

The Effectiveness of Quality of Life Therapy on Depression and Anxiety among Patients with Multiple Sclerosis

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Abstract

Introduction: Many patients with incurable disease, like multiple sclerosis (MS), experience depression and anxiety, therefore, this study aimed at investigating the effectiveness of quality of life therapy (QOLT) among patients with multiple sclerosis (MS), depression and anxiety.

Methods: The design of the study was semi-experimental with an experimental group and a control group, including three phases; a pre-test, a post-test and a follow-up test. Statistical population consisted of patients suffering from MS referring to health centers in Shiraz, Iran. 24 patients were selected using convenience-sampling method. They were randomly assigned to the experimental and control groups (each 12 members). The experimental group received QOLT during eight 50-minute weekly sessions. The control group received no treatment. All participants completed the Beck Depression Inventory–II and Beck Anxiety Inventory. The data were analyzed using the analysis of covariance method.

Results: Comparison of the means of depression and anxiety scores of two groups in post-test phase showed that quality of life therapies had significant effects on reduction of depression ($p < 0.001$) and anxiety ($p < 0.001$) rates in MS patients. Comparing two groups in a follow-up phase showed that the effect of intervention was stable.

Conclusion: This research showed that quality of life therapy has decreased depression and anxiety rate significantly in MS patients. It seems that using psychological intervention can improve the well-being of MS patients and they can benefit from the positive effects of a quality time program. Therefore, it is recommended that, in addition to prescription of medications, psychological interventions be done for these patients.

Declaration of Interest: None

Key words: Multiple Sclerosis, Quality of life therapy, Depression, Anxiety.

Introduction

Multiple Sclerosis (MS) is a neurocognitive disorder characterized by symptoms such as myelin sheath inflammation, destruction and after head trauma, MS damages are known as the second prevalent cause for neural disabilities among people aged 18 to 40 years old, but the characteristics of this disease vary from a

benign disease to a rapidly growing and disabling one (1). MS symptoms are very different and they are related to the location of damages in central neuron system. The prevalence of this disease in women is more than in men (1, 2). Almost 2.5 million people around the world suffer from MS (3). According to the records in World Health Organization (4), the prevalence of this disease

in Iran is about 20 to 60 cases among 100,000 people, and women are affected by MS 3 or 4 times more than men (5).

Depression and anxiety are considered as the main mental disorders in individuals affected by MS and the results of some studies revealed that about 50 to 60 percent of these patients suffer from depression (1, 5, 6). The findings of some recent studies indicated that 37 percent of the MS patients suffer from anxiety disorders, which greatly affect these individuals' life quality (7). Data gathered from 58 articles studying a total of 87756 MS patients confirmed increased prevalence of anxiety and depression in these patients. A meta-analysis showed that clinically significant symptoms of anxiety and depression were more common than other psychiatric disorders in MS in different studies (8). What exactly causes high rate of depression and anxiety among these patients is unknown. The most probable thought is that a combination of socio-psychological and neurological factors relevant to MS may play a role (9). Unfortunately, two thirds of MS patients who have major depression do not receive enough treatment for their problem (10,11). Some studies indicated that in comparison with healthy people, MS patients have higher levels of disorders such as depression, stress and anxiety. These symptoms may be the result of direct effects of inflammation and neuron demyelination, or they may derive from a mental influence of a chronic and unpredictable disease known as multiple sclerosis (12).

Since MS disease and its disabling features bring about some changes in a patient's life, if the patient cannot make a mental adaptability with this situation, his/her mental health can be affected. Quality of Life Therapy (QOLT) has a holistic approach toward life goals. QOLT, as a combination of positive psychology and cognitive approach, can probably affect the subjective well-being and the mental health of patients with refractor diseases. This treatment consists of 5 stages (CASIO): Circumstance, Attitude, Standards of fulfillment, Importance, and Overall satisfaction about life satisfaction, which introduce a plan for life quality and positive psychological interventions. These

five paths included changing the objective circumstances of an area, the attitude or perception of an area, the standards of fulfillment for an area, the importance placed on an area for one's overall happiness, or the satisfaction one experiences in other areas not of immediate concern, can be applied to any area of dissatisfaction. Moreover, QOLT can play an important role in prevention of mental disorders such as depression and anxiety. This treatment is an approach, designed by Frisch (13), which is based on positive psychology, cognitive therapy, life quality theory and action theory. In a structural form and with some cognitive-behavioral practices and tasks, this therapy aims at making an evolution in 16 areas of life. Besides, this therapy tries to develop spirituality and self-development at home and societies, and shows how we can enhance life satisfaction and happiness in different domains. Furthermore, in this kind of therapy, improvement in life quality takes place through making cognitive-behavioral changes in five primary concepts. These 5 concepts are briefly called CASIO (13).

