

The Effectiveness of a Cognitive Technique on Reducing of Anxiety and Depression in Patient with Multiple Sclerosis

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ABSTRACT

Introduction: Multiple sclerosis is the most common chronic nervous system diseases in young adults. It usually appears between 20-40 ages. Multiple sclerosis influences different aspect of daily life like any chronic disease. Since considerable rate of the patients with MS suffer from depression and anxiety and this condition, in turn, great effects on quality of life and social interaction, and also regarding to importance of psychotherapy intervention role, especially cognitive techniques on anxiety and mood status improvement of these patients, therefore present study for the purposes of determining of efficacy of psychotherapy intervention on anxiety and depression in patients with MS was done.

Method: This study is an experimental study and a kind of clinical trial that was performed in patient with MS and the CBT was individual. Statistical population was all the patients with MS that was member of Chaloos MS association. This research was performed in 45 patients with MS that obtained the most grad of Becks anxiety and depression tests in pre test in phase from this population 30 patients was randomly selected that was divided to two control and experimental groups (15-15). Then 1-1.5 hours intervention was exerted in experiment group in 8 session. Control group didn't receive any intervention. After 8 session post test was performed in both groups. Becks depression and anxiety questionnaire was used in this study. Multivariate Covariance analysis was used for data analysis.

Findings: Results of this study showed that cognitive techniques were significantly effective in reducing of anxiety and depression in patients with MS.

KEYWORDS: Multiple sclerosis, Depression, Anxiety, Cognitive techniques.

1. INTRODUCTION

The Multiple Sclerosis (MS) is considered as the most common chronic brain & nerve disease among adults and youth, and it usually prevails within ages 20-40. Women are engaged more than men, and different aspects of the life of the patients are affected by it, like any other chronic disease.

As declared by the US MS Association, more than 2.5 million people suffer from the disease worldwide. Two hundred new patients are added to them every week, about 500,000 of them live in America and 8000 new cases are diagnosed every year. MS is the third reason for incapability in the United States of America (Haresabadi & et al 2010). Spread of the disease from the geographical aspect is higher in Northern Europe, Southern Australia, northern regions of the United States, and Southern Canada. About 85000 people in Britain & 250000 - 350000 people in the USA suffer from the disease (Pour Memari & et al, 2011). About 40000 MS patients are living in Iran, upon the Iranian MS Association Report (Haresabadi & et al, 2010). The spreading ratio in Iran is determined by the World Health Organization as about 40 in 100000 (Ekhteiri & et al, 2007).

MS is relatively common in our country. Azerbaijan & Isfahan provinces are more dangerous regions, concerning the disease. Almost all MS patients are adults, who are among productive & capable strata of the community. Number of the MS patients is increasing in our country recently (Harizchi Ghadim & et al 2009). Many symptoms could be seen in people suffering from MS, including behavioral disorders and anxiety disorders. The most common behavioral disorder in MS patients is depression disorders (such as major depression, distimic disorder, and bi-polar disorder) and wide anxiety disorder (Minden, 2000).

A study shows that depression is the most common psychiatric disorder among patients suffering from MS, and it is mainly considered as a reaction against it. Moreover, the drugs used for curing also are a factor which enhances the depression. (Harizchi Ghadim & et al, 2009).

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From clinical point of view depression has a significant effect on MS patient, in a period of their lives; i.e., up to 50% of the patients are affected by depression. Increasing depression always lead to death and is considered as one of the main factors affecting the patients lives (Feinstein, 2011).

Anxiety disorders reported among MS patients are between 37% and 40%. (Korostil & Feinstein, 2007) which have close connection with their social activities and suicide idea (Feinstein, 2002). Those who suffer from anxiety may also suffer from fundamental depression disorder (Korostil & Feinstein, 2007). Anxiety is mainly reported in the patients recently identified as MS suffers (Janssens & et al, 2004). Different studies have evaluated effects of curing depression with medicine and no medicine. There is a concern about side effects of antidepressant drugs. Some patients are unable to tolerate any antidepressant drug. The other problem is the assumption that any psychiatric drug may result in addiction, which declines interest for using psychiatric drugs. Therefore non-medicine therapy methods are usual for the patients worldwide, including our country (Harizchi Ghadim & et al 2009).

