

## **The effectiveness of mental– physical relaxation (Dohsa-hou) On Depression, Anxiety and Stress in patients with Multiple Sclerosis (MS)**

BehzadRigi Kouteh<sup>1\*</sup>, Fariba Yazdkhasti<sup>2</sup>, Masoud Etemadifar<sup>3</sup>

<sup>1</sup>*M.A. Clinical Psychology, Faculty of educational science and psychology,  
University of Isfahan, Isfahan, Iran*

<sup>2</sup>*Professor, University of Isfahan, Faculty of Educational Science and  
Psychology, Isfahan, Iran*

<sup>3</sup>*Professor, Department of Neurology, School of Medicine, Isfahan  
University of Medical Sciences, Isfahan, Iran*

### **ABSTRACT**

**Introduction:**Patients with Multiple sclerosis or MS will suffer from negative mood disorder due to physical –mental symptoms and failure to accept realities will have negative effect on quality of life, therefore, the present research has been conducted to study Dohs-houa Psycho-Motor Relaxation method on depression, anxiety, and stress in patients with Multiple sclerosis in Isfahan city (Iran). **Methods:** The present research is semi experimental with pretest-posttest design with control group. Statistical population of the research includes all patients with Multiple sclerosis in Esfahan city and 30 patients with Multiple sclerosis who were selected using Convenience Sampling method as two test group(15 persons) and control group(15 persons) . Before starting treatment period, the patients completed depression, anxiety and stress scale (DASS-21) and this assessment was done in posttest and follow-up stages. Period of Dohsa-hou treatment was 11 sessions with three sessions every week in test group and follow-up stage was performed 40 days after posttest. Data obtained from the questionnaire was analyzed using SPSS-17 software and descriptive test (mean and standard deviation) and inferential test (MANOVA). **Results:** Findings obtained from MANOVA showed that Dohsa-hou psychologicalrehabilitation caused decrease of depression, anxiety, stress in patients with Multiple sclerosis (P=0.001). **Conclusion:** Since this disease leads to broad symptoms and clinical presentation and the patients suffering from this disease may need rehabilitation in future, Dohsa-hou is regarded as psychological-therapeutic rehabilitation effective on decrease of depression, anxiety and stress in patients with Multiple sclerosis.**Keywords:***Dohsa-hou, Depression, Anxiety, Stress, Multiple Sclerosis.*

### **I. INTRODUCTION**

Multiple sclerosis is the chronic progressive disease of the central nervous system that can cause chronic inflammation and demyelination (Jafarian&Sadeqi, 2006). The disease starts from 20 to 40 years, but may occur at any age, it is nearly three times more common in women (Monajjemmi, 2011). MS causes symptoms such as muscle weakness, spasm, abnormal sensitivity to heat, touch, pain, ataxia and unsteady gait, tremors, tension, anxiety, speech disturbances, visual disturbances, dizziness, impaired bowel and bladder performance, sexual dysfunction, depression, and anxiety (Farrell, 2011). The relationship between mood disorders and diseases is often multifactorial and complex. These disorders are often a direct consequence of the illness and sometimes psychological - Cognitive reactions (Rasouli, Ahmadi, Nabavi, Hajizadeh, 2007). Abnormalities and emotional disturbances are common in patients with MS, including mood and emotional disorders. Major depressive disorder, dysthymic, bipolar disorder, panic disorder and generalized anxiety disorder can be referred to as the most common mood disorders (Minden, 2000). Depression is one of the most common symptoms of Disease. Epidemiological studies have confirmed the prevalence of major depression in 40% of these patients (Joffe, 2005). The greater the disability, the more likely the patient to suffer from depression would be. On the other hand, the possibility of suicide in depressed patients is for 3 to 10 times higher than the general population (Shayannejad&Sadramely, 2010).

