Original Research

The Effectiveness Of Massage Therapy and Mindfulness Training On the Symptoms Of Depression, Anxiety And Disability Level In Women with Multiple Sclerosis (MS)

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Abstract

Backgrounds: This study was performed to evaluate the effectiveness of massage therapy and mindfulness training on the symptoms of depression, anxiety and disability level in women with multiple sclerosis.

Method: This research is a quasi-experimental research that was conducted as a pre-test-post-test design with a control group. Massage exercises and mindfulness training were considered as independent variables and anxiety, depression, and disability level were considered as dependent variables. Prior to the implementation of the independent variable, all three groups were measured using the Beck Anxiety Inventory, *Kurtzke* Expanded *Disability* Status Scale (EDSS) (online) and then, the independent variable (massage exercises and mindfulness training) was performed by the researcher for the two experimental groups. Independent variable (massage therapy) was presented in 5 sessions, 2 sessions per week, for 15 minutes and 8 sessions of mindfulness training for the two experimental groups. At the end of the sessions, post-test was taken from all three experimental and control groups. Descriptive statistics (mean and standard deviation) and inferential statistics (analysis of covariance) were used to analyze the data using SPSS22.

Result: The results of data analysis showed that the massage therapy protocol was more effective than mindfulness training in reducing anxiety and depression in women with multiple sclerosis and these two components had no effect on the level of disability in women.

Conclusion: massage therapy has a significant effect on the symptoms of depression, anxiety and disability level in women with multiple sclerosis. mindfulness has a significant effect on the symptoms of depression, anxiety and disability in women with multiple sclerosis. the effectiveness of massage therapy and mindfulness training on the symptoms of depression, anxiety and disability level in women with multiple sclerosis is different.

Keywords: Massage Therapy, Mindfulness, Anxiety, Depression, Level of Disability, Multiple Sclerosis

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Introduction

Multiple sclerosis or MS is a disease of the central nervous system destroying myelin. This disease is one of the most common neurological diseases in humans and is the most debilitating disease at a young age. In this disease, the myelin sheath of the central nervous system, such as the brain, optic nerve, and spinal cord, is damaged. The most common

onset period is adolescence and is about twice as common in women as men [1]. In these patients, fatigue is one of the most common and debilitating symptoms that causes disruption in work, social activity and daily functioning of these patients. About 80% of patients complain of fatigue, and fatigue is reported to be the first and most annoying symptom of one-third to half of patients. One study found that physical fatigue was associated with physical disability and mental fatigue was associated with depression in these patients. Physical fatigue predicts physical disability in the next year. One of the diagnostic symptoms of this disease is that MS is usually diagnosed based on the presentation of signs and symptoms, along with medical imaging and necessary laboratory tests. If a person has distinct episodes of neurological symptoms of the disease, clinical information alone may be sufficient to diagnose multiple sclerosis. Magnetic resonance imaging of the brain and spine may show areas of demyelination (lesions or plaques). It can be administered intravenously as a contrast agent to identify active plaques and, by removal, shows the presence of historical lesions that are not related to the symptoms present at the time of evaluation [2]. Fatigue has a significant effect on the daily lives of these patients, hinders physical activity and interferes with responsibility, work and social roles, which can lead to dissatisfaction with the quality of life in these patients. When multiple characteristics of fatigue are identified, mental fatigue, not physical fatigue, is associated with anxiety and depression

The chronic nature of multiple sclerosis, lack of forewarning and definitive treatment, and involvement of the individual at a young age cause many mental disorders in patients, among which depression, anxiety and stress are the most common. Depression and anxiety may increase fatigue. Depression can be caused by poor sleep quality and poor nutrition. Although anxiety is another debilitating symptom in these patients, it has been less studied [3]. Another symptom of multiple sclerosis is chronic pain, which is very common among these patients. Various studies have reported that the incidence of pain over a one-month period in these patients varies between 50 and 90%[4]. The use of non-pharmacological methods that can be used as complementary to treatment can be a potential help to these patients, such as massage therapy and mindfulness. Massage therapy as an alternative treatment helps reduce anxiety and the progression of MS [4]. Massage therapy is one of the oldest and easiest methods of treatment that by strengthening blood circulation, immune system and relaxation affects blood pressure, digestive system, skin and muscles. In North and South America, nurses use massage therapy like any other treatment, and even this method is one of the exam items in obtaining their degree. Today, massage therapy is used for the elderly patients, premature infants, patients with heart attacks and brain

strokes, and patients with AIDS [5]. Beneficial effects of massage therapy studies in MS patients have shown that people who have used this method have seen a significant reduction in anxiety and depression immediately after massage sessions, and their disease progression has slowed down. According to the researches done and the effectiveness of massage exercises and mindfulness in improving the mental and physical condition of patients including people with multiple sclerosis and on the other hand the lack of researches with this title in Iran, this study intends to investigate the effectiveness of massage exercises and mindfulness on depression, anxiety, mental and physical well-being of women with multiple sclerosis. It is predicted that according to the theoretical discussion and background presented, this method will be effective on the mentioned factors and by promoting these factors through massage exercises, we can help these patients to facilitate daily tasks and prevent disability as much as possible and faster.