Studies related to treatment of the illness also strongly indicate that cognitive behavioral therapy is effective in decreasing depression at least triple of the 3 cycle drugs (Taheri, Jamshidifar, 2007). Meanwhile the CBT (Cognitive Behavior Therapy) is suggested as selected treatment method for curing depression. The method's main advantage in comparison with medicine therapy is that it prevents from the illness's relapse (Mends, Powel, Kaplan, 1991). If the patient & the physician choose medicine therapy at first, and the patient doesn't response to the selected drug, sufficiently; then, the physician may suggest a psycho therapy or cognitive-behavior therapy be added. The cognitive – behavior must be considered as a strong primary treatment for the patients who suffer from serve depression or a chronic one. (Stuart & et al 2006) cognitive therapy is a complicated treatment interference which includes many components of emotional and different interpersonal cognitive-behavior responses targeted. The first mechanism in this regard is to adopt a cognitive tendency. In fact, there are significant signs which show cognitive therapy leads to change in negative understanding and reducing depression symptoms and predictable anxiety. Most researches show that cognitive therapy leads to significant decrease of negative thoughts, and development of positive understanding at the same time. Cognitive therapy also reduces threatening thoughts resulting from anxiety disorders (Clark & Beck, 2010)

Concerning that chronic illnesses are seen in all age groups, as well as social, economic and cultural groups, they have been under close attention of the health & medical treatment authorities. Some researchers estimated number of the people suffering from such diseases over 167000000 up to 2050 and costs of curing them more than 797 billion dollars (Asmltzr, 2008). However some other studies show that taking care of such patients at their homes reduces hospitalization costs up to 44% (Lim & Zebrack, 2004).

Multiple Sclerosis is one of the chronic diseases through which myelin sheath of nerve cells in brain and spiral cord are destroyed in a multi-core level. The disease always prevails at 3rd & 4th decades of the life and it is considered as the second cause of inability in youth and adults after traumatic events. Clinical signs of the disease include: neuritis optic, squint, non-stability, vertigo, faint, organs' mechanical & emotional disorder, sexual & draining disorders such as nerogenic cyst, un-intentional urinating, sexual disability, constipation, sleeping disorders and depression (Lee, 2007).

Most common psychological symptoms in these patients include depression, anxiety, their co-occurrence and stress. Behavioral disorders are more common in these patients, as mentioned in the reports. Though there is some interference of CBT, in which behavioral attitudes of MS patients are targeted (Hazhir & et al, 2011).

Mohr, Hart & Goldberg (2003) have studied effects of different treatment methods over chronic depression & tiredness of the patients suffering from MS in a survey. They have compared three methods for reducing chronic depression & tiredness in MS patients that are individual cognitive-behavioral interferences, group cognitive –behavioral interferences & treating with Sertraline antidepressant drug. The results showed that all three methods were effective in reducing chronic depression & tiredness in the patients.

Mohr & et al (2000) in a research entitled "Authorization of cognitive-behavioral treatment via telephone to cure depression symptoms in MS patients" took 32 MS patients who had acquired at least 15 points in grading profile concerning depression–sadness behavioral attitudes, randomly to under phone treatment group for making them compatible with MS and to control group who were only under ordinary treatment.

The study shows that cognitive–behavioral treatment via telephone, in the period of 8 weeks, was effective in curing depression in MS patients. Analysis of the gathered data shows that there is a significant depression reduction in the treatment group, while they are unchanged in the control group.

This study aims at determining effectiveness of Cognitive-Behavioral treatment over reduction of depression & anxiety in the patients. Therefore, it may be considered as one of a few researches conducted for reducing depression & anxiety of MS patients through a CBT interfering program.

RESEARCH METHODOLOGY

Concerning aim of the research, that is determining effectiveness of cognitive techniques over reducing depression & anxiety in MS patients, the individual clinical test was taken from MS patients in the forms of pre-test, and post-test in two test group & control group.

Research Community, Research Sample & Sampling Method:

The community consists of 112 men & women who were under coverage of Chaloo MS Association. Seventy one of them have answered Depression & Anxiety Questionnaire No. 1, and had following particulars:

- 1- 3rd grade junior high school education, at least
- 2- With minimum 6 months experience of suffering from the disease.

