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Research Paper: The Effectiveness of Yoga Therapy in Increasing the Self-Efficacy of Women With MS

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Bullet Points:

- Yoga therapy is effective in increasing the self-efficacy of MS patients.
- Yoga therapy can be used as a supplementary therapy to improve the condition of MS patients.

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ABSTRACT

Background: Multiple Sclerosis (MS) is chronic and debilitating neurological disease which occurs between the ages of 20 and 40 years. Myelin degradation is common in certain areas such as the optic nerve, brain stem, and cerebellum, which causes problems such as imbalance, inability to perform daily tasks, and ultimately affects and reduces the self-efficacy of the affected individuals.

Objectives: The purpose of this study was to investigate the effectiveness of yoga therapy in increasing the self-efficacy of women with MS living in Rasht, Iran.

Materials & Methods: This research is an applied experimental study with pre-test and post-test design with control group. The statistical population included MS female patients in Rasht City who were members of the MS Society up to 2016. A total of 30 people were selected randomly and divided into control and experimental groups. The experimental group received yoga therapy for 3 months. Two groups completed the Multiple Sclerosis Self-efficacy Scale (MSSS) before and after the intervention. All data were analyzed by repeated measures analysis of variance (group factor analyzed with two levels of yoga therapy in a group and control manner, and time factor analyzed with three levels of pre-test, post-test and follow-up) in SPSS V. 21.

Results: Analysis of variance by measurement method and analysis of the variance of 2 in 3 mixture (group agent with two levels of yoga therapy in a group and control manner, and time factor with three levels of pre-test, post-test and follow-up) with a significant level of $P<0.05$ showed that yoga therapy is effective in increasing the self-efficacy of patients with MS.

Conclusion: Yoga therapy is effective in increasing the self-efficacy of MS patients and can be used as a supplementary therapy to improve condition of these patients and increase their self-efficacy.

Keywords: Multiple Sclerosis (MS), Yoga therapy, Self-efficacy

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Introduction

Multiple Sclerosis (MS) is a chronic and debilitating neurological disease which occurs between the ages of 20 and 40 years and its diagnosis is based on MRI and clinical symptoms [1]. Myelin degradation usually occurs in certain areas such as the optic nerve, brain stem, and cerebellum. Since MS can affect any part of the central nervous system, signs and symptoms are varied and can lead to inability of the patient depending on the area involved and symptoms appeared [1]. Regarding the chronic diseases, Self-efficacy beliefs affect individual's perception of their condition, how the situation affects his or her life and ability to adaptation. Self-efficacy is one of the psychological variables influenced by MS and affects physical functioning and the physical activity of MS patients.

In general terms, it is defined as the person's perception of his ability to perform a particular activity in a given position. Generally the people's beliefs about their abilities and talents are the most important determinants of their behavior [2]. Self-efficacy is one of the issues that appears in MS patients with the onset of illness when patients succeed in resolving challenges related to conditions and situations. It has a positive relationship with self-management and the quality of life; low level of Self-efficacy may result in higher levels of anxiety in MS patients [3]. Many patients with MS mention that they can play a greater role in their life by managing their own issues. By taking a step forward in the self-management direction, it is possible that patients with MS overcome the symptoms of illness, emotional transformations, and acquire the skills needed to continue their daily activities [4].

For many years, patients with MS have been recommended not to attend physical activities, because some patients complained of disability after doing some physical activity which was due to an increase in body temperature. But over the past decade, patients with MS have been encouraged to participate in physical activities, because its beneficial effects have been proved for such patients [5]. Rehabilitation-based supplementary therapies are used to control and manage the disease, in addition to pharmaceutical treatments. In relation to exercises and given the two features of nerve protection as well as nerve rehabilitation, it seems that physical activity can reduce symptoms and slow the progression of the disease. It is important for the patients with MS to maintain their Self-efficacy against the disease progression [6].