Research background

in a study entitled “comparing the effect of massage therapy by the nurse and the patient companion on the anxiety of patients admitted to CCU wards concluded that due to the effect of massage in reducing patient anxiety, and the insignificant difference between massage by the nurse and the patient companion, it can be recommended to use the cooperation and participation of patients' relatives in massage therapy to reduce the anxiety of CCU patients [6].

in a study on the effect of six weeks of massage therapy on depression rate and quality of life in depressive women concluded that the rate of depression and quality of life in the post-test of the massage therapy group was significantly different from the pre-test stage. This means that interventions reduce depression and improve patients' quality of life.

in a study on the relationship between massage and anxiety found the direct effect of massage and concluded that massage is useful in reducing patients' anxiety, but recommended that more research should be done on the quality and extent of the effect on reducing patients' anxiety [7].

in a study on massage therapy and its effect on anxiety and sleep quality reported that massage therapy reduces pain in patients with fibromyalgia and improves their condition and by reducing the limitations of the tendon muscles in these patients, it reduces anxiety and also improves their sleep quality and physical function. Another treatment that has recently been proposed in psychology is mindfulness training. Mindfulness is a kind of awareness that is formed when we pay attention to our experiences in a particular subject, attention

that focuses on the goal. Attention is clearly focused on certain aspects of the experience.

in a study entitled "The effect of mindfulness-based cognitive therapy on improving mental health and quality of life of depressed non-patients", showed that this method increases the quality of life and its usefulness as an interventions method have been shown for a wide range of chronic mental disorders including depression [8].

in their study entitled "The effectiveness of combinatorial therapy of Mindfulness-Based Cognitive Therapy (MBCT) and cognitive-behavioral therapy on psychiatric symptoms of patients with major depressive disorder" concluded that elements of cognitive-behavioral therapy combined with Mindfulness-Based Cognitive Therapy (MBCT), increases the efficiency of treatment and the extent of its effectiveness and combinatorial therapy method can be as effective as cognitive-behavioral therapy in treating depression [9].

conducted a study entitled "Study of the effect of teaching mindfulness-based techniques in reducing students' test anxiety." The results of this study show that group sessions of teaching mindfulness techniques significantly reduce test anxiety in students. According to the research, the purpose of this study is to investigate the effectiveness of massage therapy and mindfulness training on the symptoms of depression, anxiety and disability in women with multiple sclerosis [10].

Research purposes

1. Investigating the effect of massage therapy on the symptoms of depression, anxiety and the level of disability in women with multiple sclerosis.

2. Investigating the effect of mindfulness training on the symptoms of depression, anxiety and the level of disability in women with multiple sclerosis.

3. A comparative study of the effectiveness of massage therapy and mindfulness training on the symptoms of depression, anxiety and the level of disability in women with multiple sclerosis.

Theoretical foundations of research

Massage therapy

Massage therapy is scientific manipulation of the soft tissues of the body. This treatment helps to relieve stress and muscle tension and pain due to injuries and speeds up the recovery of acute and chronic disorders. Today, millions of people around the world use this method as a method of health care.

Mindfulness

Mindfulness is an exercise of being aware of the "present" and "present in the moment" time, without judgment and with totality, without roaming in the past or postponing the future; a way to increase awareness and focus on breathing, feeling each part of the body in one direction and continuously [11].

Depression

A mood includes impatience and avoidance of activity or apathy and reluctance and can affect a person's thoughts, behavior, feelings and happiness and health [12]. Depression may indicate a situation in which a person believes that all avenues for achieving valuable goals are closed to him or her, and this closeness may be permanent. Depression is defined as a feeling of hopelessness in achieving specific goals. He has attributed this hopelessness mostly to personal shortcomings [12]. In 1967, Beck defined depression as: Depression is a term that refers to a set of behaviors whose specific elements are slowness of movement and speech. Crying, sadness, lack of active responses, lack of interest, and lack of value, insomnia and anorexia are other symptoms [6]. Mood by definition is a pervasive and stable inner feeling that deeply affects a person's perception and attitude towards themselves, others and the environment in general, and emotion refers to the external appearance of the mood. Healthy people experience a wide range of mood changes and the same number of emotional changes. These people are able to control their mood and emotion [13].