Various studies indicated that psychological treatments could successfully decrease the rate of depression and anxiety in patients with MS. Cognitive behavioral therapy can significantly decrease the rate of depression and anxiety in MS patients (14, 15, 16). In line with those findings, the results of a meta-analysis indicated that cognitive-behavioral therapy was a successful intervention in decreasing the rate of depression in patients with MS (17). In another study, which cognitive behavior therapy was administered using telephone, it was reported that depression rate in MS patients decreased significantly (18). Thomas, Thomas, Hillier, Galvin, and Baker (19) investigated the effectiveness of different psychological interventions on patients affected by MS and reported that depression treatment with a cognitive-behavioral approach was very useful and it could help the patients to adapt to their disease. In a review study titled "psychological aspects of MS disease", Jose (20) analyzed various studies in this regard and concluded that treatment strategies such as psychotherapy, cognitive-behavioral therapy, increasing contrastive

behaviors, and special medical treatments can be very useful in enhancing the psychological state and life quality of MS patients. Moreover, Asadnia et al. (21) found out that behavioral and cognitive interventions have positive and significant effects on the therapy of depression level and the decrease of anxiety symptoms in patients affected by MS.

Some studies indicated usefulness of QOLT in different groups. This kind of therapy caused a decrease in children's behavioral problems, an increase in mothers' life satisfaction (22), an increase in vitality and happiness of married men and women (23), an increase in subjective well-being of male teenagers (24), and also an increase in marital satisfaction (25). In a study, Abedi and Vestanis (26) investigated the effect of this type of treatment on parents of the children affected by obsessive-compulsive disorder (OCD). Results indicated that this treatment decreased the symptoms of OCD and anxiety, and increased the general life satisfaction of families and situational satisfaction of children affected by OCD. Moreover, the rate of mothers' life satisfaction increased significantly. Rodrigo, Mohr, Vido, and Olderz (27) investigated the effectiveness of treatment based on life quality, supportive therapy on quality of life, mood disorders, and the rate of social intimacy in patients who were waiting for lung implantation. Results of the study revealed that these two treatments were significantly different in the follow-up phase, and quality of life therapy caused mood disorders to decrease after 3 months in the follow-up phase, and also caused life quality and social intimacy to increase considerably.

According to previous studies, the significance of these treatments is elaborated, because in their interventions, they considered different aspects of individual's life. They put emphasis on prevention, improving mental health and life satisfaction, and account for lack of clinical and controlled studies which take into consideration all aspects of health in MS patients especially in Iran. The aim of this study is to investigate the effectiveness of quality of life therapy on anxiety and depression in patients affected by MS.

Methods

This is a semi-experimental study and its research design had two groups, an experimental and a control group, and included three phases; a pre-test, a post-test and a follow-up test. The participants were randomly assigned into experimental or control groups. The experimental group was under individual QOLT weekly. During the study phase, the control group received no therapy or psychological education.

The MS patients who referred to Shiraz clinical centers were chosen as the population for this study. A clinical interview based on DSM-5 was used to screen the patients. It was conducted for each person individually. The people who did not have the inclusion criteria were not participated in the study. 24 women were selected using convenient sampling method and were randomly assigned into 2 groups each including 12 participants. There were some inclusion criteria. The scores of patients in depression and anxiety inventories were at least 21, they were aged 20 to 45 years old, had at least 8 years of school education, and received treatment without any change in their medicines during the time when this study was conducted. All of them were under medical treatment for MS but they were not receiving medical treatment for anxiety and depression or other psychological disorders. Moreover, they had not received corticosteroids in the last three months (due to their complications). The exclusion criteria were having other chronic physical disorders (such as disabling diseases in heart, breathing, liver, kidney or epilepsy), having speech or hearing disorders, using drugs, and having other mental disorders according to diagnostic and statistical manual of mental disorders (DSM-5), like schizophrenia or other psychiatric disorders. Majority of the participants in this study had an associate's degree and they were over 35 years of age. Three instruments were utilized in this research.