Compared to depression , few studies have been conducted on MS. MS diagnosis for the patient and his family is always associated with anxiety (Sahraeeian, 2009). Anxiety in these patients is higher than the general population .It also aggravates the symptoms of depression, suicide and isolation (Feinstein, O'Connor, Gray & Feinstein, 1999). As another sign involved in MS, stress hasbeen widely studied and very often is known as the agent of relapsing. Many MS patients report that their symptoms go worse as a result of stress. Actually such patients reflect high levels of stress and anxiety in thinking habits and personal life (Esmaeili&Hosseini,

2008). With increased depression, anxiety and stress, the patient's quality of life is expected to be significantly affected. The impact of the disease on quality of life of these patients is no secret (Benedict, Wahling, Rohit, et al, 2005). And with depression, anxiety and sexual problems these patients' assessment of their quality of life has been quite low (Montel & Bungener, 2007). In order to reduce negative mood symptoms common in MS, many treatments have been used, a very common of which, is pharmacotherapy. However, due to medical problems and complications arising from pharmacological methods, the use of non-pharmacological methods for increasing the level of everyday activities as well as reducing mood disorders in these patients is very reasonable. Over the recent years non pharmacological methods have attracted much attention as these are considered as complementary therapies. Such supplementary treatments can decrease the disease process and reduce the number of attacks. They can also delay the start of a permanent disability. Some complementary therapies include acupuncture, hypnosis, Massage therapy, Relaxation, Tai Chi and Yoga (Mills, Allen & Carey, 2000). Interventions based on mental - motor relaxation are a type of complementary interventions. It is believed the physiological and psychological processes are so interdependent that one cannot be considered without the other; and that human mind and body cannot be separated as a single organism (Naruse, 1997). Dohsa-hou - a Japanese mental relaxation technique- is known as a holistic process and includes mental - internal activities and movements of the body. Professor Naruse first used it to improve the mobility problems of children with cerebral palsy. He argued that despite the fact that disabilities associated with cerebral palsy are caused by physiological disorders, psychological activities are also effective (Naruse, 1985). Dohsa-hou is based on three elements: desire, determination and effort. And reducing the mismatch between three elements above is the main task of the therapist's in Dohsa-hou methods. In fact, when we desire to move a part of our body, we try to understand the movement according to our own will. If this effort is commensurate with the movement, the movement then can be put into action. Therefore, by this method not only is the mind enabled but the emotions and body position experience positive changes. As this method results in direct internalization, it causes the individual to talk freely about them. Thus as a technique it is also used in counseling and psychotherapy (Naruse, 1992). Accordingly, so the Dohsa method can be divided into two parts: the psychological (including effort and will) and other physiological (including posture and movement). The process is planned to work as an effort and physical movement (Naruse, 1997). In fact, through helping the patient for imagining some goal for example (the will to move on an organ) and by helping them in amending process of body movements and positions either verbal or non-verbal, individuals tendency to moving or relaxation (sense of effort) will increase. With increasing sense of effort, attempts at understanding the desired movement and improper motion correction begin and body consciousness of the individual whether private, general and physical increases. Then the motion sense which is the very sense of change of movement appears and consequently the patient's perception of his body changes (Harizuka, 1992). Fujino (2012) in his study employed methods of Dohsa to increase the knowledge of the body as well as psychological problems. He concluded that by applying Dohsa-hou the rate of consciousness and awareness on the part of body increased and, physical and psychological distress problems associated with mood disorders declined. Dadkhah and Rauufi (2007) through applying Dohsa-hou on adolescents, diagnosed with major depression, concluded that the method reduces depression. They also found that the impact on cognitive, physical, emotional components is more significant. Results Rika (2003) showed that by applying Dohsa-hou treatment on patients with anorexia nervosa, their negative attitude towards control of symptoms was reduced and on the other hand, the quality of life and interpersonal relations in these patients improved. Toshiro (2001) in an article entitled " the effectiveness of Dohsa-hou on patients with panic " concluded that after applying this method on patients suffering from panic attacks, their panic attacks decreased and consequently physical awareness increased. From the other side, a great positive impact on their lives could be seen. Malekshahi and Dadkhah (2002) in their research showed that Dohsa-hou resulted in significant increase in mood of elderly people suffering from depression, and alongside lowering their sad moods their human communication improved so that it would stimulate them in their social relationships. (Malekshahi & Dadkhah, 2002). According to what was said, it seems that the concepts of depression, anxiety, stress can be considered from different aspects in patients with MS among these, especially the psychomotor mental relaxation of Dohsa method as a therapeutic approach can be effective in reducing depression, stress and anxiety in MS patients. However, according to researcher's findings, no study has ever been conducted on using Dohsa-hou on MS patients. Therefore, the present study is the first of its kind to examine the effect of psychomotor relaxation with Dohsa method on reducing depression, anxiety and stress in patients with MS. The research hypothesis is therefore as follows: psychomotor relaxation with Dohsa method reduces depression, anxiety and stress in the experimental group in the post-test and follow-up phases compared to the control group.