Supplements have many benefits for patients with MS and are used extensively by these patients. Nearly one-third of the patients with MS use alternative therapies along with common and usual treatments. Moreover, the acceptability of using complementary therapies has also increased in the health system and among nurses in clinical experience. Supplementary therapies can slow down the course and progression of MS, reduce the number of attacks, and postpone the onset of permanent disability [7]. Lack of definitive treatment, uncertain path of the disease progression, and a negative perception of the disease process make patient feel frustrated as they cannot control their lives, and subsequently suffer from mental-psychological and cognitive problems [8].

Yoga is an individual self-help system to maintain mental health and well-being. Yoga teaches the way to control the waves of the mind. Yoga science begins with acting on external factors of character and body physics which makes sense for most people. Imbalance at these levels causes impairment in muscles and nerves. Yoga aims to coordinate various body systems; therefore, prosperity and general well-being are achieved in the light of it. Most people suffer from the fear, anxious, and nervous diseases which is the result of stress and challenges of everyday life. By crossing the level of mind and using Asanas, Prana, meditation and relaxation, yoga as a proven method improves the body health [9].

Various research studies have been conducted on yoga therapy and Self-efficacy which showed the effectiveness of yoga therapy in increasing Self-efficacy and improving the quality of life of MS patients. Moreover yoga therapy has been recommended as a safe and affordable treatment that the patients can perform these exercises without help [10, 11]. Supplementary therapies in patients with MS are widely used. About one-third of MS patients use supplementary therapies along with the commonly used treatments. Given the increasing prevalence of MS patients, supplementary therapies such as yoga therapy along with drug therapy can be effective in improving symptoms associated with the disease and help the patients in performing their daily activities and responsibilities. This results in patients' high Self-efficacy, independence and control, and the desire to do their daily routine activities.

Materials and Methods

The present study is an applied experimental research with pre-test and post-test design with the control group. This study tried to investigate the effect of yoga therapy on increasing the Self-efficacy of patients with MS. Sta-

tistical population included all patients with MS in Rasht City, Iran whose disease was diagnosed by a neurologist and they were members of the MS Society in Guilan Province. The total number of these patients in Guilan Province is 1451, including 402 men and 1049 women. Among them, 748 MS patients (202 men and 54 people) live in Rasht. To select the sample, a total of 546 women who developed MS from 2011 to 2018 were selected and were informed of the study, after referring to the MS Society of Rasht and receiving the permit and the agreement of the Chairman of the Association. Among them, 60 women wanted to participate in yoga therapy and attended the introduction meeting for receiving the pre-test.

The results of the pre-test showed that most of them had low Self-efficacy. According to the results, people who were eligible for yoga therapy were selected for the sample and randomly assigned to the experimental and control group (each group included 15 people). In order not to lose any subject in pre-test and post-test and disrupting the result of the work in both groups, at first 18 patients were enrolled in the experimental group and 18 in the control group and during the study we lost 3 subjects from both groups.

The inclusion criteria included being female, 20 to 40 years old, diagnosed after 2011, being members of MS Society in Rasht City, not participating in yoga classes since the last year, and not using wheelchairs. Exclusion criteria included being injured by yoga exercises or using another supplementary therapies. The obtained data were analyzed with repeated measurement methods and analysis of the variance of the mixture 2 in 3 (Group agent with two levels of yoga therapy in a group and control manner, and time factor with three levels of pre-test, post-test, and follow-up).

The study instrument was Multiple Sclerosis Self-efficacy Scale (MSSS). This scale was developed by Ribei et al. in 2003 in the United Kingdom. It is a multi-dimensional and self-report instrument designed for adults and measures fourteen items in 4 dimensions of independence and activity (5 items), concerns (4 items), personal control (3 items), and social efficiency (2 items) and its total scores ranged from 6 to 84 and higher scores meant more Self-efficacy. MSSS with 11 items has proper psychometric properties in the community of Iranian patients and can be used as a good instrument in studies related to the psychological consequences of MS illness or clinical trials in this area.

In this study, 11-item questionnaire was used. This scale was in the form of 6-point Likert-type scale, scored "I totally disagree:1; to some extent I disagree: 2; I disagree: 3; I agree: 4; to some extent I agree: 5; I totally agree: 6". The validity of this scale in the main study was obtained as 0.81, 0.83, and 0.81 by calculating the internal consistency of Cronbach α coefficients, split half method, and 1-week interval test-retest method, respectively. Scale validity was also confirmed by analyzing the main components, the varimax rotation, and convergent and divergent validity. Scale validity has been investigated with exploratory factor analysis and with the pattern of the main components [2, 11].

