

## Effectiveness of Cognitive Therapy on Emotional Distress and Stress Coping Strategies in Patients with Multiple Sclerosis

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### Abstract

**Objective:** The present study was conducted to evaluate the effectiveness of cognitive therapy on emotional distress and stress coping strategies in patients with Multiple Sclerosis.

**Method:** The design of study was semi-experimental with pre and post-test, with a control group. The participants were 30 patients with Multiple Sclerosis living in Tehran who were randomly assigned in the experimental and control groups. The data was gathered by Stress Coping Strategies Questionnaire, and Depression, Anxiety, and Stress Scale. The experimental group participated in 12 sessions of cognitive therapy, while the control group received no help.

**Results:** Results of Multivariate Covariance Analysis confirmed the effectiveness of cognitive therapy on improvement of anxiety, depression, and stress coping strategies in patients suffering Multiple Sclerosis ( $P < 0.05$ ). However, the groups were indifferent in terms of stress and emotion-focused cognitive strategies.

**Conclusion:** Totally, the findings confirmed the importance of considering the effectiveness of cognitive therapy on improvement of emotional distress variables and stress coping strategies in Multiple Sclerosis patients.

**Keywords:** therapy, emotional distress, coping, multiple sclerosis

### Introduction

Multiple Sclerosis (MS) is an inflammatory myelin-destructive disorder that involves brain hemispheres, optic nerves, cerebellar, and spinal cord. MS is accompanied by several clinical signs including weakness, vision disorders, and cerebellar signs (Caceres, Vanotti & Benedict, 2014). Usually, the age of developing MS and causing various inabilities is 20 to 40. In United States, almost

400,000 people suffer from MS and approximately 200 new patients are diagnosed weekly. There are nearly 2.5 million MS patients around the world (Asche, Singer, Jhaveri, Chung & Miller, 2010). Based on previous studies, the prevalence rate of MS in Iran is between 5.3 and 74.28 per 100,000 people (Etemadifar et al., 2013).

It is shown that patients with MS experience higher rates of emotional distress compared to the healthy people (Smith & Young, 2000; Beiske et al., 2008; Byatt, Rothschild, Riskind, Ionete & Hunt, 2011; Feinstein, 2011; Moore et al., 2012; Ostacoli et al., 2013; Theudin, Romero & Feinstein, 2015) and those with similar inabilities (Schiaffino, Shawryn & Blum, 1998; Wallin, Wilken, Turner,

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Williams & Kane, 2006). Dehqani, Mohammad Khan Kermanshahi and Memariyan (2013) also concluded that among MS patients, 46.4% suffer from severe stress, 19.2% from severe anxiety, and 29.9% from severe depression. They also found a significant relationship between stress, anxiety, and depression with MS development, duration, and number of hospitalization.

Patients suffering Multiple Sclerosis experience more stressful situations due to chronicity disorder, and hence, mental pressure is higher among them compared to healthy ones (Poser, 2000). Studies display that stress coping strategies are deficient in these patients (Haqjou Sarvestani, 2010; Abedini, Montazeri & Khellatbari, 2012; Ahadi, Delavar & Rostami, 2014). Samadian (2012) concluded that MS patients use emotion-focused coping strategy, while healthy ones use problem-focused coping strategies more. Similarly, Goretti et al. (2010) reported that MS patients use problem-focused coping strategies less. In fact, these patients prefer to apply emotion-focused and avoidance coping strategies. Furthermore, since they flee from confronting mental pressure, which sometimes is the source of their problems, they do not aim to solve their problems. On the other hand, these coping strategies reduce their adjustments and cause various mental difficulties, including anxiety and depression.

Considering the special nature of Multiple Sclerosis, its undesirable and unpredictable signs, as well as its medical side and its effects on and prevalence among young people (Matti, Keane, McCarl, Klaer & Chen, 2010), applying psychological interventions along with medical therapies may help these patients greatly.

Cognitive therapy is a therapeutic process that helps patients to recognize their automatic thoughts and the relationship between these thoughts and their moods, and also to modify their thought carefully. The principle of this therapy is that thinking precedes moods and both depend on the

individual's physical reaction and his/her next behavior (Strunk, Hollars, Adler, Goldstein & Braun, 2014). In addition, learning to properly re-evaluate automatic thoughts is the most important skill that cognitive therapy tries to teach patients (Hundt, Mignogna, Underhill & Cully, 2013). Due to strong effects on automatic thoughts, and hence on moods, cognitive interventions have received special attention (Jarrett, Vittengl, Doyle & Clark, 2007). Studies on the effectiveness of cognitive therapy confirms its significant effect on emotional distress including depression (Jarrett, Vittengl, Clark & Thase, 2011; Lemmens et al., 2015; Narimani & Seyed Mousavi, 2015; Eisendrath et al., 2016), reduction of depression recurrence (Williams et al., 2014), anxiety (Van Son et al., 2014; Narimani & Seyed Mousavi, 2015), and stress (Van Son et al., 2014; Gu, Strauss, Bond & Cavanagh, 2015; Narimani & Seyed Mousavi, 2015). Rogers, Khoo, Mac Eachen, Oven, and Beatty (1996) reported a significant improvement in depression and touch sensitivity in MS patients. Hamdan-Mansour, Puskar and Bandak (2009) stated that after applying cognitive therapy, avoidance coping strategies as well as stress and depression signs are reduced. Also, Adler, Strunk and Fazio (2015) uphold that cognitive therapy significantly improved coping strategies and reduced depression signs.

