

Depression in patients with Multiple Sclerosis: A review study

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ABSTRACT

Introduction: Patients with multiple sclerosis have high levels of depression and anxiety that this need for intervention counseling, treatment and education targeted in these patients is necessary. This study aimed to evaluate the effectiveness of interventions for the treatment of depression in patients with multiple sclerosis took place. **Methods:** Electronic search of information using key words multiple sclerosis, depression and psychiatric interventions were. The databases were Iranian Medical Science Database [Iran Medex], Pub Med, Mag Iran Scientific Database [SID], Scopus. The search of the above mentioned database was carried out from July to September 1998. **Results:** 49 studies aimed to evaluate the effect of interventions in the treatment of depression in patients with MS. Finally, the interventions were classified into 6 areas. Interventions were, respectively, from the most used to the least applicable in the following areas: Cognitive-behavioral interventions, exercise and relaxation, education, group therapy, model-based interventions and psychological models, drug interventions. **Conclusion:** The results of studies indicate that interventions have a positive effect on reducing depression in patients with multiple sclerosis, but more attention is paid to the less costly and accessible interventions based on education and family-based research.

Keywords: Multiple Sclerosis, Depression, Psychiatric Interventions

Introduction

Multiple Sclerosis is a disease demyelinating central nervous system and the most common diseases that lead to disability in people, especially the youth is causing sensory disturbances, visual, cognitive, speech, as well as weakness and cramps, fatigue and trembling limbs, urination and defecation disorders, sexual dysfunction, numbness and diplopia in a patient ^[1].

Symptoms usually appear when patients are between the ages of twenty and forty when they are at the beginning of work and family formation. The cause of this disorder is lacking and there is no definitive cure for it ^[2], but studies show Factors such as a

history of infectious diseases, immune deficiency, stress, and stress can all contribute to the disease ^[3].

Multiple sclerosis is the second most common cause of disability in young people, and women are three times more likely to develop it ^[4]. In the United States, more than 350,000 people have the disease, with more than 1,000 being added each year. It is estimated that at least 20,000 people in Iran also have the disease ^[5, 6].

Scientists and philosophers have long believed that there is a two-way relationship between physical illness and psychological trauma ^[7]. Researchers acknowledge that the de-myelination of nerve fibers not only affects the functioning of the sensory and motor systems but may also cause psychopathological symptoms and symptoms ^[8].

Studies show that depression is the most common symptom in MS patients and is usually present in between 50 and 60% of affected patients, and suicide rates are 7 times that of the control group ^[9, 10]. Therefore, the prevalence of depression and tenderness in the target group of this disease doubles the need for further research in this area. Therefore, this study aimed to

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systematically review interventions in the treatment of depression in patients with MS in order to maintain their health.

Analysis Method:

This systematic review was designed to identify and collect studies in which interventions for the treatment of depression in MS patients are available. The databases were Iranian Medical Science Database [Iran Medex], Scientific Database [SID], Pub Med, Mag Iran, Scopus.

Inclusion criteria were:

Experimental studies that intervene as the main framework for the treatment of depression in patients with MS and studies published between 2018 and 2010. Also excluded were descriptive studies and studies in which non-educational interventions were conducted.

Due to the inclusion criteria and study design, the articles were reviewed and articles that did not have the required quality were excluded from the study for the purpose of the study. The following is a summary of the details of the studies reviewed.

All ethical considerations regarding the correct use of the extracted articles and the standards for publication of the work were respected.

Findings:

After searching the databases and extracting a large number of articles by title and abstract, 215 articles [88 articles from Persian sources and 127 articles from English sources] were reviewed, 93 of which were due to educational intervention. 123 articles were examined more closely, of which 74 articles did not consider therapeutic interventions as the main intervention in the study. Finally, 49 articles were included in this review.

Finally, interventions were carried out in 6 areas. The interventions were, respectively, the most applicable to the least applicable in the following areas:

Cognitive-behavioral interventions, exercise and relaxation, education, group therapy, pattern-based interventions and psychological models, drug interventions.