Forty five of the cases were found as eligible to participate at the research. They were suffering from both depression & anxiety according to the cutting point. Totally there were 35 persons with grades more than 17 & 14 in depression & anxiety tests, respectively. 30 of them were selected as sample of the research randomly, and the sample was divided into 2 groups of 15, a test group & a control group. Then remedial interferences in the test group began, and the control group left with no interference.

Research Tools:

All participants were assessed through Beck Anxiety & Depression Questionnaire. The Beck Questionnaire was firstly introduced by Beck in 1961. Then it has been revised in 1971 and finally published in 1978. The test is designed based on clinical findings and considers no cause & effect theory for depression (Weisz & et al, 2009). The test totally comprises of 21 questions with different related signs. When it is used, the testees are asked to grade the signs in a four-degree scale, from 0 to 3.

The questions are related with the subjects as, sense of inability & failure, sense of sin, sense of being provoked, sleeping disorder, and loosing appetite. The test's grades ranged between 0-63. Where, 0-13 show lack of depression or the least possible one, 14-19 show weak depression, 20-28 show intermediate depression and 29-63 show severe depression. The test were used to identify depression in teenagers at different researches, some of which being as follows; Terri, 1982-Caplon & Hang, 1984-Larsono Milin, 1990- Witaker & et al, 1990 (Taraghi Jah, 2006).

Many researchers have confirmed credibility & validity of the test so far. Moreover, Beck himself has reported 93% validity for the test in 1972, using Spearman-Brown method. In Iran too, Mr. Pour Shahbaz has determined its similarity coefficient as 85% in a conducted research (Monirpour, Yazdan Doust, Atef Vahid and Delavar, 2004)

The Beck Anxiety Questionnaire (Beck & et al, 1988, 1996) is a self reporting questionnaire, designed to measure anxiety in teenagers and adults. The anxiety questionnaire comprises of 21 questions and the patient marks one of the 4 choices which shows his/her anxiety rate. The answers of the test are graded from 0-3. Therefore range of the total point for the questionnaire shall be 0-63. Where 0-7 show lack of depression or the least possible one, 8-15 show weak depression, 16-25 show intermediate depression and 26-63 show severe depression.

In previous researches conducted in Iran, the test's internal validity coefficient was reported as 0.80. Fathi (2003) has reported 0.92 Alpha coefficients and 0.81 retest coefficient (during one week) for the Iranian population (Amirpour, Tabatabaei, Modarres Gharavi & Hassan Abadi 2010, Fathi Ashtiani 2010).

Implementation Method:

After an organized diagnostic interview, and defining grades through Beck Anxiety & Stress Questionnaire, also determining guidelines for entering to the research, the participations were selected. Medical interferences including cognitive & behavioral techniques were used which focuses on the individuals' behaviors & cognitions, directly. The cognitive medical method is drawn up from the Ferry Protocol (1999) and includes teaching automatic negative thoughts and a three column (ABC) table, cognitive distortion, and working on core beliefs & schema, using cognitive skills). In the behavioral treatment section, techniques such as activating behavior, self registering, planning for joy & domination activity, problem solving and so on were used. However, the testees in the test group participated at 8 medical sessions, each one lasting for 1-1.5 hours.

Descriptive statistical methods such as average, standard deviation, diagrams and so on were used for data survey and deductive statistical methods such as MANCOVA were used for data analysis.

Findings:

Findings of the research are shown in the bellow mentioned table, concerning the hypothesis.

Statistical specifications of dependant variables in the two test & control groups are shown in tables 3-4 & 3-4.

Table 1- Pre-test & Post-test averages for inter-personal dependant variables in the two test & control groups.

Factors	Test Group		Control Group	
	Pre-test	Post-test	Average	Post-test
Anxiety	24/0667	8/2667	24/2667	20/4667
Depression	24/0667	10/4667	24/5333	24/0667

Paying attention to the figures mentioned in the above table, one could find out there is difference between dependant variables of averages in the test group & the control group.

Main Hypothesis: Cognitive techniques are effective on reduction of Anxiety & Depression in patients suffering from Multiple Sclerosis.

Results of the balanced average & covariance for dependant variables are shown in the Table-2.

Table 2- Balanced Average, Standard Deviation, and results of covariance analysis of dependant variable factors.