## II. METHODS

The present study is Quasi-experimental with a pretest - posttest and follow up phase along with a control group. The statistical population is all patients with MS in year 2012 which were selected by referring to the MS clinic in Al-Zahra Hospital in Isfahan, MS association as well as posters. 30 patients with multiple

sclerosis were selected through sampling and filled out questionnaires for depression, anxiety and stress (DASS-21), Patients were randomly and equally assigned in control and experimental groups. The number of participants in the experimental group by gender were (6 males), (9 females) and in the control group (7 males) (8 females). Participant's satisfaction as well as attending meetings on a regular basis for was both required for the study. Inclusion criteria for the study participants included medical records in hospitals and MS clinics, high scores of depression (more than 14), anxiety (more than 10) Stress (more than 19). Participant's failure for attendance in three treatment sessions resulted in their removal and replacement of two other people. Failing to cooperate in the control participants at follow-up (two of them refused to fill out the questionnaire). So the control group analysis was done by 13 participants at follow-up phase. To assess depression, anxiety and stress, the scales of depression, anxiety and stress (DASS-21) was used. Depression, anxiety and stress scales were prepared in 1995 by Lovibond&Lovibond. This scale has two forms.

The main form contains 42 items, and the short form 21, in which each cluster of 7 items measures one factor or emotional state. Each question has a Likert scale from 0 to 3. Lovibond&Lovibond (Lovibond&Lovibond, 1995) showed that retest reliability for these scales equals 0.71 for depression, 0.79 for anxiety and 0.81 for the stress. Beck Correlation coefficient Anxiety and depression Inventory was 0.81 and 0.74 respectively. Short form of the DASS-21 has been validated for Iranian population by Sahebi, Asghari and Sadat Salari (2005). Internal consistency for DASS-21 scales was calculated using Cronbach's alpha and the results for scales of depression, anxiety and stress equal 0.77, 0.79 and 0.78 respectively. The DASS 21 was used in this study. As for the processes and procedures at the beginning of therapy sessions, participants were asked to put themselves in comfortable conditions. Before treatment participants were also recommended to wear comfortable clothing. In this approach the first and last five minutes of the session was allocated to consultation process, 5 minutes to muscle relaxation and 20 minutes to Dohsa method practices. The number of treatment sessions was 11 (Table 1). After the treatment period, both groups were reinvestigated by depression, anxiety and stress scales (DASS-21). The control group did not receive any intervention.

Design process techniques include:

1. Relaxation
2. Moving arms, hands and feet (Tani)
3. Tate

Relaxation in Dohsa is known as spontaneous or active relaxation (Sart) which is derived from Jakobsen method. Relaxation in this method was done using Sesorase and kukan-no-hinri techniques. Using Code-age technique, the participants learn basic movements of the arms, hands and legs. Tate means being located along a straight line perpendicular to the body and Dohsa exercise means to locate different body parts directly perpendicular to the ground. The implementation of Dohsa method and the sessions is based on the authorized protocol (Table 1). Data were analyzed using descriptive (mean and standard deviation) and inferential tests (analysis of variance) and by means of SPSS version 17 (SPSS Inc. version 17 Chicago, IL).