Beck's Depression Inventory-2 (BDI-2): This scale (28) includes 21 items, which measure the intensity of depression disorder. The individuals' total scores range from 0 to 63. The scores between "0 to 9" indicate no

depression, "10 to 18" indicate light to moderate depression, "19 to 29" indicate moderate to serious depression, and the scores from 30 to 63 show serious depression. Furthermore, the psychometric features of the Persian version of this questionnaire were taken into account in a sample of Iranian students by Ghasemzadeh, Mojtabae, Karam Ghadiri, and Ebrahimkhani (29). The questionnaire's Persian version had a high internal consistency with Cronbach's alpha coefficient equal to 0.87, and its reliability, which was measured using test-retest method, was acceptable and equal to 0.74. Moreover, BDI-2 had a high correlation with Hollon and Kndal's automatic thought questionnaire (30). Dubson's and Mohammad Khani's study (31) on major depressed patients in Iran reported the reliability equal to 0.91 and validity equal to 0.87 which were acceptable for the Persian version of BDI-2. The Cronbach's alpha coefficient for this study was 0.89. In addition, in a new study, Rahimi (32) reported acceptable reliability and validity for this test in university students in Shiraz.

Beck Anxiety Inventory (BAI): BAI (33) is a self-report questionnaire including 21 items that measure the general intensity of anxiety. The participant grades the intensity of each symptoms by using the four-grade scale; never, slight, moderate, and serious. The first choice receives zero score, the second one receives 1, the third one receives 2, and the fourth choice receives 3 scores. If the score is from 0 to 7, it means there is either no or a little anxiety. If it is from 8 to 15, there is slight anxiety, if the score is from 16 to 25, there is moderate anxiety, and if it is from 26 to 63, it is indicative of serious anxiety. In this questionnaire, the alpha coefficient was 0.92 for outpatients. Considering the prevalence of anxiety disorders in Tehran, Kaviani et al, (34) reported an acceptable validity and reliability and obtained the cut-score equal to 15 for this test.

Quality of Life Therapy (QOLT): QOLT is a combination of Beck's cognitive therapy and Seligman's positive psychology, that was designed by Frisch (13) is a model which aims at providing subjective well-being and life satisfaction based on CASIO pattern in 16

areas of life. The experimental group of this study attended 8 therapy sessions individually. Each session was about 50 minutes. In these sessions, important aspects of life and their roles in QOLT, principles and techniques relevant to them, teaching and elaborating on CASIO pattern and its application in various aspects of life were taken into consideration. All the treatment sessions were conducted by a clinical psychologist, according to the protocol mentioned in the book "Quality of life therapy" (13).

The participants took part voluntary in the study and they signed the written consent form. They were informed that they can leave the study whenever they will. In the pre-test phase, participants of both groups completed the anxiety and depression inventories. The order of presenting the questionnaires to patients was random for each person. After the pretest phase, therapy sessions were implemented on the experimental group. Moreover, after the end of the therapy in the experimental group, BDI-2 and BAI were again completed by the two groups. In the follow-up phase, participants completed the questionnaires one month later.

TO analyze the data, descriptive statistical methods as well as covariance analysis were used.

Results

In table 1., the means and standard deviations of depression and anxiety scores in pre-test, post-test and follow-up phases are shown. As it can be noticed, the mean of depression scores in post-test and follow-up phases in the experimental group decreased in comparison with the mean in pre-test phase. Moreover, the mean of anxiety scores in post-test and follow-up phases in the experimental group decreased in comparison with the mean in pre-test phase.

The scores of depression and anxiety in MS patients were considered as the dependent variable and both groups with the same level of life quality treatments were considered as the independent variables. Then two separate analyses of variance were conducted in the post-test phase. Pre-test scores were accounted

as the covariate variable and they were entered into the model. Likewise, two separate analyses of variance were computed in follow-up phase. Scores of depression and anxiety were considered as the dependent variable, both groups with the same level of life quality

treatment were considered as the independent variable and post test scores were considered as the covariate variable, and they all were entered into the model.