Treatment protocol

Yoga is about four thousand years old which originated from ancient India. Principles and traditions of yoga have been written 3000 years ago by Patanjali Hakim and Indian philosopher in Sanskrit in The Yoga Sutra book. It is one of the alternative therapies with a long but forgotten history in the East, and enjoys popularity in the West. Also it is a therapeutic approach to maintain mental and physical health [12].

According to the treatment protocol of the old Yoga teachings and use of Asanas, exercises in this research in each session included a combination of Asana training (motion, 35 to 40 minutes), Pranayama (respiratory, 10 to 15 minutes), meditation (releasing, 15 to 20 minutes), and relaxation. Asanas exercises included stretching poses (stomach stretch, Trikonasana/Triangle pose) and workouts (Pavanamuktasana and equilibrium Asanas (Tree and Shiva dance) in which almost all muscles of the body were involved.

Pranayama exercises in the sitting position were performed in such a way that the spines were flat and stretched. It was necessary to control the ratio of inhale, breath-holding, and exhale. Types of applicable respiration used in pranayama exercises included complete respiration, solar and lunar respiration, bee respiration, cooling breathing (Sitali) and Kapalbhati. Meditation exercises also included sitting in the privacy and focusing on a specific topic. Relaxation exercises (Savasana) which involved tightening and calming the muscles was related to insinuation [13]. The final evaluation of the effectiveness of the exercises was accomplished by the post-test exercise.

Results

According to Table 1, the normal distribution of research variables was confirmed using the Kolmogorov-Smirnov test. Then the repeated measurement ANOVA was used to study the subjects. We first examined the

Table 1. Descriptive findings of self-efficacy at pre-test, post-test, and follow-up

Group	Pre-Test		Post-Test		Follow-Up	
	Mean Difference	Std. Error	Mean Difference	Std. Error	Mean Difference	Std. Error
Experimental	47.20	8.05	53.80	6.41	49.53	6.75
Control	43.80	12.01	41.47	11.13	34.67	6.98

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Table 2. Results of within-subject and between-subject variance analysis test with repeated measurements

Factor	Ss	df	MS	F	Sig.	Eta 2
Time	467.29	1.44	324.94	4.62	0.025	0.142
Time×Group	544.27	1.44	378.47	5.38	0.015	0.161
Group	2340.90	1	2340.90	17.62	0.000	0.386

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assumptions of this test. Examining the results of the M-Box test shows that homogeneity of covariance matrices has been established (P<0.05). The Mauchly›s test of sphericity presumption was examined. Considering the significance level of Mauchly's test of sphericity (P<0.05), the Greenhouse-Geisser epsilon coefficient was used to modify the degree of freedom [14]. Levene's test results (P<0.05) also indicated that the homogeneity of variance has been established.

The results of Table 2 showed that the main effect of the group is significant ($F_{1,28}$=17.62, P<0.0005, μ^2=0.39), i.e., there was a significant difference between two groups in terms of Self-efficacy. The main effect of time is significant (F=4.62, P<0.05, μ^2=0.14), i.e., there was a significant difference between operating scores (pre-test, post-test, and follow-up) in terms of Self-efficacy. Also, the effect of interaction between time and group was significant (F=5.38, P<0.05, μ^2=0.16). In the other words, yoga therapy is effective on increasing the Self-efficacy of the experimental group compared to the control group.

