sleep and life quality, causes enjoyment in the life and reduces depression (14).

Mindfulness-based cognitive therapy is one of the ways to reduce perceived stress in patients (15).Mindfulness-based stress reduction (MBSR) model has been made by Kabat and Zinn (1990).This method requires special behavioral, cognitive, and metacognitive strategies to focus attention,which in turn prevents generating factors of negative mood, negative thinking and tendency to worrying answers.It also develops new perspectives and causes the formation of pleasant thoughts and emotions (16).Given the high prevalence of asthma, its high costs, and suffering of these patients,this study aimed at evaluating the effectiveness of mindfulness-based stress reduction training (MBSR) on reducing depression and stress in patients with asthma.

MATERIALS AND METHODS

This study was a quasi-experimental with pre-test, post-test and control groups**.**The population of the study was all patients with asthma in Kurdistan province in 2015 using the convenience sampling method.A total of 114 patients with asthma filled out the questionnaires and those with higher scores (N = 40) were selected. 26 of the selected patients were selected and divided into two experimental and control groups.The experimental group received 8 therapy sessions of mindfulness-based stress reduction (weekly sessions for two months).

The Beck Depression Inventory (BDI) is a 21-item; self-report rating inventory that measures characteristic attitudes and symptoms of depression. When the test is scored, a value of 0 to 3(Mild, Moderate, Severe) is assigned for each answer and then the total score is compared to a key to determine the depression's severity. The Perceived Stress Scale (PSS) is the most widely used psychological instrument for measuring the perception of stress. The questions in the PSS ask about feelings and thoughts during the last month. In each case, respondents are asked how often they felt a certain way (54).In this study,the researchers used the 14-item questionnaire. The scoring was based on a 5 Likert scale.

RESULTS

The first hypothesis: teaching mindfulness-based stress reduction is effective to reduce perceived stress in patients with asthma.

Table 1: The mean and standard deviation of the pre-test and post-test stress and depression in both experimental and control groups

Variable	Group	No.	Pre-Test		Post- Test	
			Mean	SD	Mean	SD
Stress	Experimental	13	32.15	6.216	42.92	8.129
	Control	13	31.31	7.158	33.54	6.253
Depression	Experimental	13	26.92	6.551	17.69	8.882
	Control	13	23.23	4.407	23.31	8.159

To analyze the data related to this hypothesis, covariance analysis was used.The average of post-test analysis of the experimental group was compared to the control group.The pre-test scores were used as auxiliary variable.Of course the homogeneity of regression slopes was observed. (Table 2).

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Table 2: The results of One-way analysis of variance to study the homogeneity of regression slopes in the stress post-test in two experimental and control groups

source Indicators	SS	Df	MS	F	sig
Group	2.243	1	2.243	0.035	0.854
Stress Pre-Test	250.481	1	250.481	3.875	0.062
Pre-Test Group	42.745	1	42.745	0.166	0.425
error	1422.191	22	64.645		
Total	12877.000	26			

As seen in table 2,there was no significant relationship between the groups and the pre- test stress.In other words, the data support the hypothesis of homogeneity of regression slopes. (P = 0.425 and F = 0.166).

Table 3: The results of One-way analysis of varianceto study stress post- test differences in two experimental and control groups

Source Indicators	SS	Df	MS	F	sig
Stress Pre-Test	568.485	1	568.485	18.849	0.000
Group	551.341	1	551.341	18.281	0.000
Error	693.669	23	30.160		
Total	23960.000	26			

As shown in table 3, after adjusting pre- test stress, there was a significant difference between the control and experimental groups. $p \leq 0.05, F(1.23) = 18.281$.Therefore, the null hypothesis was rejected.

In the second hypothesis: teaching mindfulness-based stress reduction is effective to reduce depression in patients with asthma.

To analyze the data related to this hypothesis, analysis of covariance was used. To analyze the data related to this hypothesis covariance analysis was used.The average of post-test analysis of the experimental group was compared to the control group.The pre-test scores were used as auxiliary variable (homogeneity of the regression slopes was observed).(Table 3).