Anxiety

The word anxiety comes from the Greek root meaning to squeeze or squeeze the throat. It is also used with the term arousal meaning tightness or contraction [14]. Unpleasant feeling and a kind of vague inquietude that is accompanied by several physical sensations, such as a feeling of empty heart, steno thorax, heart palpitations, sweating, headache or sudden and urge desire to urinate, restlessness and desire to move [15]. Although anxiety is a common phenomenon in our time, it has a long history throughout human history. Nearly a century ago, Sigmund Freud coined the term "nevrose d'angoisse" to use a combination of physiological arousal and negative emotion. He saw anxiety as a manifestation of an unconscious manifestation that he believed stemmed from inhibited libido. He introduced features for “nevrose d'angoisse” that differentiated anxiety from other mental disorders. Adler introduced the concept of anxiety in relation to feelings of inferiority and how to compensate for it. Horne linked the concept of anxiety to abnormal needs that are the product of one's past experiences. Jung categorized anxiety into personal and collective unconscious factors. Foroom has investigated anxiety in relation to the set of reactions of society and human needs [16].

Level of disability

Limitation of the ability to perform social roles and work-related activities or to continue living independently is called the level of disability.

Research Hypotheses

1. Massage therapy has a significant effect on the symptoms of depression, anxiety and the level of disability in women with multiple sclerosis.

2. Mindfulness training has a significant effect on the symptoms of depression, anxiety and the level of disability in women with multiple sclerosis.

3. The effectiveness of massage therapy and mindfulness training on the symptoms of depression, anxiety and the level of disability in women with multiple sclerosis is different.

Research method

This research is a quasi-experimental research that was conducted as a pre-test-post-test design with a control group.

The statistical population of this study was selected among women aged 20 to 40 years who were members of the Multiple Sclerosis Association of Isfahan. Women aged 20 to 40 years who are members of the Multiple Sclerosis Association of Isfahan randomly divided into three groups of 8 as two experimental groups (mindfulness and massage therapy) and the control group. The statistical sample includes 24 women aged 20 to 40 years who are members of the Multiple Sclerosis Association of Isfahan. Data collection tools in the present study are Beck Depression Inventory, test of 21, Beck Anxiety Inventory, *Kurtzke* Expanded *Disability* Status Scale (EDSS) (Table 1&2).

Research Findings

First main hypothesis: Massage therapy has a significant effect on the symptoms of depression, anxiety and level of disability in women with multiple sclerosis.

Multivariate analysis of covariance has been used to test the above hypothesis. The results are presented in Tables 4-9 to 4-11. In order to perform the multivariate analysis of covariance, it is necessary to examine the assumption of the equality of covariance matrix of the dependent variables. The results are presented in Table (4).

The results of multivariate analysis of covariance (MANCOVA) in Table (5) show that in general, there is a significant difference between the two groups of control and massage therapy. Multivariate analysis of covariance is performed to obtain more accurate results.

As Table (6) shows, by adjusting the pre-test scores, there is a significant difference between

the control and massage therapy groups in terms of anxiety variable in the post-test phase with a significance level of 0.000 ($F_{(1, 11)}$= 665.736). In other words, massage therapy has a significant effect on the anxiety symptoms of women with multiple sclerosis and its effect is 98%. By adjusting the pre-test scores, there is a significant difference between the control and massage therapy groups in terms of depression variable in the post-test phase with a significance level of 0.000 ($F_{(1,11)}$ = 76.58). In other words, massage therapy has a significant effect on depressive symptoms in women with multiple sclerosis and its effect is 87%. By adjusting the pre-test scores, there is no significant difference between the control and massage therapy groups in terms of the disability level variable in the post-test stage with a significance level of 0.265 ($F_{(1, 11)}$=1.38). In other words, massage therapy has no significant effect on the level of disability in women with multiple sclerosis.

Second main Hypothesis: Mindfulness has a significant effect on the symptoms of depression, anxiety and disability level in women with multiple sclerosis.

To test the above hypothesis, multivariate analysis of covariance has been used. The results are presented in Tables (7) to (9). In order to perform the multivariate analysis of covariance, it is necessary to examine the assumption of the equality of covariance matrix of the dependent variables. The results are presented in Tables 4-7.

The results of multivariate analysis of covariance (MANCOVA) in Table (8) show that in general, there is a significant difference between the two groups of control and mindfulness. Multivariate analysis of covariance is performed to obtain more accurate results.