In Table 3, the differences in Self-efficacy scores between two groups in the pre-test, post-test, and follow-up stages were compared in pairwise fashion using Bonferroni post hoc test. In the experimental group, the mean difference of Self-efficacy was statistically significant regarding the pre-test and post-test stages (P=0.028),

Table 3. Bonferroni post hoc test to investigate the interaction between two groups and the time taken to measure self-efficacy scores

Group		Mean Difference	Std. Error	Sig.
Control	Pre-test*Post-test	2.33	1.00	0.107
	Pre-test*Follow-up	9.13	3.77	0.088
	Post-test*Follow-up	6.80	3.35	0.186
Experimental	Pre-test*Post-test	-6.60*	2.19	0.028
	Pre-test*Follow-up	-2.33	2.48	1.000
	Post-test*Follow-up	4.27	1.76	0.087

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*: In the test group, the difference between self-efficacy scores is significant before and after intervention (P<0.05); In other words, self-efficacy has improved after intervention.

i.e., Self-efficacy increased significantly in the post-test. There was no significant difference between two groups in the measurement stages. In the experimental group, the difference in Self-efficacy was significant in the pre-test and post-test stages (P<0.05). In other words, Self-efficacy increased significantly in the experimental group in the post-test stage.

Discussion

The purpose of this study was to investigate the effectiveness of yoga therapy in increasing the Self-efficacy of patients with MS. According to Figure 1, results from research findings in the pre-test, post-test and follow-up stages demonstrate that yoga therapy is effective in increasing the Self-efficacy of MS patients. Results of a study in Iran show that the relationship between self-management program and the health status of MS patients is positive [15].

But no study has been conducted with the same title as this study. The results of the study by Flestedt and Pardo show that physical activity is effective on Self-efficacy and the quality of life of MS patients, because with increasing Self-efficacy, the patients' quality of life improves and their autonomy increases and it is a good predictor of the quality of life in these patients [16]. Other study results show that changing the activities of people at the physical and psychological level is related to the improvement of their quality of life and a change in the level of Self-efficacy of individuals has led to an increase in the sense of independence and self-management in daily activities and thereby improves the quality of life of patients with MS [17, 18].

Analyzing the results of the test in all three stages of pre-test, post-test, and follow-up showed that physical exercises are not harmful for these patients, but by using alternatives therapies such as yoga therapy, it is possible to improve physical and mental conditions through increasing balance, concentration, and tranquility in them using equilibrium Asanas (such as tree, Shiva dance), Prana, meditation, and relaxation. This, ultimately, facilitates patients' performing daily responsibilities and increases their Self-efficacy.

In explaining these findings, we can say that suffering, pain, and lack of independence resulting from the disease leads patients to lose Self-efficacy and makes them more vulnerable day by day. But doing equilibrium Asanas empowers patients to have more strength in walking and standing, balance and stamina. They can also perform their daily responsibilities independently and with less pressure. This independence in doing things, increases the Self-efficacy of patients and enhances the sense of usefulness.

Using pranayama, meditation, and relaxation of body and soul keeps patients away from stress-related conditions and encourages them to keep calm and perform the exercises. The effect of 3-month yoga therapy experience on the Self-efficacy of MS patients showed that these people try hard to achieve independence, balance, and good feeling and use all the opportunities and supplementary therapies along with drug therapy to strengthen their abilities. Since MS prevalence in Iran is increasing and this therapeutic method is effective in reducing and relieving the symptoms, we recommend that the required conditions and facilities for MS associations and related clinics be provided so that the MS patients could perform yoga exercises as supplementary course of treatment.

Conclusion

The results of the study showed that yoga therapy is effective in increasing the Self-efficacy of MS patients and can be used as a supplementary therapy to improve these patients' condition and Self-efficacy.

Ethical Considerations

Compliance with ethical guidelines

All the MS patients were informed of the study process and they were assured that all their information would be confidential and they could exit the experiment whenever they wanted. The researchers also referred to the MS Society of Rasht and received the permission and agreement of the Chairman of the Association.

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Conflict of interest

The authors declared the there is no conflict of interest.

References

[1] Mokhtari S, Neshatdost HT, Molavi H. [Investigation of cognitive-behavioral group therapy on depression and physical symptoms of patients with Multiple Sclerosis (MS) (Persian)]. J Psychol. 2008; 12(3):242-51.

[2] Tanhaye Reshvanlo F, Soleimanian A. [Psychometric examination of Multiple Sclerosis self-efficacy scale (Persian)]. J Behav Sci. 2012; 12(1):9-18.