Session	Technics
1-3	Oda-age: the patient lying on the floor and above - hands down the subjects with the help of a therapist
1-3	Kukan-no-hineri: helping the patient to pull up the shoulders and upper back on a long stretch mode
1-3	Kata-age: move shoulder the upper and lower
1-3	Se-so-ra-se: Pulling shoulder back
4-6	Kata-age: move shoulder upper and lower
4-6	Kata-age: move shoulder the upper and lower
4-6	Se-so-ra-se: Pulling shoulder back
4-6	Kukan-no-hineri: helping the patient to pull up the shoulders and upper back on a long stretch mode
4-6	Oda-age: the patient lying on the floor and above - hands down
7-9	Kukan-no-hineri: helping the patient to pull up the shoulders and upper back on a long stretch mode
7-9	Hizatachi: Stand on both knees and hips move back
7-9	Kata-hizatachi: Stand on one knee and hips move
7-9	Mune-hiraki: open and closed chest and shoulder cut
10-11	Zai: Lift the upper front side in sitting position
10-11	Hizatachi: Stand on both knees and hips move Back
10-11	Kata-hizatachi : Stand on one knee and hips move
10-11	Kukan-no-hineri: helping the patient to pull up the shoulders and upper back on a long stretch mod

Table 1. Dohsa-hou Sessions for MS Patients

### III. RESULTS

The average age of participants in this study is (27.5 ±5.0). In terms of gender, 63.3 were female, 30.7 were male. 23.3 of the patients had no mobility difficulties, but 76.7 had. In order to investigate the effect of the intervention we will first have a look at the descriptive statistics obtained. Table 2, shows mean and standard deviations of depression, anxiety, stress scales for the experimental group at pretest, posttest, and follow-up. As expected, in the pre-test variables approximately equal in both experimental and control groups. Plus after the intervention performed on experiment group it was observed that the amount of values of anxiety, depression and stress in this group decreased. While in control group these values stay approximately the same as those measured in pre-test.

Table 2. Mean and Standard Deviations of depression, anxiety, stress In group of Experiment and Control

		Experiment		Control	
		M	SD	M	SD
Depression	Pretest	17/13	0/39	17/27	0/41
	Post test	4/60	0/40	18/27	0/27
	Fallow-up	5/80	0/55	18/69	0/33

<b>Anxiety</b>	<b>Pretest</b>	<b>17/33</b>	<b>0/58</b>	<b>17/60</b>	<b>0/51</b>
	<b>Post test</b>	<b>5/21</b>	<b>0/61</b>	<b>18/23</b>	<b>0/54</b>
	<b>Fallow-up</b>	<b>6/27</b>	<b>0/38</b>	<b>18/33</b>	<b>0/36</b>
<b>Stress</b>	<b>Pretest</b>	<b>18/64</b>	<b>0/23</b>	<b>17/83</b>	<b>0/35</b>
	<b>Post test</b>	<b>4/79</b>	<b>0/52</b>	<b>17/83</b>	<b>0/39</b>
	<b>Fallow-up</b>	<b>5/86</b>	<b>0/60</b>	<b>18/69</b>	<b>0/26</b>

Before the test of multivariate analysis of variance (MANOVA) the assumption of equal variances was investigated using Levene's test. Results available in Table 3. According to this table, the level of significance calculated is larger than 0.05 it means that the assumption of equal variances is satisfied. Therefore, MANOVA test can be employed.

#### Levenes test

	<b>F</b>	<b>Dfl</b>	<b>Df2</b>	<b>P</b>
Depression	2/03	1	20	0/17
Anxiety	2/41	1	20	0/14
Stress	0/19	1	20	0/67

Table 4 shows the overall results of the MANOVA test on pre-test and post-test mean scores on the subscales of depression, anxiety, stress test in both experiment and control groups which were performed using variance analysis of four-test- MANOVA for 3 variances. The result showed that the experiment and control groups manifest significant difference in at least one of the three scales of depression, anxiety or stress ( $F = 346.94$  and  $P < 0.001$ ).