Reviewing the research background manifests the importance of using cognitive therapy in MS patients. Studies on effectiveness of cognitive therapy have mainly investigated symptoms of psychological disorders. Since fewer studies have been performed on effects of cognitive therapy on emotional distress variables and stress coping strategies in MS patients, this research aims to evaluate effectiveness of this therapy on mentioned variables in patients with MS.

## Method

### Participants

The sample of this study consisted of 30

patients with Multiple Sclerosis who were member of Iran MS Association living in Tehran. They were selected voluntarily among other MS patients of this association and put randomly into the experimental (N=15) and control (n=15) groups. Inclusion criteria were rejection of other disorders similar to MS, not having history of referring to psychologists or psychiatrist, absence of psychological and sever disorders (lack of hospitalization need), having at least diploma degree with the age between 20-40. After forming the groups, some participants refused to continue cooperation and therefore, the numbers in both groups were reduced (experimental=10, control=12). The experimental group received twelve 90-minute sessions cognitive therapy, while the control group received no intervention. Additionally, both groups filled the pre-test and

post-test. . Participants provided written informed consent for their participation in the study which contains of Lack of risk, the right to choose to participate in research and participants regard privacy.

**Instruments**

a) Stress Coping Strategies Questionnaire (SCSQ): Billings and Moos designed this questionnaire in 1981 to evaluate stress coping strategies. SCSQ has 19 items and measures emotional-focused and problem-focused coping strategies. Each item is based on a 4-rate degree (0=Never, 1=Sometimes, 2=Most of the time, 3=Always). Internal coefficient consistency for SCSQ via Cronbach’s alpha was reported 0.91.

b) Depression, Anxiety, and Stress Scale (DASS):

**Table 1.** Contents of the cognitive therapy sessions

First session	Making rapport, performing the pre-test, explaining cognitive therapy, session’s structure, performance of emotions, the relation among A-B-C, teaching how to fill the 3-column table, and assigning homework.
Second session	Reviewing homework, teaching how to detect automatic thoughts and cognitive distortions, recognizing probable resistance in cognitive therapy and designing several strategies for coping with this resistance, and assigning homework.
Third session	Reviewing the homework, teaching the nature and relationships between schemas and automatic thoughts, identifying the schemas via downward arrow technique, and assigning homework.
Fourth session	Reviewing the homework, working on problems related to using downward arrow technique, teaching advanced vertical arrow, identifying ten common negative schemas and putting beliefs in these ten classes, and assigning homework.
Fifth session	Reviewing homework, investigating the relationship between negative beliefs to gain a more vivid picture, drawing cognitive maps, rating beliefs according to their emotional severity, and assigning homework.
Sixth session	Reviewing homework, helping the participants accept that beliefs can be changed, helping them evaluate their beliefs objectively, and assigning homework.
Seventh session	Reviewing homework, teaching benefits and match analysis, and assigning homework.
Eight session	Reviewing homework, teaching logical analysis, and assigning homework.
Nine session	Reviewing homework, making a hierarchy of situations related to core beliefs, teaching making counter statements regarding negative beliefs, and assigning homework.
Tenth session	Reviewing homework, teaching conceptual change, optional cortical inhibition, and assigning homework.
Eleventh session	Reviewing homework, teaching self-punishment and self-reward techniques, changing continuation/preserving strategies, assigning homework, and talking about coming to the end of the cognitive therapy sessions.
Twelfth session	Reviewing homework, summarizing the therapy, closing program, and setting a time to perform the post-test.

this 21-Item scale was designed by Lovibond and Lovibond in 1995. Examinees answer each item on a 4-rate Likert scale (0=Never, 1=little, 2=Mostly, 4=Very). DASS has a high correlation with Beck's Depression Questionnaire. In a sample consisted of 717 normal individuals, Cronbach's alpha of DASS for depression, anxiety, and stress were reported 0.81, 0.73, and 0.81 respectively.

**Procedure**

After forming the groups meeting inclusion criteria and explaining the study aim by the researchers, the participants signed a written testimony. Then, both groups filled SCSQ and DASS for the pre-test. Then, 12 sessions of 90-minute cognitive therapy (Beck, 1999) were

hold for the experimental group. The collected data was analyzed via SPSS.

**Results**

The mean and standard deviation of the variables in the pre and post tests have been shown in Table 2.