As Table (9) shows, by adjusting the pre-test scores, there is a significant difference between the control and mindfulness groups in terms of anxiety variable in the post-test phase with a significance level of 0.000 ($F_{(1, 11)}$ = 645.927). In other words, mindfulness has a significant effect on the anxiety symptoms of women with multiple sclerosis and its effect is 98%. By adjusting the pre-test scores, there is a significant difference between the control and mindfulness groups in terms of depression variable in the post-test phase with a significance level of 0.000 ($F_{(1, 11)}$= 392.521).In other words, mindfulness has a significant effect on depressive symptoms in women with multiple sclerosis and its effect is 97%. And finally, by adjusting the pre-test scores, there is no significant difference between the control and mindfulness groups in terms of the disability level variable in the post-test stage with a significance level of 0.046 ($F_{(1, 11)}$=5.054). In other words, mindfulness has significant effect on the level

of disability in women with multiple sclerosis and its effect is 31% (Figure 2).

Third main hypothesis: The effectiveness of massage therapy and mindfulness training on the symptoms of depression, anxiety and disability level in women with multiple sclerosis is different.

To test the above hypothesis, multivariate analysis of covariance has been used. The results are presented in Tables (10) to (12). In order to perform the multivariate analysis of covariance, it is necessary to examine the assumption of the equality of covariance matrix of the dependent variables. The results are presented in Tables 4-15.

The results of multivariate analysis of covariance (MANCOVA) in Table (4.16) show that in general, there is a significant difference between the two groups of control and massage therapy. Multivariate analysis of covariance is performed to obtain more accurate results.

As Table (12) shows, by adjusting the pre-test scores, there is a significant difference between the massage therapy and mindfulness groups in terms of anxiety variable in the post-test phase with a significance level of 0.000 ($F_{(1, 11)}$= 35.334). In other words, mindfulness training and massage therapy have a significant effect on the anxiety symptoms of women with multiple sclerosis and its effect is 76%. By adjusting the pre-test scores, there is a significant difference between the massage therapy and mindfulness groups in terms of depression variable in the post-test phase with a significance level of 0.004 ($F_{(1, 11)}$= 12.675).In other words, mindfulness and massage therapy has a significant effect on depressive symptoms in women with multiple sclerosis and its effect is 53%. And finally, by adjusting the pre-test scores, there is no significant difference between the massage therapy and mindfulness groups in terms of the disability level variable in the post-test stage with a significance level of 0.195 ($F_{(1, 11)}$=1.908). In other words, the effectiveness of mindfulness training and massage therapy has no significant effect on the level of disability in women with multiple sclerosis (Figure 3).

Discussion and conclusion

According to the first hypothesis, massage therapy has a significant effect on the symptoms of depression, anxiety and disability level in women with multiple sclerosis. By adjusting the pre-test scores, there is a significant difference between the control and massage therapy groups in terms of anxiety variable in the post-test phase with a significance level of 0.000 ($F_{(1, 11)}$= 665.736). In other words, massage therapy has a significant effect on the anxiety symptoms of women with multiple sclerosis and its effect is 98%. By adjusting the pre-test scores, there is a significant difference between the control and massage therapy groups in terms of depression variable in the post-test phase with a

significance level of 0.000 ($F_{(1, 11)}$= 76.581). In other words, massage therapy has a significant effect on depressive symptoms in women with multiple sclerosis and its effect is 87%. By adjusting the pre-test scores, there is no significant difference between the control and massage therapy groups in terms of the disability level variable in the post-test stage with a significance level of 0.265 ($F_{(1, 11)}$=1.38). In other words, massage therapy has no significant effect on the level of disability in women with multiple sclerosis. Massage can be considered as one of the treatment method as a substitute for drug for depression treatment. Some proponents of this idea believe that massage therapy helps strengthen the spirit, improve depression, and reduce stress. Depression is a mental disease that is rampant among the people of the world today; Of course, there is no evidence that massage alone can cure depressive disorders; but research has shown that massage significantly helps fight the disease. To date, little research has been done in this area; recent studies, however, have shown that massage therapy has four therapeutic benefits. Dealing with health problems related to depression is one of these 4 benefits. Massage has even helped treat breast cancer. Depressed patients with fibromyalgia, or skeletal pain and kidney disease, recover significantly from massage. Chronic musculoskeletal pain syndrome causes sleep disturbances and premature fatigue. This disease is actually a type of connective tissue rheumatism. Patients with fibromyalgia usually respond better to multidisciplinary programs consisting of rehabilitation, medical services, and mental health professionals. Massage and stretching exercises are among the medical care for these patients. Massage creates a kind of relaxation in the recipient person that makes the person have more peace of mind and reduces depression. Our body releases the hormone cortisol when it is anxious and under stress; this hormone increases anxiety and stress. Physicians compared the benefits of rest and relaxation with the benefits of massage in their researches and found that those who receive massage feel more relaxed. In other words, the results of the analysis indicate the effectiveness of massage therapy on the symptoms of depression, anxiety and disability level in women with multiple sclerosis. The above finding is consistent with the findings of other researchers on its effectiveness. conducted a study on the evaluation and comparison of the effectiveness of massage therapy and cognitive reconstructing methods in reducing students' test anxiety. Finally, the findings showed that massage therapy has been effective in reducing depression in women with MS. in a study entitled "investigation and comparison of the effectiveness of massage therapy and cognitive reconstructing method in reducing students' test anxiety, examined massage therapy and cognitive reconstructing method in reducing test anxiety of students and reported its effectiveness. The results showed a reduction in anxiety and this reduction of anxiety was still effective after two months of follow-up.