**Table 4: overall results of the MANOVA Test on pre-test and post-test mean scores on the subscales of depression, anxiety, stress in both experiment and control groups**

	<b>Amount</b>	<b>Df</b>	<b>Df</b>	<b>F</b>	<b>P</b>
<b>Pillai's Trace</b>	<b>0/99</b>	<b>5</b>	<b>16</b>	<b>346/94</b>	<b>0/001</b>
<b>Wilks' Lambda</b>	<b>0/01</b>	<b>5</b>	<b>16</b>	<b>346/94</b>	<b>0/001</b>
<b>Hotelling's Trace</b>	<b>108/42</b>	<b>5</b>	<b>16</b>	<b>346/94</b>	<b>0/001</b>
<b>Roy's Largest Root</b>	<b>108/42</b>	<b>5</b>	<b>16</b>	<b>346/94</b>	<b>0/001</b>

To understand this difference, four one-way variance analyses were conducted in MANOVA context. Results are shown in Table 5. According to Table 5, Dohsa-hou treatment had a significant positive effect on depression ( $P < 0.01$ ,  $F = 508.41$ ), anxiety ( $P < 0.01$ ,  $F = 192.04$ ), stress ( $P < 0.01$ ,  $F = 910.63$ ) of the multiple sclerosis patients in post-test.

**Table 5: MANOVA results in the context of the pre-test and post-test Mean scores on the subscales of depression, anxiety, stress**

	SS	Df	Ms	F	P	R2
Depression	962/50	1	962/50	508/41	0/000	0/96
Anxiety	867/15	1	867/15	192/04	0/000	0/91
Stress	910/63	1	910/63	283/13	0/000	0/94

Table 6 shows the overall results of the MANOVA test on pre-test and post-test mean scores on the scales of depression, anxiety, stress test in both experiment and control groups which were performed using variance analysis of four-test- MANOVA for 3 variances. The result showed that the experiment and control groups manifest significant difference in at least one of the three scales of depression, anxiety or stress ( $F = 169.03$  and  $P < 0.001$ ).

**Table 6: overall results of the MANOVA Test on post-test and Follow- up mean scores on the subscales of depression, anxiety, stress in both experiment and control groups**

	Amount	df	Df	F	P
Pillai's Trace	0/99	5	10	169/03	0/001
Wilks' Lambda	0/01	5	10	169/03	0/001
Hotelling's Trace	84/52	5	10	169/03	0/001
Roy's Largest Root	84/52	5	10	169/03	0/001

To understand this difference, four one-way variance analyses were conducted in MANOVA context. Results are shown in Table 7. According to Table 7, Dohsa-hou treatment had a significant positive effect on depression ( $P < 0.01$ ,  $F = 214.97$ ), anxiety ( $P < 0.01$ ,  $F = 266.78$ ), stress ( $P < 0.01$ ,  $F = 152.23$ ) of the multiple sclerosis patients in post-test.

**Table 7: MANOVA results in the context of the post-test and follow-up mean scores on the subscales of Depression, Anxiety, Stress**

	SS	Df	Ms	F	P	R2
Depression	689/06	1	689/09	214/97	0/001	0/94
Anxiety	600/25	1	600/25	266/78	0/001	0/95
Stress	564/06	1	564/06	564/06	0/001	0/92

