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Research Article

COMPARING THE EFFECTIVENESS OF ACCEPTANCE AND COMMITMENT THERAPY (ACT) AND HOPE THERAPY ON REDUCING PHYSICAL AND MENTAL SIGNS AND SYMPTOMS OF MULTIPLE SCLEROSIS PATIENTS

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ABSTRACT

Multiple Sclerosis disease is among the most common chronic diseases of central nervous system. This disease leads to the occurrence of various psychological disorders as well as somatic problems in patients, among which, depression, anxiety and fatigue are of utmost prevalence. The aim of this study was investigating the effectiveness of acceptance and commitment therapy as well as hope therapy on reducing the somatic and psychological signs and symptoms of MS patients. This quasi-experimental study had a pre-test, post-test and control group design. Having utilized convenient sampling method, 45 patients were selected from among statistical population of MS patients and they were divided into two experimental groups and one control group; they were pre-tested using considered tests. ACT was administered to one of the experimental groups and the other experimental group was administered hope therapy; both groups were trained for 8 sessions of 120 minutes. Findings: The obtained results indicated that there was a significant difference between the mean score of sub-scales of the Multiple Sclerosis Impact Scale questionnaire (MSIS-29), life quality (somatic and psychological) and general health (GHQ) of the experimental groups and control group ($P<0.001$). Conclusion: Both ACT and hope therapy were effective in reducing the signs and symptoms of MS patients and improving their life quality and no significant differences was observed between two therapies.

Keywords: Acceptance and commitment, Hope therapy, Somatic symptoms, Psychological signs, Multiple Sclerosis Patients

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INTRODUCTION

Chronic diseases affect all periods of life so that not only elderlies, but also youth and middle aged people, suffer from such a kind of diseases (1). One of the chronic and disabling disease that cause much inabilities in youth and middle aged people, is Multiple Sclerosis (2). This disease is one of the most prevalent neurologic disease; it is a chronic and developing disease which destroys the myelin of central nervous system and involves cerebral hemispheres, optic nerves, brainstem and spinal cord. MS is diagnosed using Cerebrospinal Fluid (CSF) analysis, electrophysiological studies and medical imaging (3). This disease creates a small plague in the patient`s brain and spinal cord (4). MS disease which is an inflammatory chronic disease of central nervous system, acts as an inflammatory complication and reduces the neurons of central nervous system and myelin of the white matter of the brain and spinal cord and is accompanied by autoimmune manifestations; these changes have consequences in the brain structures and central nervous system such as movement and neuropsychological changes and disorders (5). MS committee declared in 2011 that more than 2.1 million individuals over the world have MS disease (6). However, the Atlas of MS (2016) have estimated the prevalence rate of this disease in the world almost 2.5 million individuals (7). Our country, Iran, is one of the relative prevalent regions of MS; despite the low statistics that have been reported, the amount of people having this disease in Iran is almost 15 to 30 individuals in every 100000 individuals among Asian people and it has the utmost prevalence in Isfahan (8). Studies have shown that most of the individuals having chronic diseases, are depressed (9). Depression is 50% among these patients which is related to the chronic fatigue, low life quality and the reduction of the results of pharmacotherapy; recognizing factors related to depression in MS patients is essential as it is one of the most important factors of determining psychological health which affects the disease procedure in these individuals (10).

Various therapies exist regarding how to face problems and tensions resulting from chronic diseases specially Multiple Sclerosis. One of these therapies that has been widely considered in recent years, is the acceptance and commitment therapy (ACT) as stated by Steven Hayes (1987) in the 80th century in the Nevada University. This diseases is recognized by its acronym (ACT). It is assumed in ACT that human beings consider most of their feelings, emotions and internal thoughts to be frustrating and they constantly seek to change these internal experiences and get rid of them; such efforts for controlling the case is ineffective and paradoxically cause the intension of feelings, emotions and thoughts that the individual sought to prevent them at the beginning. Cognitive fusion takes place the time that one`s thoughts regulated his evident behaviors ineffectively and make him pay attention to the though productions (content) instead of through process (background). When these processes overcome one`s experiences, they lead to psychological flexibility (11).