The results of multivariate covariance analysis showed that linear combination of the dependent variables were significant (Wilks Lambda=0.25; F=46.42; p<0.001) and hence, the experimental and control groups were significantly different in terms of these variables. Eta square manifests that the difference between these groups in the variables is totally significant (0.742); in other words, 74.2%

**Table 2.** Mean and standard deviation of the pre-test and post-test on stress coping strategies and emotional distress in the experimental and control groups

Variable	Group	Pre-test		Post-test	
		M	SD	M	SD
Problem-focused	Experimental	32.50	4.17	38.60	4.69
	Control	32.50	6.30	32.58	6.24
Emotion-focused	Experimental	15.40	2.79	15.60	3.06
	Control	14.50	1.93	14.75	2.54
Stress	Experimental	12.00	2.58	13.00	2.53
	Control	14.91	4.25	15.00	4.32
Anxiety	Experimental	15.30	3.56	7.00	1.49
	Control	14.91	4.25	15.00	4.32
Depression	Experimental	15.20	3.42	7.30	2.11
	Control	14.58	4.27	14.83	4.01

**Table 3.** Results of multivariate covariance analysis on stress coping strategies and emotional distress in MS patients

	Ss	df	F	P	Effect size	Statistical power
Problem-focused	148.50	1	8.51	0.001	0.506	0.98
Emotion-focused	3.42	1	0.80	0.38	0.045	0.14
Stress	6.79	1	0.82	0.38	0.046	0.14
Anxiety	19.62	1	3.78	0.05	0.182	0.45
Depression	76.78	1	14.40	0.001	0.459	0.95

of the difference between the two groups is due to the dependent variables ( $p < 0.01$ ).

The outcome of multivariate analysis showed that, regarding the calculated F coefficient, the difference between two groups in anxiety, stress, and problem-focused coping strategies were significant ( $P < 0.05$ ), i.e. cognitive therapy could improve problem-focused coping strategies and lessen anxiety and depression in the experimental group compared to the pre-test.

Another finding was that the mean of differences between the two groups, in terms of stress and emotion-focused coping strategies, were not significantly meaningful. In other words, cognitive therapy did not affect MS patients' stress and frequency of using emotion-focused coping strategies.

### Discussion and conclusion

The present study was conducted to investigate the effectiveness of cognitive therapy on emotional distress and stress coping strategies in patients with Multiple Sclerosis. The results confirmed the significant impact of cognitive therapy on problem-focused coping strategies in MS patients. This finding is in line with Adler et al.'s (2015). In fact, cognitive therapy generally teaches patients cognitive strategies and improves their abilities in confronting problems. This therapy helps MS patients have a more logical attitude toward MS and do not use avoidance strategies (Madani, Navipour & Ruzbiyani, 2007). However, this study found that MS patients still use emotion-focused strategy even after receiving cognitive therapy. This was inconsistent with the findings of Adler et al.'s (2015) and Hamdam-Mansour et al.'s (2009). To explain this finding, we can say that developing any disorder, such as Multiple Sclerosis, may cause patients high levels of psychological pressure and with its development, it hardens their lives more. On one hand, these patients may experience high levels of stress in order to organize their internal

and external willing. While, on the other hand, since emotion-focused coping strategy is a strategy to confront difficulties, they may use it in spite of its low compatibility due to their situation and side effects of disorder.

This paper approved the effect of cognitive therapy on declining stress and depression in patients with Multiple Sclerosis, which was previously confirmed by Eisendrath et al. (2016), Lemmens et al. (2015), Narimani & Seyed Mousavi (2015), Williams et al. (2014), Van Son et al. (2014), and Jarret et al. (2011).

This finding can be justified by the fact that substructure of cognitive therapy is that patients' situations will be improved by making a distance between themselves and their negative beliefs, and participating in various activities that gives them a sense of control. In other words, cognitive therapy helps individuals become aware of their automatic thoughts, illogical beliefs and expectations, and misunderstandings. So, change in deficient thought patterns and inefficient attitudes result in fading out negative automatic thoughts and finally, relieving their anxiety and depression.

Cognitive therapy was not effective in reducing stress of MS patients in this study, which was against the results of Gu et al. (2015), Narimani & Seyed Mousavi (2015) and Van Son et al.'s studies (2014). Multiple Sclerosis as a progressive and chronic disorder may cause various threatening stressful events in patients' personal lives, including divorce, losing their jobs, or family contacts (Mohr & Pelletier, 2006). Worrying about providing therapeutic costs, inability for self-care, lack of welfare facilities, and change in family pattern may increase their stress (Judicious & McCabe, 2007). As the previous studies show, probability of suffering from stress is very high in these patients since they have accustomed to stressing thought and are always worried about their disorder progress in future. Since increase of MS duration may enhance patients' stress, continuous teaching

of proper ways of coping with stress can improve patients' compatibility and may also boost their self-confidences.

In fact, it seems the Cognitive therapy affects MS patients' problem-focused coping strategies, anxiety and depression through enhancing therapeutic alliance and resolving interactional conflicts. Therefore, given the effectiveness of this type of therapy and its benefits for these patients' psychological health.

Among limitations of the current study, we can refer to the problems related to MS patients' fatigue which made it difficult for them to keep participation. The other limitation was the absence of follow-up due to time shortage. It suggested that all MS centers of Iran include cognitive therapy in programs of teaching classes for these patients. Additionally, it is suggested that scholars perform the same cognitive therapy design on various groups of patients in terms of development time and experiencing Multiple Sclerosis for a long time. Attending gender differences is also recommended.

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