## V. DISCUSSION

The findings of this study indicate that psychological rehabilitation of Dohsa-hou reduces depression, anxiety and stress in patients with MS. And the results of multivariate analysis of variance (MANOVA) also confirmed that Dohsa-hou psychomotor relaxation can reduce depression, anxiety, stress in patients with MS. In line with the findings of other studies, those of the present study also confirm the effectiveness of emotional relaxation of Dohsa-hou. It is possible to refer to the consistency of this result of the present study with those of Rauf-Dadkhah (2007), Yazdkhasti - Shahbazi (2012), Malekshahi&Dadkhah (2002), Konno (1978), and Naoki (2003). Dohsa-hou is a treatment by which the patient is able to reach his or her fact of existence through their body. And it is assumed that person's understanding of his body is modified using this method. So, self-awareness changes and this gives way to a change of perception of the issues, situations and people around. Therefore these

changes and replacements alter the patient's self-awareness. It is because of such achievements that sometime after treatment period, one can observe the patient has acquired some skills namely seating properly, more intentional body movements, increased eye contact, balanced emotions, improved social relationships, the ability to find suitable place in any position, being more sociable, gaining control over conversations, changes in pattern of behavior, correction on the part of abnormal behavior of the person, as well as stronger determination (Naruse, 1997). In this regard, Malekshahi and Dadkhah (2002) believed that Dohsa-hou techniques reduce symptoms such as depressed mood, and stress and can modify emotions of people. In fact by Dohsa-hou techniques negative moods change and along decrease in symptoms of negative mood, self-confidence and the power to change one's problems increase. Dohsa-hou in fact, activates the patient's mind through following a determination – try process and this contributes to interaction between mind and body. This way, by the effect it has on both body and mind, it serves to reduce the negative mood and adopting a better look at yourself and others. On the other hand, Dohsa-hou as a psychomotor relaxation technique plays an important role in people's lives. Naruse (1997) believes that by muscle relaxation and moderation, Dohsa-hou increases awareness of self and others and this could result in human relations improvement and life satisfaction as well. In this regard, given that Dohsa-hou procedure is done on an individual basis, and the therapist offers his client a good model of body movement the client will try to do the instruction by targeted effort. Thus, a new experience is acquired through will and effort. Thus, not only is client's mind active but he develops a sense of cooperation. Disinterpersonal relationship is reinforced too. Hence, a window of satisfaction opens before his eyes (Naruse, 1997). In fact improvement in intrapersonal relationships is one merit of this technique, needless to say that the better the communication skills of the individual, the more improved the social interactions. Malekshahi and Dadkhah (2002) in their study concluded that Dohsa-hou exercise result in clients' self-awareness. This makes these people try harder to use their body. Tsuru (1992) believes that Dohsa-hou exercises leads to change in self-perception which in turn makes people feel a difference so people pay attention to the changes in their body and become aware of that. This regard Naoki believes that Dohsa-hou techniques improve and stabilize mood and interpersonal communication. So it seems that such motivation for doing the right moves causes pleasure and self-satisfaction on the part of people. It results in people's attention to their body. Following these positive changes, life satisfaction appears in the life of these people and this makes a life of real good quality. The results showed that, first of as MS disease leads to extensive clinical symptoms and signs, patients may be in need for psychomotor relaxation in the future. Every one relapse of the disease can add to the patient's inability and gradually limitations go further. Relaxation techniques seem to be the only treatment through all this process. The action starts immediately after drug treatment in acute phase therefore psychomotor relaxation is an integral component of treatment of MS patients. Use of rehabilitation program for each patient is different and must be arranged based on the types of the side effects. So a specific program for each patient should be arranged. Secondly, Dohsa techniques are not affected by cultural factors and have similar effects in both cultures of Japan and Iran. At the end, Dohsa-hou techniques serves as an effective supplementary treatment in removing psychological problems resulting from MS such as depression, anxiety and stress. Results of this study which was conducted for the first time in Iran and in the world revealed that using Dohsa-hou psychomotor relaxation, can reduce the level of depression, anxiety and stress, and improve the quality of life in MS patients. Therefore organizations responsible providing medical services including the MS Society and hospitals are highly recommended to be more serious about offering Dohsa treatment periods, and to take advantage of this treatment. It is also suggested to allocate schemes to this practice so that Dohsa-hou can be not only used as an only way for reducing the symptoms of the disease but a prevention and promotion of general mental health in the society. Some of the limitations on the part of the research include the limitations of gender inequality (male and female participant's equality) in the course of treatment as well as lack of treatment in the form of projects.

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