Discussion

17 studies performed cognitive-behavioral intervention in patients with multiple sclerosis. In this study, the samples were divided into control and experimental groups and cognitive behavioral intervention was performed only in the experimental group. Data collection tools included Beck and Cattell Anxiety Inventory, Mental Health, MISS and GHQ. After determining the level of anxiety in both groups, cognitive behavioral intervention was performed only in the experimental group. Intervention content included explanation of thinking and feeling and identification of cognitive theories, depression, anxiety and self-thoughts. The most important coping strategies in cognitive-behavioral intervention were techniques of injecting thought,

turning attention, coping with negative emotions, alternative thoughts, continuity of thought, time machine and acceptance training. After intervention and reassessment of anxiety level in both groups, data showed that cognitive behavioral intervention had a very positive effect on depression in patients with MS [11-27].

15 studies performed relaxation and stretching techniques to reduce depression in patients with multiple sclerosis. Depression techniques in these patients included progressive muscle relaxation, Jacobson, Betson [28-39] techniques, and yoga [40, 41] and reflexology [42]. The main content of these techniques included contraction and relaxation of muscle groups and mental imagery and appropriate focusing techniques. The data gathering tool in this study was DASS questionnaire that was completed before and after the intervention by patients with multiple sclerosis. Data analysis showed that physical exercise and yoga can significantly reduce the feeling of depression in these patients.

Ten studies identified education as an effective strategy to reduce depression in patients with MS. Four studies from this group transferred their educational content to the intervention group through peer group [43-46]. In these studies, information transfer and awareness were provided by knowledgeable and involved individuals under the auspices of the peer group. Consequently, peer constructive experiences were used as a model to improve the disease process in the intervention group. The main donor was assigned to the intervention group [47-52]. Educational content in both groups included symptoms and problems such as muscle cramps, urinary disorders and drug side effects, and suggested strategies for reducing fatigue and methods of gradual relaxation and deep abdominal breathing and reducing sadness through written daily emotions and negative emotions. Data collection tools were self-descriptive data and DASS questionnaire. Data analysis showed that patients with multiple sclerosis had better control over their symptoms of depression due to their knowledge and information.

Two studies tested the efficacy of group therapy on the reduction of psychological symptoms in MS patients with depression. Intervention in these studies was based on hope-based group therapy [53] and emotion expression [54] in group interactions that took place during several sessions on the experimental group. And they were Schneider's Hope Scale. Data analysis indicated that group therapy sessions could have a significant effect on reducing depression symptoms and improving hope in the intervention group by enhancing team spirit and sharing experiences.

Three studies performed their interventions based on psychological models and models. The Lazarus model, the Orem model, and immunization were the main interventions to reduce the symptoms of depression in patients with MS. Seven dimensions of treatment [behavior, affect, sensory perceptions, imaging, cognition, interpersonal relationships, biological medicine] were evaluated separately but interactively; self-training and assertiveness techniques and Empty chairs to relieve uncomfortable sensations, gradual muscle relaxation to relieve

sleep and fatigue problems, proper nutrition training, and anger control were the main contents of the therapeutic sessions^[55].

Also, the Orem model was one of the interventions for self care of patients with MS to reduce psychological symptoms. In this study, several sessions were designed and implemented based on Orem pattern based on patient needs and using checklists. Self-reporting, patient utilization programs were evaluated. Before and 3 months after intervention, anxiety, stress, depression, sleep quality and hope were measured using DASS21, Petersberg Sleep Quality Questionnaire and Schneider Hope Assessment Questionnaire. They had depression and anxiety scores after treatment sessions^[56].

An immunization-based intervention study was used in patients with multiple sclerosis to reduce the symptoms of depression. In these meetings to explain the role of inoculation training against stress, manage stress and reduce relapses and disease progression, relaxation training, speech, cognitive errors, challenge negative thoughts stress test negative thoughts, familiar with the negotiations inner of inner speech My little ones and my little ones sometimes have them instead of my little ones. Constantine, by virtue of being a legend, was also a legendary figure^[57].

Two studies examined the effects of drug therapy on the treatment of depression in patients with multiple sclerosis. These studies used pharmacological strategies to intervene to measure the level of depression in patients using the Extended Disability Status Scale [EDSS] and Beck Depression Inventory [BDI]. BDI] was measured and sertraline-based drug intervention was administered in multiple follow-up in the samples. Subjects reported signs of improvement after several sessions of drug use^[58, 59].