Therefore, massage therapy has been effective in treating anxiety and depression in women with MS. Kaviani, Javaheri and Behiraei in their study entitled "Massage therapy in reducing automatic negative thoughts, dysfunctional attitude, depression and anxiety with a 60-days follow-up" examined massage therapy in reducing and preventing automatic negative thoughts, dysfunctional attitude, depression and anxiety. Findings showed that massage therapy is effective in reducing depression, anxiety, dysfunctional attitude and automatic negative thoughts. This method can also play a role in preventing depression and anxiety [9]. conducted a study entitled "The effect of massage on the perception of stressors in patients with recurrent headaches" and the results showed that massage has a significant effect. The results of the above researches are consistent with our research.

According to the second hypothesis, mindfulness has a significant effect on the symptoms of depression, anxiety and disability in women with multiple sclerosis. By adjusting the pre-test scores, there is a significant difference between the control and mindfulness groups in terms of anxiety variable in the post-test phase with a significance level of 0.000 ($F_{(1, 11)}$= 645.927). In other words, mindfulness has a significant effect on the anxiety symptoms of women with multiple sclerosis and its effect is 98%. By adjusting the pre-test scores, there is a significant difference between the control and mindfulness groups in terms of depression variable in the post-test phase with a significance level of 0.000 ($F_{(1, 11)}$= 392.521).In other words, mindfulness has a significant effect on depressive symptoms in women with multiple sclerosis and its effect is 97%. And finally, by adjusting the pre-test scores, there is no significant difference between the control and mindfulness groups in terms of the disability level variable in the post-test stage with a significance level of 0.046 ($F_{(1, 11)}$=5.054). In other words, mindfulness has significant effect on the level of disability in women with multiple sclerosis and its effect is 31%. In other words, it can be said mindfulness training can reduce depression, anxiety and disability level in women with multiple sclerosis. The results of this study are consistent with Abedini's research, which was a single-subject study of three obsessive patients resistant to treatment. The Yale Brown Obsessive-Compulsive Scale, Beck Anxiety and Depression Inventory, and a Process Scale were used to assess patients. Evidence suggests that mindfulness is not ineffective in promoting mental and physical health of patients with chronic pain, cancer, and heart disease. [9] in their study entitled "The effectiveness of combinatorial therapy of Mindfulness-Based Cognitive Therapy (MBCT) and cognitive-behavioral therapy on psychiatric symptoms of patients with major depressive disorder" concluded that elements of cognitive-behavioral therapy combined with Mindfulness-Based Cognitive Therapy (MBCT), increases the efficiency of treatment

and the extent of its effectiveness. According to a study by Piet & Hougaarde entitled "The effect of Mindfulness-Based Cognitive Therapy (MBCT) to prevent recurrence in recurrent major depressive disorder", the results showed that the presence of mind intervention to prevent recurrence in patients with major depressive disorder has been fundamentally effective, which is consistent with the results of our research.