Variable	Test Group		Control Group		Covariance		
	M	SD	M	SD	F(26,1)	P	ETA
Anxiety	8/360a	1/775	20/373a	1/775	29/407	0/00	0/468
Depression	10/641a	1/727	23/892a	1/727	29/894	0/00	0/531

The above mentioned tables are showing balanced averages of dependant variable factors. The effect of auxiliary random variables is omitted statistically. These averages tell us, the test group's average stand in a lower level in comparison with that of the control group. Also the single variable covariance analysis (ANCOVA) is shown in the table. Concerning that there are 2 variables, the Bonferroni correction was made by dividing 0.05 to 2. Therefore the significance limit is lower than 0.25. The case is true for the both variables. Value of the Eta shows that almost 80% of the anxiety variance and 93% of the depression variance is taken to consideration for variable of the group.

Results of multi variable covariance analysis for size of each variable are shown in the Table-3.

Table 3- F ratio Multi Variable covariance analysis for combinational variable size.

source	value	F(25,2)	Significance Level	Eta
Combinational Variable (Group)	0/392	19/403a	0/00	0/608

Note: Multi variable F ratio could be calculated through Wilks Lambda formula.

Eta square values shown in the above table are a part of the variance which is related to new combinational variable. Results of the Wilks Lambda test, concerning combinational variable are significant, and the significance of new combinational variable shows that participants of the two groups are different from each other. Also, it shows that the groups' averages were affected by the significant independent variable. Concerning the data mentioned in Tables 1, 2 and 3, following results are achieved:

“Cognitive techniques are effective on reduction of Anxiety & Depression in patients suffering from Multiple Sclerosis” as results of Table -3 shows, there is a significant difference between the test group with cognitive interference and the control group without interference.

(ETA=0.608, P=0.000, F (2 & 25)=19.403) and the difference (concerning balanced averages) was in favor of the test group.

Secondary Hypothesis 1: “Cognitive techniques are effective on reduction of anxiety in patients suffering from Multiple Sclerosis”

As it is shown in Table-2, there is a significant difference between balanced means of the two groups, concerning anxiety. (F (1& 26) = 29.408, P=0.000, ETA= 0.468).

In order to clarify the above mentioned issues, the data related to this section are shown in Diagram No. 1. Putting control & Test groups on horizontal axis & the dependent variable of anxiety on the vertical axis, the lines indicating Means shall be as follows;

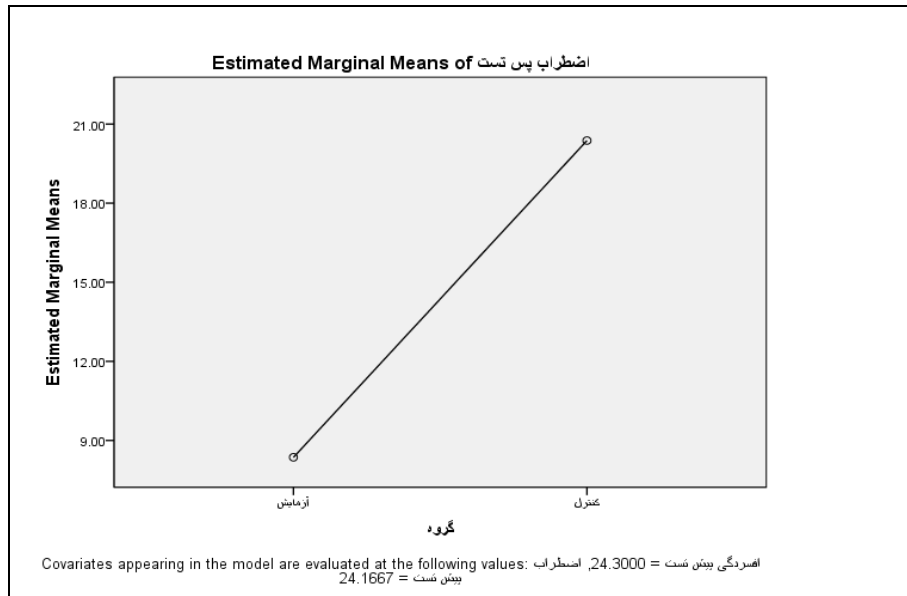


Fig. 1- Diagram showing anxiety means in the two tests & control groups

The diagram clearly shows that the anxiety in the MS patients exposed to cognitive interferences was reduced significantly. Therefore it could be judged that:

“Cognitive techniques have been effective on reduction of anxiety in patients suffering from Multiple Sclerosis”

Secondary Hypothesis 2: Cognitive techniques are effective on reduction of depression in patients suffering from Multiple Sclerosis”

As it is shown in Table-2, there is a significant difference between balanced means of the two groups, concerning depression. ($F(1 \& 26) = 29.408, P=0.000, \eta^2 = 0.531$).