One of the newest therapies regarding positive psychology is hope therapy. Hope therapy has been derived from the hope therapy of Snyder as well as cognitive-behavioral therapy thoughts, solution-focused therapy or narrative therapy (12) and helps individuals

motivate themselves toward following their aims and identify obstacles and multiple crossings to reach their purposes and cope with them to meet their aims. Actually, hope is a key for finding the solution of the problem in difficult circumstances of life (13); the beginning of this therapy is based on changing the cognition and focus level (14). Since this disease is one the threatening factors of hope, considering a kind of psychotherapy that puts the hope as the main purpose of change would be of utmost importance for MS patients. Snyder`s hope therapy, among many psychological therapies, is the only therapy that considers hope as the main purpose and integrates intervention principles based on biographies and focuses on the issues and cognitive-behavioral problems to present a short-term, semi-structured and new therapeutic system.

According to Snyder, hope is composed of three main components including purpose, agent and executor. Being success in achieving the purposes creates positive emotions and failure in it, creates negative emotions. Hopeful people have lots of crossings for following their purposes and when they face an obstacle, they can keep their motivation and use substitute crossings, while, hopeless people easily lose their motivation when facing obstacles since they have limited agents and crossings and they feel negative emotions, which, itself, leads to depression. It is sought in hope therapy to increase the three main components of hope in the individuals; changing hope is a learning process, therefore, the therapist can help to increase the hope and hopeful thinking of the authorities through educational interventions and using individual as well as group training programs that have been designed to this end (15). According to Benzein and Berg (2005), life expectancy helps patients physiologically and emotionally to be able to tolerate the disease crisis, but, being hopeless in life is defined as tolerating an insuperable status in which reaching to no purposes is expected (16). Researches have shown that hope therapy is effective in reducing the depression (17), anxiety and stress (18). On the other hand, nowadays, researchers believe that creating life expectancy directs people toward more successes in life, better health, desirable life quality, healthier supportive social relations and finally more mental and somatic health (19).

In fact, life expectancy is a stated subject regarding patients` life quality since MS patients have lower life quality due to their chronic disease, thus, the amount of satisfaction and hope that patients have regarding being alive, provides the most important opportunity and possibility of having a qualitative life (20). MS disease has a variety of somatic and psychological problems for the patient (21). These problems not only disrupt ones mental health, but also affect his physical health and disease procedure; therefore, the importance of psychological interventions for reducing and solving these problems is duplicated. On the other hand, this research has firstly compared these two therapies with each other. Considering psychological problems of MS patients, there two therapies have common criteria (creating hope and acceptance and etc.). Therefore, investigating the psychological effectiveness in variables and somatic and mental signs and symptoms of these patients can helps us recognize the effective therapies and create evidence based on psychological therapies` studies. The current research sought to create a platform to solve the somatic and mental problems of these patients using two therapeutic methods of the third wave called acceptance and commitment therapy and hope therapy. The purpose of this study was investigating the issue that whether two therapies of 8 session group program which has focused on hope therapy, can be effective in reducing somatic and mental signs (general health, psychological flexibility, increasing joy, life expectance) and totally, improve the life quality of MS patients in females and males?

METHODOLOGY

The design of the current study had been recorded in the ethical committee. To collect the data of the participants of the study, firstly the purpose and procedure of the research had been explained and in case they agreed, their written consent forms were obtained.

