



Cognitive Behavior Therapy: A Study to Reduce Anxiety and Depression in Patients with Multiple Sclerosis

Elham Mohammadi^{*1}, Leila Dabbagh Kashani²

1. Department Of Educational Sciences, Curriculum Planning Orientation, Islamic Azad University, Tehran Center Branch, Iran.

2. Department of Educational Psychology, Islamic Azad University, Tehran North Branch, Iran.

A B S T R A C T

The aim of this study was to evaluate the effectiveness of cognitive-behavioral therapy on reducing anxiety and depression in people with multiple sclerosis. This study was a quasi-experimental method with a control and experimental group. The statistical population of the present study was patients with MS referred to the medical centers of District 10 of Tehran, from which 30 people were selected by available sampling method and randomly divided into two groups of control and experimental (15 people per Group) were located. Research instruments included Beck Anxiety and Depression Questionnaire and Cognitive-Behavioral Therapy Protocol. This training was performed on the experimental group for 10 sessions and each session lasted 60 minutes. Multivariate analysis of covariance was used to analyze the data. Findings showed that cognitive-behavioral therapy training is effective on anxiety and depression and leads to a reduction of anxiety and depression in these individuals. Considering the effectiveness of cognitive-behavioral therapy on anxiety and depression, it seems necessary to conduct training workshops based on these concepts in counseling centers.

Keywords: Depression, Anxiety, Cognitive-Behavioral Therapy, Multiple Sclerosis.

INTRODUCTION

Multiple sclerosis (MS) is a progressive autoimmune disease of the central nervous system that destroys the myelin sheath and causes plaque to form in parts of the white matter of the brain and spinal cord and subcortical areas (Gharibi, Imani, & Dalal, 2021; Glavor, Titlić, Vuletić, Mrđen, & Šimunić, 2019; Solari & Radice, 2001). The disease has an unknown cause and progressive nature with periods of relapse and recovery, so that people with the disease, during their lives experience a variety of physical and mental disorders caused by the disease, and these disorders of daily functioning, family life. And socially strongly influence functional independence and planning for the future (Chalah & Ayache, 2018; Moss-Morris et al., 2012). The prevalence of psychological disorders, especially anxiety and depression, among patients with MS has been reported in several studies. Anxiety and depression also exacerbate the physical symptoms of MS (Ramaglia, Rojas, Naouar, & Gommerman, 2021). Symptoms of psychological disorders, especially depression and anxiety, are also considered as barriers to the diagnosis and control of this disease (Chard et al., 2021). In fact, mood disorders cause the patient to pay more attention to the problems caused by the patient paying more attention to

*. Corresponding Author: Elham.mohammadi1121@gmail.com

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the symptoms of the disease and increase the patient's responsiveness to physical symptoms and periods of symptoms.

Anxiety or anxiety is a widespread, unpleasant, and vague feeling of panic and anxiety of unknown origin, which affects a person and includes uncertainty, helplessness, and physiological arousal. The recurrence of situations that have previously been stressful or in which the person has been harmed causes anxiety in individuals. All human beings experience anxiety in their lives, but chronic and severe anxiety is abnormal and problematic (Wong et al., 2021).

Depression is a mood disorder involving boredom and inactivity or apathy and reluctance and can affect a person's thoughts, behavior, feelings and happiness and health. Depressed people may experience feelings of unhappiness, anxiety, emptiness, hopelessness, helplessness, worthlessness, shame, or restlessness; they may lose the desire to engage in activities that were once enjoyable (Brown et al., 2016; Ecker et al., 2019).