According to the third hypothesis, the effectiveness of massage therapy and mindfulness training on the symptoms of depression, anxiety and disability level in women with multiple sclerosis is different. By adjusting the pre-test scores, there is a significant difference between the massage therapy and mindfulness groups in terms of anxiety variable in the post-test phase with a significance level of 0.000 ($F_{(1, 11)}$= 35.334). In other words, mindfulness training and massage therapy have a significant effect on the anxiety symptoms of women with multiple sclerosis and its effect is 76%. By adjusting the pre-test scores, there is a significant difference between the massage therapy and mindfulness groups in terms of depression variable in the post-test phase with a significance level of 0.004 ($F_{(1, 11)}$= 12.675).In other words, mindfulness and massage therapy has a significant effect on depressive symptoms in women with multiple sclerosis and its effect is 53%. And finally, by adjusting the pre-test scores, there is no significant difference between the massage therapy and mindfulness groups in terms of the disability level variable in the post-test stage with a significance level of 0.195 ($F_{(1, 11)}$=1.908). In other words, the effectiveness of mindfulness training and massage therapy has no significant effect on the level of disability in women with multiple sclerosis. The results of this study are consistent with Abedini's research on the effectiveness of massage therapy.

The present study has been performed on female subjects. Accordingly, care must be taken to generalize the results to male groups. Other limitations of the present study are lack of cooperation of the subjects and refusal to participate in the sessions, the small number of research subjects, and lack of review in the follow-up stage. Massage is widely used in all cultures to help you feel deeply relaxed and reduce anxiety. The benefits of reducing anxiety and improving mood by massage are probably related to changes in EEG activity, lowering cortisol levels and increasing the activity of the parasympathetic nervous system, which automatically relaxes the body and brain from stress. Numerous studies show that moderate-pressure massage is more effective than low-pressure massage for reducing pain associated with various medical problems, including fibromyalgia and rheumatoid arthritis. Medium pressure massage also increases attention and increases the immune system response by increasing the activity of natural killer cells. Functional brain imaging

studies show that changes in many areas of the brain are involved in the regulation of emotions and stress responses, including the amygdala and hypothalamus. The main purpose of this study was to investigate the effect of eight massage sessions on depression, anxiety and stress in women with MS and the results showed that eight sessions of massage had a significant effect on the scales of depression, anxiety and stress in the experimental group and compared with the control group. Also, according to the comparison of the mean differences, massage has the greatest effect on stress and significantly reduces stress. After stress, massage had the greatest effect on wrestlers' anxiety and then depression. Physical and especially mental conditions have a great impact on their success and performance. The results of this study were consistent with the research. The mechanism of massage effect is that massage increases dopamine (anxiety reduction), serotonin (depression and anxiety reduction), and increases excess oxytocin in plasma (anxiety and stress reduction). Therefore, in the end, we advise patients by getting a few minutes of massage, minimize the level of anxiety, stress and depression in order to obtain optimal performance. According to the results of this study, it is suggested that this study be performed with larger samples, longer-term follow-up period, and the use of male and female subjects in different regions and cities to be able to generalize the results comprehensively. It is also suggested that in future research, this treatment method be compared with other methods to better understand its effectiveness compared to other methods. Therefore, due to the effectiveness of massage therapy in reducing the symptoms of depression and anxiety and the level of disability, this treatment can be used for chronic diseases such as schizophrenia, diabetes, chronic pain, etc. Also, showing the effectiveness of new methods of psychotherapy and Non-pharmacological therapy, in the form of scientific and controlled research along with pharmacological therapy methods and psychiatric services, can be an effective step in promoting the culture of referral to psychotherapists for treatment of patients with anxiety and depression.

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None

Conflict of interest

There is no conflict of interest for the authors of this article.

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Tables and Charts:

Table (1). Pre-test - post-test design

Post test	Independent variable	Pretest	groups
T2	Mindfulness-Based Cognitive Therapy	T1	Experimental
T2	Massage therapy	T1	Experimental
T2	--	T1	control

Table (2). Mindfulness training protocols

Session 1: Automatic guidance	The presence of the mind is the best way out of automatic guidance, which teaches the person to be aware of every moment.
Session 2: Dealing with obstacles	Focusing more on the body reveals mental whispers and leads to more control over the reaction to daily events.
Session 3: Mindfulness from breathing	By becoming more aware of how the mind can often be busy and distracted, person will learn that by focusing on breathing, will be able to be more focused and integrated.
Session 4: be in the present time	In the mind-presence approach to be at the present time, one must look at events from a different angle and have a broad and different view of them.
Session 5: Attendance Permission	Different communication means allowing the experience to be present exactly as it is without being judged or trying to make a difference in what it is.
Session 6: Thoughts are not facts	Negative moods and thoughts limit people's connection to experience. It makes sense to think that thoughts are just thoughts, even for someone who does not believe it.
Session 7: Take care of yourself in the best possible way	There is a possibility of treatment when exercises can be done. Breathing time exercise can be used as a first step.
Session 8: Apply what you have learned in life	Regular practice of mindfulness helps maintain balance in life. Positive intentions are reinforced. Because these exercises are associated with positive reasons for self-care.