The design of the current study was quasi-experimental (pre-test, post-test and control group), having categorized into three groups (two experimental groups and one control group). The population of the current study included all MS patients who were members in the MS committee of Tehran during 2016-2017. In this study, 60 individuals had been sselected among females and males having MS in the MS committee of Tehran and they were groups into three groups each having 20 participants that due to some individuals` not participation in the study, they were finally divided into three groups, each having 15 members. One experimental group received acceptance and commitment therapy for 8 sessions (90 minutes) and the other experimental group received hope therapy for 8 session (120 minutes) and control group didn`t receive any treatments. After 8 sessions of treatment, both experimental groups and control group completed Multiple Sclerosis Impact Scale questionnaire, general health questionnaire and Snyder's hopefulness questionnaire; the required data were extracted and analyzed using SPSS, version 24, software. After selecting individuals using random sampling method, to collect the data of the study, the purpose and procedure of the study were explained to the participants and in case the agreed, their written consent forms were obtained. Considering the operational definitions of each group, the Multiple Sclerosis Impact Scale questionnaire, general health questionnaire and Snyder`s hopefulness questionnaire were administered; the total administration time for the questionnaires was considered to last 20 to 30 minutes. Inclusion criteria: inclusion criteria in this study were diagnosing MS and determining inability rate in ADSS scale by the psychologist, educational level (diploma) and treatment procedure of the disease (pharmacotherapy) and disease duration for at least 1 year, which were obtained by the demographic questionnaire and researcher-made individualistic characteristics. Exclusion criteria: not attending two educational sessions or participating simultaneously in therapeutic session using other methods; these people couldn't meet the required criteria and were excluded from the study. Moreover, inferential statistics and MANOVA were utilized for analyzing the results.

1. Multiple Sclerosis Impact Scale (MSIS-29)

The only questionnaire whose questions have been selected based on standard methods and specifically for evaluating the life quality of MS patients, is MSIS-29 questionnaire. This questionnaire includes 29 questions whose first 20 questions measure the physical impact and 9 last questions measures the mental effect of MS on the patient. Each question has 5 options (having the score of 1 to 5); the sum of scores related to the patient responses of these two groups of questions are converted into zero and one and finally, two scales are obtained for measuring the physical and mental dimensions of the life quality. Higher scores show the low health of patient. The maximum score in the physical dimension is 100 and its minimum score is 20 and the maximum score in the mental dimension is 45 and the minimum score is 9 (22).

Regarding the reliability and validity of this questionnaire, the results of the study showed that its reliability was more than 80% using Cronbach alpha. Moreover, in the study of Ayatollahi et al. (2006) the analysis of statistical data indicated the appropriate internal consistency (Conbach alpha coefficients of more than 70%) and goof confidentiality of test-retest (intra-class correlation coefficients of more than 70%) as well as the desired validity of the Persian version of MSIS-29 (23).

2. General Health Questionnaire (GHQ)

This general health questionnaire has 28 questions and 4 sub-tests, each having 7 questions. The questions of each sub-test have been arranged in order so that questions number 1 to 7 are related to physical sign sub-test, questions 8 to 14 are related to the anxiety and sleeplessness sub-test, questions 15 to 21 are related to social performance disorder sub-test and questions 22 to 28 are related to the depression sub-test (24).

The likert scoring method has been utilized; based on which, each of the questions has 4 degrees as (0, 1, 2, 3) and the total score of an individual is varied from 0 to 84.

The validity of the questionnaire has been investigated using double-check, bi-section and Cronbach alpha methods, whose validity coefficients equaled 70%, 93%, and 90%, respectively. Having explored the validity of correlation coefficients between sub-tests of this questionnaire and the total score, it was revealed that the validity was satisfactory and it varied between 72% and 87% (25).

3. Snyder`s Hope Therapy Questionnaire

This questionnaire has been designed by Snyder et al. to measure the hope. This includes 12 clauses administered through self-measurement (26). 4 clauses of them are used for measuring agency thinking, 4 clauses are used for measuring strategic thinking and 4 clauses are deflective, therefore, this questionnaire entails two sub-scales of agency and strategy.

Internal consistency of the all test is 74% to 84% and the reliability of the test-retest is 80% and it is more for periods more than 8 to 10 weeks (27). Internal consistency of the agency sub-scale is 71% to 76% and strategy sub-scale is 63% to 80% (28).

In the introductory section, which had been held before the treatment, participants were asked to review Al-Hashr Surah, Al-Waaqia, An-Naba, Al-Rahmaan and Ya-Sin and shared the selected AYATs with their group members each session.

Summary of hope therapy sessions

Table 1. Hope therapy protocol based on Snyder`s hope therapy- derived from Shekarabi Ahari et al. (2014) (29).