Conclusion:

Depression is the most common disorder and reaction to the course of multiple sclerosis, which in turn affects much of patients' lives with their symptoms. Review of these studies shows that all interventions are effective in treating or alleviating depression in patients, but interventions such as yoga, intricate stretching and exercise, reflexology exercises, drug therapy and psychological interventions require constant supervision and supervised care. Specialists in the field of interventions, which are far from being accessible with the costs associated with them, are a major obstacle to using health services in the field, while training-based interventions that are much less cost-effective and effective. Be less welcomed Also, family-based interventions have been virtually neglected by researchers. Simple and low-cost therapeutic interventions, a sense of relaxation and a positive attitude to depressive symptoms that many patients find uncontrollable in patients Therefore, family-centered interventions based on training and convenience of the above mentioned interventions in health centers are suggested by the researcher.

References

1. Farinotti M, Vacchi L, Simi S, Di Pietrantonj C, Brait L, Filippini G. Dietary Interventions For Multiple Sclerosis. *Cochrane Database Of Systematic Reviews*. 2012;12(1).
2. Damasceno A, Von Glehn F, Brandão C0, Damasceno BP, Cendes F. Prognostic Indicators For Long-Term Disability In Multiple Sclerosis Patients. *J Neurol Sci*. 2012; 234 (1): 29-33.
3. Boland P, Levack WM, Hudson S, Bell EM. Coping With Multiple Sclerosis As A Couple: 'Peaks And Troughs'-An Interpretative Phenomenological Exploration. *Disabil Rehabil*. 2012; 34(16): 1367-1375.
4. Polman CH, Reingold SC, Banwell B, Clanet M, Cohen JA, Filippi M, Et Al. Diagnostic Criteria For Multiple Sclerosis: 2010 Revisions To The Mcdonald Criteria. *Ann Neurol*. 2011;69(2): 292-302.
5. Klevan G, Jacobsen C, Aarseth J, Myhr KM, Nyland H, Glad S, Et Al. Health Related Quality Of Life In Patients Recently Diagnosed With Multiple Sclerosis. *Acta Neurol Scand*. 2013; 129 (1): 21-26.
6. Mohr DC, Lovera J, Brown T, Cohen B, Neylan T, Henry R, Et Al. A Randomized Trial Of Stress Management For The Prevention Of New Brain Lesions In Ms. *Neurology*. 2012;79(5): 412-419.
7. Piet J, Hougaard E. The Effect Of Mindfulness-Based Cognitive Therapy For Prevention Of Relapse In Recurrent Major Depressive Disorder: A Systematic Review And Meta-Analysis. *Clin Psychol Rev*. 2011; 31 (6): 1032-1040.
8. Lawrence M, Booth J, Mercer S, Crawford E. A Systematic Review Of The Benefits Of Mindfulness-Based Interventions Following Transient Ischemic Attack And Stroke. *Int J Stroke*. 2013;8 (6): 465-474.
9. Kahl KG, Winter L, Schweiger U. The Third Wave Of Cognitive Behavioural Therapies: What Is New And What Is Effective?. *Curr Opin Psychiatry*. 2012; 25 (6): 522-528.
10. Hölzel BK, Lazar SW, Gard T, Schuman-Olivier Z, Vago DR, Ott U. How Does Mindfulness Meditation Work? Proposing Mechanisms Of Action From A Conceptual And Neural Perspective. *Perspect Psychol Sci*. 2011; 6 (6): 537-559.
11. Heesen C, Köpke S, Kasper J, Poettgen J, Tallner A, Mohr DC. Behavioral Interventions In Multiple Sclerosis: A Biopsychosocial Perspective. *Journal Expert Review Of Neurotherapeutics*. 2012;12(9).
12. Asadnia S, Mosarrezaii Aghdam A, Saadatmand S, Sepehrian Azar F, Torabzadeh , N. Examining The Effectiveness Of Cognitive – Behaviour Therapy On Improving Depression And Decreasing Anxiety Symptoms Of Multiple Schlorosis Patients [Ms]. *J Urmia Univ Med Sci*. 2015; 25 (11):1023-1032
13. Familia Sharifian Y, Khalili M, Hassanzadeh Pishang S, Taghizadeh MH. El Efecto De La Terapia Grupal