Table (3). Massage therapy package

First week	1. Manipulation of soft tissues of the body
Second week	2. Massage of Nervous system, sports massage and myotherapy
Third week	3. Massage for movement and structure correction methods: These techniques emphasize the structure and movement of the body. These methods organize and complete the body by helping and manipulating soft tissues or correcting incorrect movement patterns. Examples include Heller work, Rolfing, Feldenkrais, and the Alexander Technique.
Forth week	4. Acupressure and Shiatsu
Fifth week	Polar massage, healing touch and reiki

Table (4). Box test of examining the assumption of equality of covariance matrix

Box statistics	947/6
F	0.884
Degree of freedom 1	6
Degree of freedom 2	075/1420
Significance level	0.506

Due to the insignificance of the box test, the assumption of equality of correlation between the dependent variables is valid.

Table (5). Results of multivariate analysis of covariance (MANCOVA)

index	value	F	Degree of freedom assumption	Degree of freedom error	Significance	squares	statistical power
Wilkes Lambda	0.016	368/187	3	9	0.000	0.984	1.000

Table (6). Results of multivariate analysis of covariance of depression, anxiety and level of disability in control group and massage therapy

variable		Sum of squares	Degree of freedom	Mean of squares	F	Significance level	squares	statistical power
anxiety	Pretest	345/3	1	345/3	291/45	0.000	0.805	1.000
	group	169/49	1	169/49	736/665	0.000	0.984	1.000
	error	0.812	11	0.074				
depression	Pretest	571/2	1	571/2	924/2	0.115	0.210	0.345
	group	349/67	1	349/67	581/76	0.000	0.874	1.000
	error	674/9	11	0.879				
level of disability	Pretest	623/4	1	623/4	786/8	0.013	0.444	0.770
	group	0.726	1	0.726	1.380	0.265	0.111	0.189
	error	788/5	11	0.526				

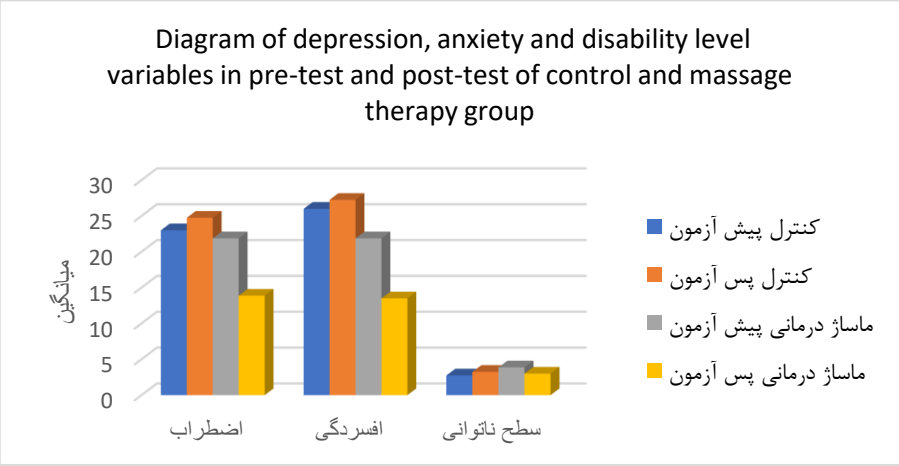

Figure1. 1 Diagram of depression, anxiety and disability level variables in pre-test and post-test of control and massage therapy group

Table (7). Box test of examining the assumption of equality of covariance matrix

Box statistics	761/5
F	0.733
Degree of freedom 1	6
Degree of freedom 2	075/1420
Significance level	0.623

Table (8). Results of multivariate analysis of covariance (MANCOVA)

index	value	F	Degree of freedom assumption	Degree of freedom error	Significance	squares	statistical power
Wilkes Lambda	0.011	260.820	3	9	0.000	0.989	1.000

Table (9). Results of multivariate analysis of covariance of depression, anxiety and level of disability in control group and mindfulness

variable		Sum of squares	Degree of freedom	Mean of squares	F	Significance level	squares	statistical power
anxiety	Pretest	483/2	1	483/2	324/16	0.002	0.597	0.956
	group	258/98	1	258/98	927/645	0.000	0.983	1.000
	error	673/1	11	0.152				
depression	Pretest	067/3	1	067/3	586/10	0.008	0.490	0.841
	group	725/113	1	725/113	521/392	0.000	0.973	1.000
	error	187/3	11	0.290				
level of disability	Pretest	976/3	1	976/3	160/8	0.016	0.426	0.739
	group	462/2	1	462/2	054/5	0.046	0.315	0.536
	error	360/5	11	0.487				