Purposes of the session	Educational contents	Task
1. Introducing hope therapy	Defining the purpose and finding obstacles and ways of reaching the purposes. Strategies of keeping the motivation	Prepare the list of purposes that are important and have been delayed.
2. Emotions are not the results of blocked purposes and obtained aims.	Blocked purposes are opposed to our will and obtained purposes motivate our wills.	Select a purpose that you desire and focus on it six weeks later.
3. Identical purposes	Purposes should be important and identical, and have an end point and be accessible and measurable.	State your purposes with identical clauses having an end point. Use approximate framework for your purposes. Convert your purpose to sub-purposes.
4. Mental/ physical power	The importance of positive self-talk to reach to purposes	Recording self-talks Directing self-talks Redefining the condition based on self-abilities
5. Drawing the purpose diagram	Establishing steps for reaching purposes and using mental imagination of sub-purposes and power strategies of the path	Drawing purpose diagram Taking some of the required skills for self-crossings Daily mental imagination for passing the steps and reaching to the final purpose
6. Physical power	Healthy nutrition and exercising habits increase the will.	Evaluating nutritional diets and exercises Marketing self-purposes to be sure that they are still important.
7. Obstacles	Introducing purpose obstacles	Coping obstacles Presenting a report of the selected purpose`s development
8. Mistakes and regresses	How to avoid converting mistakes to regresses	

Summary of acceptance and commitment therapy sessions

Table 2. Administration protocol of ACT sessions (30)

Sessions	Purposes of the session
First session	Introducing members of the group; stating the expectations of therapeutic sessions, stating the secrecy principle, administering pre-test
Second session	Creating hope and treatment expectation; stating the acceptance principle and recognizing emotions and thoughts; presenting tasks regarding self-acceptance and emotions resulting from the disease
Third session	Reviewing the tasks; educating and recognizing emotions and their difference with non-judgmental thoughts and emotions
Fourth session	Reviewing the tasks; presenting mindfulness technique and focusing on the breathe; presenting the presence in the moment technique and stop thinking; presenting tasks
Fifth session	Reviewing the tasks; educating and recognizing the difference between acceptance and resignation and awareness; presenting mindfulness technique; presenting tasks

Sixth session	Educating commitment to the action, presenting selective attention technique for the self-negative thoughts; presenting tasks
Seventh session	Searching for unsolved problems; recognizing behavioral plans and commitment to the action; creating the work ability among options
Eighth session	Reviewing the tasks, summing up the contents; presenting feedback to the group members, appreciation; administering the post-test

FINDINGS

Table 1. Multivariate covariance analysis on the post-test scores of physical and mental symptoms in the experimental and control groups through controlling pre-test

Name of the test	Value	F	Df hypothesis	Df error	Significance level
Pillai's Trace	0.536	7.13	4	80	0.001
Wilks Lambda	0.476	8.75	4	78	0.001
Hotelling`s trace	1.095	10.40	4	76	0.001
Roy's Largest Root	1.091	21.82	4	40	0.001

The contents of Table 1 showed that there was a significant difference between two experimental groups and control group at least in one of the dependent variables. To investigate this difference, the results of tables 2, 3 and 4 could be considered.

Table 2. Multivariate covariance analysis for comparing the mean of post-test scores regarding physical symptoms of groups

Variable	Sum of squares	Freedom degree	Mean of squares	F	Significance level	Effect size
Pre-test	56.332	1	56.332	17.34	0.001	0.30
Group	96.805	2	48.403	14.90	0.001	0.42
Error	129.918	40	3.24			
Total	2675.00	45				

As it is observed in Table 2, the effect of pre-test sores on post-test scores was significant (F=17.34 and P<0.01) and the effect of group on the post-test scores was significant (F=14.90 and P<0.01). Since the effect of groups on the post-test scores was significant, Benferoni test was utilized to exactly measure the difference between the mean of paired groups, the results of which have been presented in Table 3.