Table 1. Means and standard deviations of depression and anxiety

Variables	Groups	N	Pre- test		Post- test		Follow up	
			Mean	SD	Mean	SD	Mean	SD
Depression	Experimental	12	21.67	12.86	14.25	10.05	13.58	9.06
	Control	12	21.83	8.87	22.75	9.03	23.08	8.55
Anxiety	Experimental	12	22.50	8.89	15.17	7.10	14.25	5.98
	Control	12	22.33	7.92	24	8.26	23	7.60

Table 2. The results of covariance analysis of variance for depression and anxiety

Variables	Assessment	Source	Df	Mean square	F	Sig	Effect Size
Depression	Post-test	Pre-test	1	1774.788	159.472	0.001	0.884
		Group	1	419.718	37.718	0.001	0.642
		Error	21	213.11	-	-	-
	Follow-up	Post-test	1	1426.217	106.352	0.001	0.835
		Group	1	26.690	2.010	0.171	0.087
		Error	21	13.410	-	-	-
Anxiety	Post-test	Pre-test	1	1070.556	94.81	0.001	0.819
		Group	1	482.857	42.765	0.001	0.671
		Error	21	11.291	-	-	-
	Follow-up	Post-test	1	12.283	93.139	0.001	0.816
		Group	1	9.026	1.361	0.256	0.061
		Error	21	9.026	-	-	-

In comparing the groups' post-test scores, the results of covariance analysis of depression scores, after scores adjustment, indicated that the groups' main effect was significant ($p < 0/001$). The results also showed that there was a statistically significant relationship between groups' post-test scores. The obtained η^2 (Eta squared) showed that 64.2 percent of depression scores' variance were elaborated by group factor (table 2). In the follow-up stage,

the covariance analysis results for follow-up scores of groups' depression indicated that there was no statistically significant difference between their follow-up scores and post-test scores. Therefore, QOLT was effective on depression in post-test phases. The results of the treatment were also present in the follow-up phase (table 2).

In comparing the groups' post-test scores, the results of covariance analysis of anxiety scores

indicated that, after scores adjustment, the groups' main effect was significant ($p < 0/001$). The obtained Eta^2 (Eta squared) showed that 67.1 percent of anxiety scores' variance were elaborated by group factor (table 2). In the follow-up stage, the covariance analysis results for follow-up scores of groups' anxiety indicated that there was no statistically significant difference between their follow-up scores and post-test scores. Therefore, QOLT was effective on anxiety in post-test phases and the results of the treatment were also present in the follow-up phase (table 2).

Conclusion

The current research aimed at studying the effectiveness of life quality therapy on decreasing of anxiety and depression rate in patients with MS. Results indicated that this treatment decreased anxiety and depression rates in MS patients; the scores of the experimental group in anxiety and depression scales were significantly different from the scores of the control group. Moreover, the treatment results were present in follow-up phase, as well.

A lot of studies (15, 18, 19) have been conducted on decreasing depression in MS patients through various psychological methods and the results of many of them are in line with the findings of the present study. This indicates that psychotherapy plays an important role in decreasing the depression of patients affected by MS. The results of the present study match the findings of the studies carried out by Hind et al. (18), Jones et al. (15), Bekner et al (19), Thomas et al. (25), and Asadnia et al. (22) who considered the psychological interventions in the realm of cognitive-behavioral therapy and their effects on depression in MS patients.

QOLT is a positive psychological approach which aims at enhancing happiness and improving life quality. In this treatment, clients are taught some skills and theories which help them to determine, follow, and achieve their goals, needs, and wishes relevant to different valuable aspects of their life. This treatment approach teaches the patients that happiness or vitality is a choice. In this

method, interventions do not only focus on the individuals, but they put emphasis on sympathy and affection in order to assist the patients or individuals to change. This approach focuses on the patients' needs, so that they can reach their values and goals and focus on them. The experience established by this treatment is combined in a five-stage model. This model is the base and main foundation of quality of life therapy. It is a kind of logotherapy. That is, it helps the clients to find the most meaningful thing in their life which can increase their happiness and health. In line with this feature, a study carried out by Nasiri and Jokar (35) revealed that in an indirect way and related to hope, life meaningfulness can increase happiness and life satisfaction.

This factor makes individuals enhance their life quality through instigating to cope with the activities, which are significantly related to social integrity, social unity and relationships (36). Another important issue, which was taught to the individuals during this period, was sound social relations and amending their relationship pattern. During different stages, individuals learned, firstly, to recognize their faulty relationship through cognitive recreation and guidance. Then, they learned some relationship skills. The group members recognized that one of the reasons for their dissatisfaction in relationships is that they allocated all their mental valuation to just one relationship and did not value other activities or relations. In this regard, the findings of the study indicated that affections and behavioral confirmation by others are positively related to life satisfaction. Besides, having a wide social relationship and behavioral confirmation has positive effects on positive affections. There is also a bilateral relationship between social relationships and subjective well-being which can increase positive affection and decrease negative affection along with the increase of life satisfaction (37). Ed and Bombardier (38) studied depression in patients affected by MS regarding the role of affective mediators in the intervention which was based on increasing physical activity. Results revealed that both positive and negative affections play considerably important intervention role in curing the symptoms of depression. Therefore,

the group members can increase their happiness and life satisfaction, and decrease their depression through expanding social relations with others.