- Cognitivo-Conductual En La Salud Mental De Pacientes Con Esclerosis Múltiple En El Tipo Primario Revista De Urología, Urmia University Of Medical Sciences. 2011; 24(9): 652-644.
14. Mokhtari S, Neshat Taher H, Molavi H. Una Investigación Sobre La Eficacia De La Terapia Cognitivo-Conductual En Un Método Grupal Sobre La Depresión Y Las Complicaciones Físicas En Pacientes Con Sclerosis Múltiple [MS]. *Journal Of Psychology*. 2010; 12 (3): 242-251.
 15. Asgari M, Hashemi B, Ferji F. El Efecto De La Terapia Cognitivo-Conductual En El Manejo Del Estrés En La Calidad De Vida Y La Depresión En Pacientes Masculinos De Cobre En Shaharak. *Estudios De Psicología Clínica*. 2010; 5 (2).
 16. Aghabari H, Mirzaeiyan B, Mohammadkhani P, Imrani S. La Efectividad Del Grupo De Terapia Cognitiva Mental [Mbct] Sobre La Depresión Por Depresión En La Sclerosis Múltiple [MS]. *Pensamiento Y Comportamiento [Psicología Aplicada]*. 2012; 6 (23): 75-82.
 17. Flavia M, Stampatori C, Zanotti D, Parrinello G, Capra R. Efficacy And Specificity Of Intensive Cognitive Rehabilitation Of Attention And Executive Functions In Multiple Sclerosis. *Journal Of The Neurological Sciences*.2010;288 (1-2):101-105.
 18. Dennison L. Cognitive-Behavioral Therapy: What Benefits Can It Offer People With Multiple Sclerosis?. *Health Psychology Review*.2011;5(2).
 19. Nordin L,Rorsman I. Cognitive Behavioural Therapy In Multiple Sclerosis: A Randomized Controlled Pilot Study Of Acceptance And Commitment Therapy. *Journal Of Rehabilitation Medicine*.2012;44(1):87-90.
 20. Dennison L, Moss-Morris R, Silber E, Galea I, Chalder T. Cognitive And Behavioural Correlates Of Different Domains Of Psychological Adjustment In Early-Stage Multiple Sclerosis. *Journal Of Psychosomatic Research*.69(4):353-361.
 21. Ronamoss M. A Pilot Randomised Controlled Trial Of An Internet-Based Cognitive Behavioural Therapy Self-Management Programme [Ms Invigor8] For Multiple Sclerosis Fatigue. *Behaviour Research And Therapy*.2012;50(6):415-421.
 22. Cosio D , Jin L, Juned Siddique M S, Mohr D C . The Effect Of Telephone-Administered Cognitive-Behavioral Therapy On Quality Of Life Among Patients With Multiple Sclerosis. *Annals Of Behavioral Medicine*.2011;41(2):227-234.
 23. Baron KG, Corden M, Jin L, Et Al. Impact Of Psychotherapy On Insomnia Symptoms In Patients With Depression And Multiple Sclerosis . *J Behav Med*.2011; 34(92).
 24. Graziano F, Calandri E, Borghi M. The Effects Of A Group-Based Cognitive Behavioral Therapy On People With Multiple Sclerosis: A Randomized Controlled Trial.Sage Journal. 2014;28(3).