Table 3. Bonferoni test in multivariate covariance analysis for investigating the mean difference of post-test in the paired groups regarding the physical symptoms` variable

Group (i)	Group (j)	Mean differences	Standard error	Significance level	Confidence level of 95%	
					Lower level	Higher level
Post-test of ACT	Post-test of hope therapy	0.31	0.67	1	-1.36	1.99
Post-test of ACT	Post-test of control group	-2.97	0.67	0.000	-4.66	-1.28
Post-test of control group	Post-test of hope therapy	3.28	0.66	0.000	1.63	4.93

According to the results of Table 3, it is observed that the mean difference between two experimental groups equaled (0.31), which was not significant in the statistical level of (0.05). This meant that ACT couldn't have a significant effect on reducing the physical signs and symptoms of MS patients compared to the hope therapy group.

The results of comparing the mean difference between two ACT and control group equaled (-2.97), which was significant in the statistical level of (0.01). Therefore, it could be concluded that there was a significant difference between these two means. This meant that ACT could reduce the physical signs and symptoms of MS patients compared to the control group.

Besides, the results of comparing the mean difference between two hope therapy groups and control group equaled (3.28), which was significant in the level of (0.01). Therefore, it could be concluded that there was a significant difference between these two means. This meant that hope therapy could reduce the physical signs and symptoms of MS patients compared to the control group.

Considering the findings, the hypothesis of the research stating "ACT has a significant difference on reducing physical signs and symptoms of MS patients compared to hope therapy", was rejected.

Table 4. The results of multivariate covariance analysis for comparing the mean of post-test scores regarding mental symptoms of groups

Variable	Sum of squares	Freedom degree	Mean of squares	F	Significance level	Effect size
Pre-test	106.699	1	106.699	74.03	0.001	0.64
Group	38.292	2	19.146	13.28	0.001	0.39

Error	57.651	40	1.441			
Total	3550.00	45				

As it is observed in Table 4, the effect of pre-test sores on post-test scores was significant (F=74.03 and P<0.01) and the effect of group on the post-test scores was significant (F=13.28 and P<0.01). Since the effect of groups on the post-test scores was significant, Benferoni test was utilized to exactly measure the difference between the mean of paired groups, the results of which have been presented in the following.

Table 5. Bonferoni test in multivariate covariance analysis for investigating the mean difference of post-test in the paired groups regarding the mental symptoms` variable

Group (i)	Group (j)	Mean differences	Standard error	Significance level	Confidence level of 95%	
					Lower level	Higher level
Post-test of ACT	Post-test of hope therapy	-0.009	0.44	1	-1.13	1.11
Post-test of ACT	Post-test of control group	-1.98	0.45	0.000	-3.11	-0.86
Post-test of control group	Post-test of hope therapy	1.96	0.44	0.000	0.87	3.07

According to the results of Table 5, it is observed that the mean difference between two experimental groups regarding mental symptoms variable equaled (-0.009), which was not significant in the statistical level of (0.05). This meant that ACT couldn't have a significant effect on reducing the mental signs and symptoms of MS patients compared to the hope therapy group.

The results of comparing the mean difference between two ACT and control group equaled (-1.98), which was significant in the statistical level of (0.01). Therefore, it could be concluded that there was a significant difference between these two means. This meant that ACT could reduce the mental signs and symptoms of MS patients compared to the control group.

Besides, the results of comparing the mean difference between two hope therapy groups and control group equaled 1.96, which was significant in the level of (0.01). Therefore, it could be concluded that there was a significant difference between these two means. This meant that hope therapy could reduce the mental signs and symptoms of MS patients compared to the control group.

Considering the findings, the hypothesis of the research stating "ACT has a significant difference on reducing mental signs and symptoms of MS patients compared to hope therapy", was rejected.

DISCUSSION AND CONCLUSION

The main aim of ACT is improving psychological flexibility. Psychological flexibility refers to the ability of having contacts with every moment of life and changing or stabilizing the behavior; this behavior, which is in line with the values of the individual, helps people following the condition requirements to have a more rewarding and joyful life despite undesirable thoughts, emotions and feelings (31).