[3] Uccelli MM, Traversa S, Ponzio M. A survey study comparing young adults with MS and healthy controls on self-esteem, self-efficacy, mood and quality of life. J Neurol Sci. 2016; 368:369-73. [DOI:10.1016/j.jns.2016.07.039] [PMID]

[4] Caleb R. Multiple sclerosis (Practical guide for families) [A Issazadegan, SR Bani Hashemi, Persian trans.]. Tehran: Roshd-e Farhang; 2013.

[5] Rahnama N, Namazizade M, Etemadifar M, Bambaeechi E, Arbabzade S, Nazarian AB. [The impact of Yoga on the physical fitness of patients with Multiple Sclerosis (Persian)]. Olympic J. 2011; 19(3):95-106.

[6] Brown AD, Kouri NA, Rahman N, Joscelyne A, Bryant RA, Marmar CR. Enhancing self-efficacy improves episodic future thinking and social-decision making in combat veterans with posttraumatic stress disorder. Psychiatry Res. 2016; 242:19-25. [DOI:10.1016/j.psychres.2016.05.026] [PMID]

[7] Ghaffari S, Ahmadi F, Nabavi SM, Memarian R. [Effect of progressive muscle relaxation on depression, anxiety and stress in patients with multiple sclerosis (Persian)]. J Res Med. 2009; 32(1):45-53

[8] Hughes AJ, Beier M, Hartoonian N, Turner AP, Amtmann D, Ehde DM. Self-efficacy as a longitudinal predictor of perceived cognitive impairment in individuals with multiple sclerosis. Arch Phys Med Rehabil. 2015; 96(5):913-9. [DOI:10.1016/j.apmr.2015.01.008] [PMID] [PMCID]

[9] Sarasvty SA. Hatha Yoga (Introductory and advanced training) [J. Mousavi Nasab, Persian trans]. 2016; Tehran: Fararavan Publications.

[10] Thomas S, Kersten P, Thomas PW. The Multiple Sclerosis-Fatigue Self–Efficacy (MS-FSE) scale: Initial validation. Clin Rehabil. 2015; 29(4):376-87. [DOI:10.1177/0269215514543702] [PMID] [PMCID]

[11] Field T. Yoga clinical research review. Complement Ther Clin Pract. 2011; 17(1):1-8. [DOI:10.1016/j.ctcp.2010.09.007] [PMID]

[12] Rigby SA, Domenech C, Thornton EW, Tedman S, Young CA. Development and validation of a self-efficacy measure for people with multiple sclerosis: The Multiple Sclerosis Self-efficacy Scale. Mult Scler. 2003; 9(1):73-81. [DOI:10.1191/1352458503ms870oa] [PMID]

[13] Meyers LS, Gamst G, Guarino AJ. Applied multivariate research: Design and interpretation [H. Pasha Sharifi, Persian trans]. Tehran: Roshd; 2012.

[14] Kafami F, Mohammadi F, Nourozy K, Rahgozar M. [The effect of self-management program on the health status of multiple sclerosis patients (Persian)]. J Res Dev Nurs Midwifery. 2012; 9(1):24-33.

[15] Fjeldstad C, Pardo G. Self efficacy, physical activity and QOL in people with MS. J Neurol Neurophysiol. 2014; 5(2):194. [DOI:10.4172/2155-9562.1000194]

[16] Motl RW, McAuley E, Wynn D, Sandroff B, Suh Y. Physical activity, self-efficacy, and health-related quality of life in persons with multiple sclerosis: Analysis of associations between individual-level changes over one year. Qual Life Res. 2013; 22(2):253-61. [DOI:10.1007/s11136-012-0149-z] [PMID]

[17] Mrabet S, Ben Ali N, Kchaou M, Belal S. Depression in Multiple Sclerosis. Rev Neurol. 2014; 170(11):700-2. [DOI:10.1016/j.neurol.2014.07.017] [PMID]

[18] Birdee GS, Sohl SJ, Wallston K. Development and psychometric properties of the Yoga Self-Efficacy Scale (YSES). BMC Complement Altern Med. 2016; 16:3. [DOI:10.1186/s12906-015-0981-0] [PMID] [PMCID]