Numerous studies have shown that psychotherapy techniques are significantly effective in reducing the symptoms of the disease as well as reducing the level of depression and anxiety. Cognitive-behavioral therapy (CBT) is one of the effective psychotherapy techniques. Cognitive-behavioral therapy programs are based on a type of behavioral therapy that has emerged in the context of traditional psychotherapy situations and shows the growing interest of therapists in correcting cognition as an effective factor in emotions and behaviors. The purpose of this training method is to correct irrational beliefs, dysfunctional beliefs, misinterpretations and cognitive errors, a sense of control over life, facilitate constructive self-talk and strengthen coping skills (Horrell, 2008; Kazantzis et al., 2018). This method helps people overcome obstacles and improve their coping skills; It is also effective in creating and enhancing competencies such as decision making, motivation, acceptance of responsibility, positive communication with others, happiness, self-esteem, problem solving, self-regulation, self-sufficiency and mental health (Karlin et al., 2015). So far, various studies on the effectiveness of this treatment on anxiety (Herbert et al., 2005; Kodali et al., 2018; Rezaie, Neshat Doost, Vakili Zarch, Amra, & Molavi, 2013; Rosmarin, Bocanegra, Hoffnung, & Appel, 2019), and depression (Lutz, Schiefele, Wucherpfennig, Rubel, & Stulz, 2016; Reavell, Hopkinson, Clarkesmith, & Lane, 2018; Rezaie et al., 2013), have confirmed the effectiveness of this treatment.

Given that MS causes serious psychological problems for people, including anxiety and depression, the present study seeks to answer the question "Does cognitive-behavioral therapy reduce "Anxiety and depression are effective in people with multiple sclerosis."

METHODOLOGY

The present research design is quasi-experimental with a control and experimental group. The statistical population of the present study was patients with MS referred to medical centers in District 10 of Tehran, from which 30 people were selected by available sampling method and randomly divided into two groups of control and experimental (15 people in each group) they got. Then, before performing cognitive-behavioral therapy for the experimental

group, research questionnaires were distributed among the members of both control and experimental groups as a pretest. Then ten sessions of 60 minutes of cognitive-behavioral therapy protocol were performed on the experimental group. After completing the training, the questionnaires were completed again as a post-test by both experimental and control groups.

Beck Anxiety Test: A self-report questionnaire designed to measure the severity of anxiety in adolescents and adults. The questionnaire is a 21-item scale designed by Steer, Ranieri, Beck, and Clark (1993), in which the subject chooses one of four options that indicate the severity of anxiety in each item. This questionnaire has a high validity. Its internal consistency coefficient is 0.92 alpha, its validity varies from 0.30 to 0.76 by a one-week retest method and the correlation of its materials varies from 0.30 to 0.76.

Beck Depression Inventory: This questionnaire is a self-assessment tool consisting of 21 items about the typical symptoms of depressed patients and each one is scored from 1 to 3 depending on the severity of the condition reported by the patient(Steer, Brown, Beck, & Sanderson, 2001). Scores ranging from 0 to 13 no depression or mild depression, 14 to 19 mild depression, 20 to 28 moderate depression and 29 to 63 depression it is severe. Steer et al. (2001), reported the internal stability of this instrument from 0.73 to 0.92 with a mean of 0.68 and their coefficient for the patient group was 0.68 and the non-patient group was 0.81.

Table 1. Summary of the content of cognitive-behavioral therapy sessions

Session	Content of sessions
First	In this session, after getting acquainted and creating a good relationship, the importance and purpose of cognitive-behavioral therapy and the problems of clients were formulated in the form of a cognitive-behavioral approach.
Second	Mastery of behavioral cues was taught to them and exercises in life.
Third	Presented daily.
Fourth	Working on the causes of events that happen.
Fifth	Work on emotional cues (how to think, feel, and use thought recording) was taught.
sixth	Fighting negative thoughts, thinking skills and working on cognitive errors.
Seventh	Identifying negative self-talk included: Finding negative self-talk, training to replace positive self-talk.
Eighth	Let go of negative thoughts, including: throwing away thoughts by taking notes, continuing to record thoughts, learning problem-solving skills.
ninth	Change and correct misconceptions including: finding your own beliefs, previous learning, questioning beliefs and clarifying them were taught.
tenth	Preparedness to complete the training and replace negative thoughts with positive emotions.

RESULTS

Table 2. Mean and standard deviation of control group research variables

Variables	Pre-test		Post-test	
	Mean	Std. Deviation	Mean	Std. Deviation
Anxiety	31.31	2.14	31.35	2.15
Depression	26.14	4.52	27.31	4.56

Table 3. Mean and standard deviation of research variables of the experimental group

Variables	Pre-test		Post-test	
	Mean	Std. Deviation	Mean	Std. Deviation
Anxiety	32.41	2.18	14.51	1.18
Depression	27.32	3.56	14.26	1.21

According to this table, the mean scores of depression and anxiety decreased in the post-test of the experimental group, while the means in the control group had very slight changes.