 25. Knoop H, Van Kessel K, Moss-Morris R. Which Cognitions And Behaviours Mediate The Positive Effect Of Cognitive Behavioural Therapy On Fatigue In Patients With Multiple Sclerosis?. *Psychological Medicine*.2012;41(2).
 26. Gijbels D, Alders G, Vanhoof. Predicting Habitual Walking Performance In Multiple Sclerosis: Relevance Of Capacity And Self-Report Measures. *Multiple Sclerosis Journal*.2010;16(5).
 27. Burschka J M, Keune Ph M, Hofstadt-Van U , Oschmann P, Kuhn P. Mindfulness-Based Interventions In Multiple Sclerosis: Beneficial Effects Of Tai Chi On Balance, Coordination, Fatigue And Depression. *Bmc Neurology*.2014;14:165.
 28. Motl R W , Pilutti L A. The Benefits Of Exercise Training In Multiple Sclerosis. *Nature Reviews Neurology*.2012;1(8): 487-497.
 29. Motl R W, Sandroff B M. Benefits Of Exercise Training In Multiple Sclerosis. *Curr Neurol Neurosci Rep*.2015;15: 62.
 30. Pilutti LA, Dlugonski D, Sandroff BM. Randomized Controlled Trial Of A Behavioral Intervention Targeting Symptoms And Physical Activity In Multiple Sclerosis. *Multiple Sclerosis Journal*.2014;20(5).
 31. Ensari I, Motl RW, Pilutti LA. Exercise Training Improves Depressive Symptoms In People With Multiple Sclerosis: Results Of A Meta-Analysis *Journal Of Psychosomatic Research*.2014; 76 (6):465-471.
 32. Suh Y, Weikert M , Dlugonski D, Sandroff B , Motl R W. Physical Activity, Social Support, And Depression: Possible Independent And Indirect Associations In Persons With Multiple Sclerosis. *Journal Psychology, Health & Medicine*. 2012;17(2).
 33. Learmonth YC, Paul L, Miller L. The Effects Of A 12-Week Leisure Centre-Based, Group Exercise Intervention For People Moderately Affected With Multiple Sclerosis: A Randomized Controlled Pilot Study. *Clinical Rehabilitation*.2012;26(2).
 34. Andreasen AK, Stenager E, Dalgas U. The Effect Of Exercise Therapy On Fatigue In Multiple Sclerosis. *Multiple Sclerosis Journal*.2011;17(9).
 35. Motl R W, Mcauley E, Wynn D, Suh Y , Weikert M. Effects Of Change In Fatigue And Depression On Physical Activity Over Time In Relapsing-Remitting Multiple Sclerosis, *Psychology, Health & Medicine*.2011;16(1):1-11.
 36. Feinstein A, Rector N, Motl R. Exercising Away The Blues: Can It Help Multiple Sclerosis-Related Depression? . *Multiple Sclerosis Journal*.2013;19(14).
 37. Dalgas U , Stenager E , Sloth E. The Effect Of Exercise On Depressive Symptoms In Multiple Sclerosis Based On A Meta-Analysis And Critical Review Of The Literature . *European Journal Of Neurology*. 2015;22(3):434-443.
 38. Pilutti L A,Greenlee T A, Motl R W, Nickrent M S,Petruzzello S J. Effects Of Exercise Training On Fatigue