On the other hand, hope therapy is a factor close to optimism, however, hope gets powerful the time that it has valuable aims and has the possibility of reaching them in the medium term despite having challenging obstacles and if one faces obstacles, he should be able to choose accessible aims flexibility and select other paths (32).

First hypothesis: ACT was effective in reducing the physical signs and symptoms of MS patients compared to hope therapy. The findings related to ACT regarding physical variables indicated that considering the studies and findings on increasing life quality and reducing fatigue (33), it was effective in improving the physical and mental performances (34).

The findings related to the effect of hope therapy on physical and mental signs and symptoms showed that considering the studies and findings of reducing fatigue (Motahhari Nezhad et al., 2016), improving the quality of chronic disease (35), health and psychological criteria (36), hope therapy was effective in treating physical pains (37) and fatigue (38). The findings obtained from this study indicated that ACT was not more effective than hope therapy on reducing the physical signs and symptoms and both therapies could have a positive and significant effect on treating MS patients compared to the control group.

Second hypothesis: ACT was effective in reducing the mental signs and symptoms of MS patients compared to hope therapy. The findings related to the effect of ACT on mental signs and symptoms indicated that considering the studies and findings on the effect of two ACT method on reducing anxiety (39), ACT could reduce depression and improve mental health, mental, physical and social health (40).

The findings related to the effect of hope therapy on mental signs and symptoms showed that it was related to the studies and findings of reducing stress, anxiety and depression (41), improving joy and happiness (42), increasing life meaning and social support (43).

The findings obtained from this study indicated that ACT was not more effective than hope therapy on reducing the mental signs and symptoms and both therapies could have a positive and significant effect on treating MS patients compared to the control group.

The findings of this study showed that ACT and hope therapy were effective in reducing mental signs and symptoms of chronic diseases specially MS patients, which was in line with the studies stated above.

The results of the current studies indicated that ACT could reduce the criteria related to the physical and mental signs and symptoms to a significant degree and could have effect on the psychological flexibility and its criteria, having a close relationship with each other (acceptance, cognitive coalescence, contextualizing the self, contacting with every moment of life, defining values and commitment to them) and prevent its reduction in the disease procedure. Moreover, hope therapy could reduce the criteria related to physical and mental signs and symptoms significantly and could be effective in increasing hope to life and its criteria (willingness, observing) and finally, prevent its reduction in the procedure of the disease.

As a result, it could be stated confidently that cognitive-behavioral treatments of the third wave such as ACT and hope therapy, considering the findings of this study and studies conducted in recent years, could improve pain tolerance backgrounds (psychological flexibility), optimism and hope in life in MS patients so that it could be stated that these two therapies not only increase the life quality related to the mental health, but also affect physical health increasing their conditions from two perspectives compared to the control group. The limitations of this study included the subjects` being bored, not controlling other events and others such as the development of the disease and family, economic and social problems, which may have happened simultaneously with the administration of the independent variable.

It is suggested that ACT and hope therapy be used in various phases of the disease and those patients having movement problems and

physical inabilities or those who utilized wheelchair. Considering the results of the study stating that ACT and hope therapy were effective in reducing physical and mental signs and symptoms, it is recommended to compare it with other therapies of the third wave and investigate its effect on these group of patients. Furthermore, these two therapies could be given to the therapists, counsellors and psychologists in the therapeutic centers and clinics to be administered and prevented from its regression. To prevent this disease, it is suggested that people who are exposed to be influenced, be aware of this method`s importance. Considering the fact that developing chronic diseases involve patients in various conditions in terms of performance and compatibility with the condition, it is suggested to present psychological treatments along with pharmacotherapies to these patients.

Ethical Considerations of the Research

Having presented the administration procedure and the content of the study to the participated patients, this study sought to keep the data of the participants confidential and data were collected having participants` consents to participate in the study. This study had no advantages and disadvantages for the people participating in the study. Moreover, considering the fact that all professional ethical principles have been observed in this study to consider the enjoyment right of pharmacotherapy, all three groups were under pharmacotherapy and physical cares. At the end of the study, individuals` oral comments along with short recommendations were obtained and they were appreciated for their participation in the treatment design.

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