The hypothesis of this study includes "cognitive-behavioral therapy is effective in reducing anxiety and depression in people with multiple sclerosis." To test this hypothesis, multivariate analysis of covariance (MANCOVA) was used. Before performing the hypotheses, the normality of the data must first be performed in order to perform parametric statistics. The Kolmogorov-Smirnov test was used to measure quantitative data. The significance level obtained from Kolmogorov-Smirnov test for scores of research variables is greater than 0.05, so the data is normal and parametric tests (covariance) can be used for inferential analysis of data. Before performing the analysis of covariance, the assumptions of this test such as linearity and homogeneity of regression slopes and equality of variances should be performed. After the test, the results show that the relationship is linear, so the assumption of linearity is not violated and the use of analysis of covariance is unrestricted.

Table 4. Results of analysis of covariance for research variables in control and experimental groups by removing the pre-test effect

Source		Sum of squares	DF	Mean squares	f	p	Effect size
group	40/1821	1	1	1821.40	91.03	68/0	0.68
	02/1057	1	1	1057.02	86.96	88/0	0.88
error	90/340	21	21				
	42/361	21	21				
total	11124	30	30				
	10724	30	30				

According to Table 4, cognitive-behavioral therapy is effective on anxiety and depression.

CONCLUSION

The research hypothesis states that "cognitive-behavioral therapy is effective in reducing anxiety and depression in people with multiple sclerosis." The results of multivariate analysis of covariance (MANCOVA) showed that cognitive-behavioral therapy is effective on anxiety and depression and the research hypothesis has been confirmed.

The results of this study are consistent with the findings of Rezaie et al. (2013), Kodali et al. (2018), Herbert et al. (2005) and Rosmarin et al. (2019), on the effectiveness of cognitive-behavioral therapy on anxiety. It is consistent with the findings of Rezaie et al. (2013), Reavell et al. (2018), and Lutz et al. (2016), on the effectiveness of cognitive-behavioral therapy on depression.

It should be noted that having negative emotions and depressed mood as a strong internal motivating factor can cause emotional and physical problems in patients with MS, while most patients complain of this condition and express they often experience negative and emotional mood problems. Negative emotional situations include unpleasant emotions such as depression, anxiety, physical discomfort, and conflict with others. The use of healthy coping strategies in the prevention and treatment of these conditions will be very useful and will enable a healthier

coping in the face of emotional problems. Teaching these strategies also plays an important role in controlling internal stimuli. During cognitive-behavioral therapy with treatment or reduction of anxiety, the person is less exposed to unpleasant experiences and anxiety.

Considering the role of cognitive factors such as dysfunctional thoughts, underlying opportunities and various information processing processes, the pathology of MS and the occurrence of anxiety and depression in these patients can be predicted. For example, in cognitive therapies, irrational thoughts are tried. Identify the ineffectiveness of the symptoms of anxiety and depression. The patient should gain insight into the role of negative thoughts in his illness and replace them with more accurate news. Because MS patients are highly vulnerable to worry and anxiety and are highly prepared to misinterpret the physiological symptoms of anxiety, they were given the insight that they were aware of their health status and course of treatment. They have catastrophic and false thoughts that cause them to show a negative and selective bias towards their health and recovery. Cognitive-behavioral therapy by reducing patient misunderstandings emphasizes diaphragmatic breathing training and relaxation techniques specifically and emphasizes the cognitive and physiological components of anxiety and depression. Their focus on periods of illness and inattention to signs and symptoms decreases and people's performance increases. Another possible explanation could be that cognitive-behavioral therapy simultaneously reduces anxiety, depression, and symptoms, which may indicate an interrelationship between psychological and physical symptoms, including MS. Cognitive-behavioral therapy can reduce the symptoms of anxiety or depression by reducing symptoms or reducing the level of anxiety and depression has led to a reduction in the severity of MS symptoms. This is a limitation of the present study which is suggested in future research.

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