Regarding the anxiety issue, this study's findings are consistent with the results of studies conducted by Askey Jones et al. (15), Jose (21), and Asadniya et al. (22) who investigated the effects of psychological interventions on anxiety in MS patients. In their study, Garfield and Linken (39) accounted for the effective factors in the anxiety of MS patients. Findings revealed that anxiety in MS patients had a high prevalence and factors such as depression, disability, low level of self-efficacy, and stress can probably increase the anxiety experience in these patients. Therefore, using techniques for reducing depression, we can, to some extent, decrease anxiety in these patients. In some parts, concerning goals and values in QOLT, clients are taught some basic skills on life control and controlling temper, so that their negative affections are controlled and their life is organized and they seek for personal goals in valuable aspects of life.

The techniques which are used for this purpose are as follows: a daily activity plan (DAP) in using their time for life values and goals and inner abundance, cognitive recreation by the use of a five-stage model of life satisfaction (CASIO), techniques for recording thoughts, a personal stress profile, instructions for a new life, and teaching anxiety control by the use of quality time techniques (mindful breathing, and muscle relaxation). Using the five-stage model of life satisfaction, clients change their attitudes and by regulating their thoughts and attitudes, they can control their excessive negative affections and improve happiness and vitality in significant aspects of their life.

Individuals in life quality therapy, as in cognitive therapy, find out that their responses to the world is based on their attitudes toward the world, not what happens in it, and it is this attitude and approach based on which sense, thought and behavior are shaped. Therefore, in QOLT, as in cognitive therapy, clients are encouraged to challenge and evaluate, measure the precision of their conception, and evaluate the efficacy of their conclusions on the

meaning and significance that a situation provides for their future and their sense of valuation. Moreover, with regard to the application of techniques for recording daily thoughts and stress, the clients are encouraged to evaluate their thoughts and reach a realistic review. Furthermore, they are taught to find positive responses and strategies for the incompatible thoughts which paralyze them while facing problems, or the thoughts that instigate negative feelings such as depression and anxiety which are not suitable for the situation and are considered as useless, incompatible and unsound thoughts for quality of life therapy. Using these techniques, clients will be able to recognize that there are always some disabling, preventive and useless thoughts which lead to excessive negative emotions such as anxiety that do not fit the situation, or there are some thoughts which push individuals toward an inactive or disabling deprivation and overwhelm them by pain and sadness. Subsequently, knowing these issues, the clients free themselves from these false thoughts and beliefs, and rectify or review them again.

Clients find out realistic responses for their painful thoughts, then they try to make practical programs for these painful issues and solve them; subsequently, they can control or overcome negative affections and emotions (such as anxiety and depression). It seems that by introducing 3 main factors on quality of life therapy, this treatment has created the individuals significant attitudes and skills which are necessary for happiness continuation, anxiety decrease, and relaxation. According to these 3 main factors, clients know the significance of self-care and reach deep self-awareness (inner abundance), find out the necessity of life's meaningful goals and values, and based on a quality time program they learn new methods and strategies in order to detect the obstacles to problem solving and its significance. The programs such as relaxation and mindfulness breathing help to create relaxation in clients so that they can benefit from the positive effects of a quality time program.

Results of the present study revealed that QOLT could play a significant role in reducing

the anxiety and depression of patients affected by MS. It is recommended that clinical experts be equipped with educational packages in order to apply the interventions for MS patients who have psychological problems. Moreover, benefiting from effective psychological interventions, they can improve the adaptation procedure with this chronic disease and also enhance the therapy suggestions. In this way they can help to prevent MS complications and take big steps toward increasing the level of mental and physical health in these patients. Therefore, since this treatment is effective in decreasing MS patients' anxiety and depression, it can be used as a non-aggressive and non-medical method in order to decrease these patients' anxiety and depression. One of the limitations of this study is that just one gender (female patients) was selected for this study. In addition, time for conducting the follow-up phase was one month. It is recommended that future studies use both male and female subjects and longer follow-up time.

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