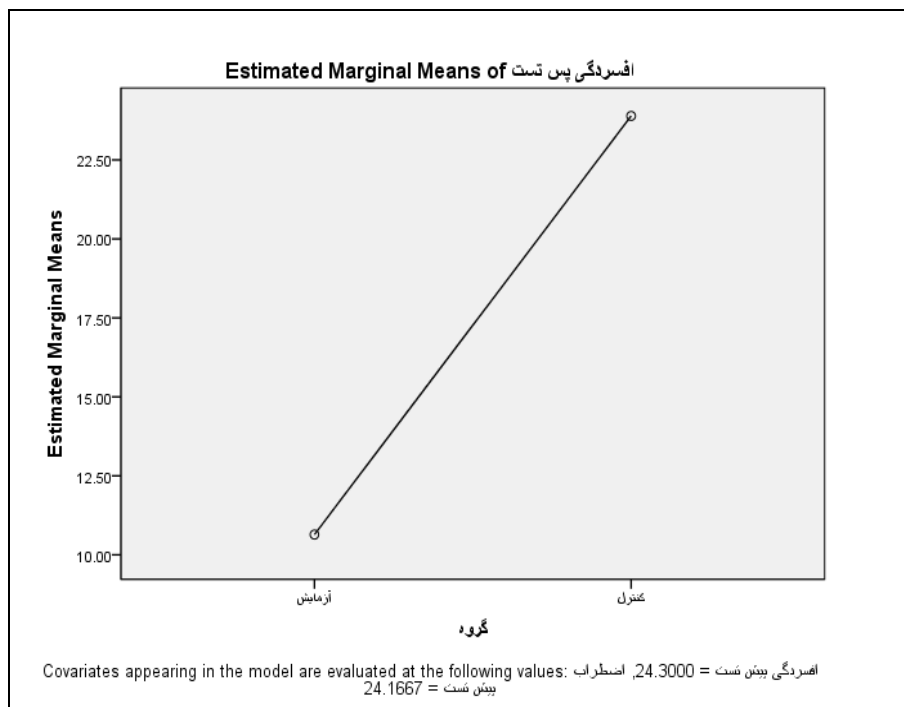


Fig. 2- Diagram showing depression means in the two tests & control groups

In order to clarify the above mentioned issues, the data related to this section are shown in Diagram No. 2. Putting control & Test groups on horizontal axis & the dependent variable of depression on the vertical axis, the lines indicating Means shall be as above;

The diagram clearly shows that the depression in the MS patients exposed to cognitive interferences was reduced significantly. Therefore it could be judged that:

“Cognitive techniques have been effective on reduction of depression in patients suffering from Multiple Sclerosis”

DEBATE & CONCLUSION

This research has been conducted to study effectiveness of cognitive techniques over reduction of Anxiety & Depression in MS patients. Concerning the main hypothesis “Cognitive techniques are effective on reduction of Anxiety & Depression in patients suffering from Multiple Sclerosis”, results derived from the research conform to the results derived from studies made by Kunik & et al (2001). They have studied Anxiety & Depression in elderly chronic respiratory patients suffering from lung closure through one session of cognitive–Behavioral treatment within 6 weeks. The research showed that each short cognitive–Behavioral treatment session was effective to reduce anxiety & depression signs in each group for 2 hours. Meanwhile the research is in conformity with results derived from the research conducted by Pedram & et al (2010) on women suffering from breast cancer. In this research the test group was exposed to 12 sessions by Cognitive–Behavioral treatment group, each week 2 sessions & each session lasting for 2 hours. But the control group was exposed to nothing. Then the 2 groups participated at the post-test. There were a significant reduction of anxiety & depression in the patients of the test group, while the patients in the control group experienced no change.

Concerning the first secondary hypothesis, cognitive techniques were conducted by many researches for treatment of anxiety derived from other physical diseases, and all of them showed effectiveness of this treatment method. This research was in conformity with the results derived from researches made by Darvish (2009, Ahmadvand & et al (2012) on hemodialysis patients, Hynninen & et al (2010) on chronic lung closure, Hambridge, Turner & Baker (2009) on coronary patients. In all these surveys, the researchers found out that Cognitive-Behavioral treatments are effective on reduction of anxiety in the patients.