Table 4: The results of one-way analysis of variance to study the homogeneity of regression slopes in the depression post-test in two experimental and control groups

Source Indicators	SS	Df	MS	F	sig
Group	22.259	1	22.259	0.706	0.410
Stress Pre-Test	557.938	1	557.938	17.695	0.000
Pre-Test Group	0.008	1	0.008	0.000	0.987
error	693.661	22	31.530		
Total	22.259	26	22.259	0.706	0.410

As Table 4 shows, the interaction between the group and thepre-test depression was not significant.In other words, the data support the hypothesis of homogeneity of regression slopes (p = 0.987 and F = 0.000).
As shown in table 5, after adjusting pre- test depression, there was a significant difference between the control and experimental groups. $p \leq 0/05, F(1, 23) = 2.226$.Therefore, the null hypothesis based on the lack difference between the two groups was rejected.

Table 5: The results of One-way analysis of variance to study the depression post- test differences in two experimental and control groups

Source Indicators	SS	Df	MS	F	sig
Stress Pre-Test	280.602	1	280.602	4.406	0.047
Group	332.834	1	332.834	5.226	0.032
Error	1464.936	23	63.693		
Total	12877.000	26			

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DISCUSSION AND CONCLUSION

The Results of ANOVA test showed that training mindfulness-based stress reduction reduces depression and stress in the patients.In explaining the effectiveness of mindfulness-based stress and reduction in the symptoms of depression,the technique teaches the following points to the patients: A)to identify malicious content and habitual patterns, B)to process this information in a non-judgmental manner in order to facilitate the ability of choosing between different options.This approach upsurges the flexibility of cognitive activities and also reduces mental rumination. It enhances the over generalization in the autobiographical memoryand self-critical evaluation as well. It also increases the useful cognitive processes such as: non-judgmental observation of mental content.People who had depression experience were less affected by mood swings and reactivation of destructive patterns of thoughts and feelings. This could potentially, touched off a downward cycle of depressed mood and creates a complete course (17).

In case of mindfulness, data broadcasting from of defective two-way cycles rotates to the immediate and current experience. Essentially mindfulness training teaches people how to out habit skills from prejudice mode, and by directing resources of information processing toward attention neutral targets, such as breathing or feeling the moment, prepare conditions for the change. Therefore the use of attention again in this manner prevents the increase or continuation of depressionand makes defective processing cycles less available. From this perspective, the chances of expanding and continuation of depression is reduced (18). Our mind often interprets and interfere with what happens and causes stable reactions and feelings. In people prone to depression, has a tendency to uncomfortable and negative thoughts, which in turn tends to perpetuate more sadness and depression. It is assumed that vulnerability to recurrences of depression is caused by frequent links between depressed mood and negative patterns of thinking which in turn leads to cognitive and neurological changes (19).By encouraging a person to practice Mindfulness-based therapy their attention to the experiences would be devoid of judgmental manners, causing more specialized coding of information on autobiographical memory that bearing memory in a more specialized way.This method helps to adjust feelings without judgment and acceptance of emotions and see clearly physical phenomena as they occur (20).

The important thing to explain the second hypothesis was that in mindfulness-based therapy, cognitive therapy was based on mindfulness by encouraging people to repeat their focus on neutral stimuli and purposeful awareness on their body and mind. It helps people to be free from the preoccupation with threatening thoughts and worrying about performance and brings out their minds from the automatic mode.That is, by increasing individual awareness from the experiences of the moment and returning attention to more efficient cognitive and information processing systems,these techniques reduces anxiety and stress and physiological tension (18).

The mindfulness characteristics givethe patient, understanding about the roots and the mechanisms of the disorder in the brain,prevents him from the anxious,and focuses on his thoughts and desires in consciousness.It also allows the person not to choose repeating actions and thoughts and their ruminations to reduce anxiety and stress and think about the roots of biological disorder (17).In mindfulness, people learn techniques that are related to experiencing the present moment, released temporarily from attitudes and beliefs that are rooted in the past and are affected by the future fears and anxieties. It also helps them to have no judgment, acceptance toward pleasant and unpleasant events (19).Rosensweig et al study, showed that this intervention would cut mental reaction to stressful stimuli (12).

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