- In Multiple Sclerosis: A Meta-Analysis. *Psychosomatic Medicine*. 2013;75(6): 575–580.
39. Sabapathy N M, Minahan C L, Turner G T. Comparing Endurance- And Resistance-Exercise Training In People With Multiple Sclerosis: A Randomized Pilot Study . *Clinical Rehabilitation*.2011;25(1).
 40. Velikonja O, Čurića K, Ožurabsaša A, Jazbecb S. Influence Of Sports Climbing And Yoga On Spasticity, Cognitive Function, Mood And Fatigue In Patients With Multiple Sclerosis. *Clinical Neurology And Neurosurgery*.2010;112(7): 597-601.
 41. Ahmadi A, Nikbakh M , Arastoo A. The Effects Of A Yoga Intervention On Balance, Speed And Endurance Of Walking, Fatigue And Quality Of Life In People With Multiple Sclerosis. *Journal Of Human Kinetics*.2010;23:71-78.
 42. Soheili M, Nazari F, Shaygannejad V. The Effects Of Relaxation On The Psychological Symptoms In Women With Multiple Sclerosis. *Journal Of Clinical Nursing And Midwifery*. 2017; 6 (3) :11-22
 43. Shamsizadeh M, Hojjati H, Memarian R, Mohammad Khan Kermanshahi S, Dehghani A. El Efecto De La Educación Entre Pares Sobre La Depresión En Pacientes Con Esclerosis Múltiple Ph.D. - The Iranian Psychiatric Association. 2014; 1 (1).
 44. Dehghani A, Mohammadkhan Kermanshahi S, Memarian R. Effect Of Applying Peer Group Designed Education Plan On Depression Of Multiple Sclerosis Patients. *Mod Care J*. 2012; 9 (4) :301-309
 45. Lincoln N B, Yuill F, Holmes J. Evaluation Of An Adjustment Group For people With Multiple Sclerosis And Lowmood: A Randomized Controlled Trial. *Multiple Sclerosis Journal*.2011;17(10).
 46. Forman AC, Lincoln NB. Evaluation Of An Adjustment Group For People With Multiple Sclerosis: A Pilot Randomized Controlled Trial. *Clinical Rehabilitation*.2010;24(3).
 47. Kristanto S T , Kirooulos L A. Resilience, Self-Efficacy, Coping Styles And Depressive And Anxiety Symptoms In Those Newly Diagnosed With Multiple Sclerosis. *Journal Psychology, Health & Medicine*.2015;20(6).
 48. Beer S, Khan F .Rehabilitation Interventions In Multiple Sclerosis: An Overview. *J Neurol* 2012; 259: 19-94.
 49. Fischerphda A, Schrödermssc J. An Online Programme To Reduce Depression In Patients With Multiple Sclerosis: A Randomised Controlled Trial. *The Lancet Psychiatry*.2015;2(3):217-223.
 50. Cooper C L ,Hind D, Parry G D, Isaac C L, Dimairo M, O'cathain A. Computerised Cognitive Behavioural Therapy For The Treatment Of Depression In People With Multiple Sclerosis: External Pilot Trial. *Journal Of Trials*.2011;12:259.
 51. Boeschoten RE, Nieuwenhuis MM, Van Oppen P., Uitdehaag BMJ,, Polman CH, Collette EH, Et Al. Feasibility And Outcome Of A Web-Based Self-Help Intervention For Depressive Symptoms In Patients With Multiple Sclerosis: A Pilot Study . *Journal Of The Neurological Sciences*.2012;315(1-2): 104-109.
 52. Grossman P, Kappos L, Gensicke H, D'souza M, Mohr DC, Penner IK , Steiner C. Ms Quality Of Life, Depression, And Fatigue Improve After Mindfulness Training. *Journal Of Neurology*. 2010; 75 (13).
 53. Abedini E, Ghanbari H, Abadi B A, Talebian Sharif J. La Efectividad De La Terapia Grupal Basada En El Enfoque De Esperanza Y Depresión En Mujeres Con Enfermedad Mental. *Clinical Evolution* .2017; 8 (2): 1-11.
 54. Khezri Moghadam A, Ghorbani N, Bahrami E H, Rostami R. El Efecto De La Terapia Grupal Sobre La Reducción De Los Síntomas Psicológicos En Pacientes Con Em. *Clinical Psychology*. 2012; 4(1): 13-22.
 55. Bahramkhani M. The Effect Of Lazarus Multivariate Treatment On The Wide Disability Status In Patients With Multiple Sclerosis. *Journal Of Basic Principles Of Mental Health*, 2011; 13(50): 47-136.
 56. Dehmordeh H. Effects Of Self-Care Program Based On Orem's Theory On Quality Of Sleep And Some Indicators Of Mental In Multiple Sclerosis Patients: A Clinical Trial. Received From Thesis The Birjand University Of Medical Sciences.2014.
 57. Najmeh H, Mehrabizadeh H, Sadeghi M. Study On The Effect Of Stress Immunization Training On Depression And Quality Of Life In Patients With Ms. *Jundishapur Scientific Medical Journal*.2013;11(1):77-84.
 58. Vardanjani M, Vardanjani A. Perceived social support and depression factors in hemodialysis patients. *World Applied Sciences Journal*. 2013;25(3):434-40.
 59. Asano M , Finlayson M L. Meta-Analysis Of Three Different Types Of Fatigue Management Interventions For People With Multiple Sclerosis: Exercise, Education, And Medication. *Multiple Sclerosis International*.2014;20(14).