In explanation of the findings, it could be stated that the results are derived from applying Cognitive- Behavioral methods such as relaxing & imagining which have been used in this research and its effectiveness on excitement disorder such as anxiety was proved in previous researches (Rodehaver, 1999 - Rossman, 2008 -Kamali, 2007- Darvishi 2009)

The other factor is vertical arrow training method which relies on challenging techniques and belief changing methods and it is effective in reducing anxiety & depression (Ferri, 2005); since, the cognitive approach admits that tension creating states such as anxiety & depression are mostly created by an extremist bias thought and enhanced by deviation in data processes. The approach believes that people focus on data which are in conformity with their beliefs, consciously. Such process is true with reminding something too. Because, people could usually remind things, that are in conformity with their previously learned information (leihi, 2009).

Results derived from the 2nd Secondary Hypothesis “Cognitive techniques are effective on reduction of depression in patients suffering from Multiple Sclerosis” are in conformity with results of the study conducted by Mohr, Hart & Goldberg (2003). They have compared three medical methods for reducing depression and chronic tiredness in patients suffering from MS; i.e.: individual Cognitive-Behavioral Interference, Group Cognitive- Behavioral Interference and treatment with Sertraline antidepressant drug.

Results showed that all three methods were effective in reducing depression & chronic tiredness in the patients. Meanwhile the results were in conformity with the results derived from the study of Mohr and et al (2000). They studied effectiveness of Cognitive- Behavioral treatment to cure depression in MS patients through phone, in 8 weeks. Results of statistical analysis showed significance reduction of depression in the group being under treatment, but there were no change in the control group.

In the study conducted by Edelman, Bell & Kidman (1999), they took 124 patients suffering from advanced breast cancer, and dividing them randomly to two test group (with Cognitive- Behavioral treatment interference) and control group (with no treatment). The interferences were made in 8 sessions, once a week. The results showed that depression & behavioral disorders were reduced in general.

Larcombe & Wilson (1984) studied 20 patients suffering from MS by dividing them randomly into a Cognitive-Behavioral treatment group and a control group. The interferences went on for six weeks for the test group. CBT showed significant difference in their treatment concerning statistical & clinical values.

To explain these findings it could be stated that early experiences of a person are important in creation of depression in Cognitive- Behavioral approach. If the experiences come with serious psychological damages, they may lead to forming schema and fundamental beliefs. Then invalid hypothesis and rules are formed to cover the schema & fundamental beliefs. The problem prevails when important events emerge in one's life, and his life style changes. In such situation, invalid suppositions are created, leading to negative self-grown thoughts and cognitive mistakes. Then physical, cognitive, emotional, sentimental, and symptoms of behavioral depression emerge (Beck & et al, 1979 and Clark & et al, 1999). Beck believed three basic changes happen in general, when using Cognitive- Behavioral techniques in treatment process. These changes are as follows: switching from self-initiated negative thoughts to accurate thoughts which are more compatible with real facts, reduction of cognitive deviations with logical mistakes, adjustability in longer cognitive structures or schema. These changes take place in quality of the patients' thinking and in their relation with themselves, world and future (Beck & et al, 1979). In this research also, change in depression rate (After Cognitive-Behavioral treatment) could be explained as result of the used cognitive-behavioral skills. In fact, the cognitive-behavioral interference has managed to reduce depression through changing the patients' behavioral & cognitive patterns. The interference made at this study also started by behavioral techniques as other cognitive and behavioral interferences. First, daily activities concerning domination skill, pleasure and behavioral activation were registered, then, working on cognitive changes began. To create cognitive changes, negative self-motivated thoughts and cognitive mistakes were taken into consideration. Then working on negative cognitions through cognitive skills began.

Results of this research showed that cognitive techniques have been significantly effective on reduction of anxiety & depression in patients suffering from Multiple Sclerosis. However no changes have been seen in the control group. It is worthy of mentioning that the medical team, such as physicians, nurses and psychologists, play an important role in training and treating the patients; since, they could prevent depression and anxiety of the patients through helping them to overcome pre-mature incapability and seclusion.

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