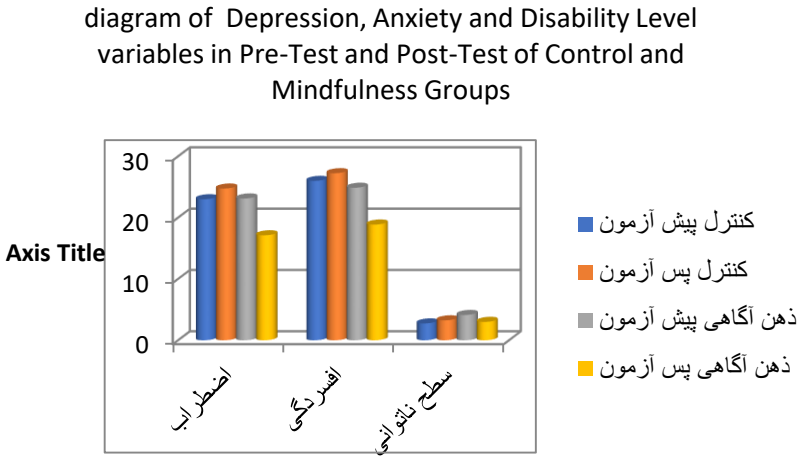

Figure (2). diagram of Depression, Anxiety and Disability Level variables in Pre-Test and Post-Test of Control and Mindfulness Groups

Table (10). Box test of examining the assumption of equality of covariance matrix

Box statistics	4.615
F	0.578
Degree of freedom 1	6
Degree of freedom 2	075/1420
Significance level	0.741

Due to the insignificance of the box test, the assumption of equality of correlation between the dependent variables is valid.

Table (11). Results of multivariate analysis of covariance (MANCOVA)

index	value	F	Degree of freedom assumption	Degree of freedom error	Significance	squares	statistical power
Wilkes Lambda	0.199	12.038	3	9	0.002	0.801	0.987

Table (12). Results of multivariate analysis of covariance of depression, anxiety and level of disability in massage therapy and mindfulness group

variable		Sum of squares	Degree of freedom	Mean of squares	F	Significance level	squares	statistical power
anxiety	Pretest	4.166	1	4.166	32.572	0.000	0.748	0.999
	group	4.519	1	4.519	35.334	0.000	0763	1.000
	error	1.407	11	0.128				
depression	Pretest	5.565	1	5.565	5.135	0.045	0.318	1.000
	group	13.738	1	13.738	12.675	0.004	0.535	0.899
	error	11.922	11	1.084				
level of disability	Pretest	8.052	1	8.476	58385	0.000	0.841	1.000
	group	0.263	1	0.069	1.908	0.195	0.148	0.243

	error	1.517	11	0.138				

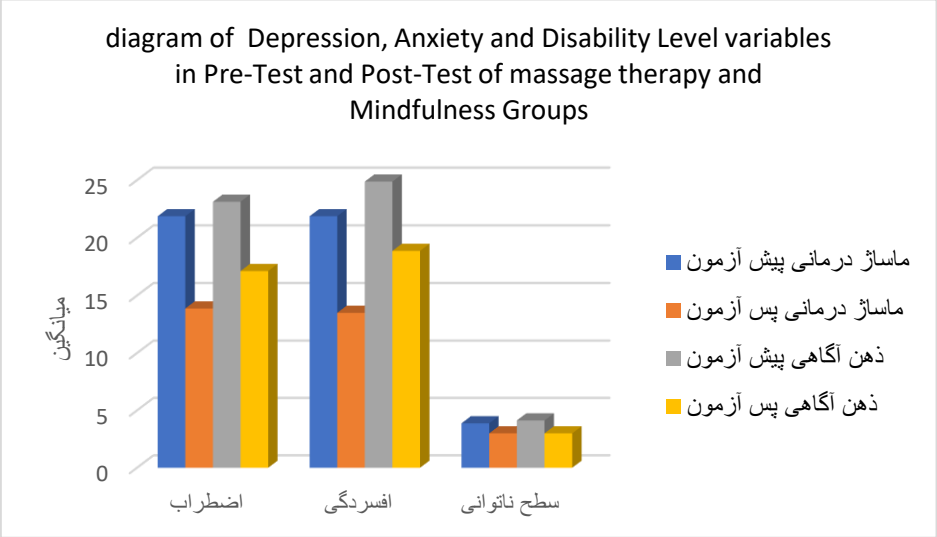

Figure (3). diagram of Depression, Anxiety and Disability Level variables in Pre-Test and Post-Test of massage therapy and Mindfulness Groups