

Recognition of the Kind of Stress Coping in Patients of Multiple Sclerosis

A. Hajhashemi, H. D. Vaziripour¹, H. Baratian, M. B. Kajbaf², M. Etemadifar³

ABSTRACT

Background: Investigations have shown that some factors like stress can increase the recurrence and severity of multiple sclerosis (MS). Considering the direct influences of depression and anxiety on our body immunity system, and also the relation between stress and factors, such as Insulin Growth Factor (IGF-1), involved in neurogenesis and myelin repairing, it is an essential issue to identify the most common method used in relieving stress by such patients. **Objective:** To identify the type of common coping methods for stressful situation. **Materials and Methods:** This case-control study was performed on 50 patients of both the genders with MS in Esfahan (Esfahan MS Association). The data were collected and then analyzed using analysis of variance (ANOVA) method with the help of SPSS software version 15. *P* value less than 0.05 was considered as statistically significant. **Results:** In our study, coping method for stressful situation was significantly different in MS patients versus the healthy group ($P=0.02$). Descriptive indices showed that these patients use avoidant method more commonly than the control group (mean=45.01, SD=8.9 vs. mean=40.8, SD=11.8, respectively). **Conclusion:** Due to the different methods used by MS patients to cope with stressful situation in comparison with the healthy ones, more appropriate techniques can be introduced to modify them, and hence, less stress-induced side effects could be expected in this population.

Key words: Coping inventory, multiple sclerosis, stress

INTRODUCTION

Multiple Sclerosis (MS) is one of the disabling conditions which appear in young adults. MS is an autoimmune disease that has environmental and genetic factors involved in it.^[1] The highest rate of appearance is between 20 and 40 years of age, women are afflicted with MS twice more than men.^[2] MS is a nervous degenerative condition which is generally

accompanied by a decrease or loss in the process of remyelination or the destruction of tissue in the axon's sheath.^[3]

Due to the relation between the secretion of immune system hormones and mental factors, one of the effective factors influencing the function of individual's immunity system is mental health.^[4] Mental health influences so many factors like one's attitude and thought in stressful situation, which also influences individual's functions.^[5]

The quality of one's thought in different situations has a direct relation with the kind and the amount of secreting hormones from nervous and immunity system for compatibility and confronting with that situation.^[6] Chronic stress appears to cause a decreased adjustment in serotonin level and an increasing level of

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Department of Psychology, Islamic Azad University, Khorasgan Branch, ²Isfahan University, and ¹Departments of Medicine, and ³Neurology, Isfahan Medical Sciences University, Isfahan, Iran

Address for correspondence: Dr. Arezoo Hajhashemi,
Department of Psychology, Islamic Azad University, Khorasgan Branch, Isfahan, Iran. E-mail: a.hashemi@khuisf.ac.ir

Glycocorticoid. Due to increase in Glycocorticoid level in some parts of body which practice in intermediary way by Insulin-Like Growth Factor, it could be inhibit the neurogenes.^[7] (IGF1) is Insulin-Like hormone which plays a significant role in maturation process and cell's survival of Olygodendroyte that have a fundamental role in the synthesis process of myelin.^[8] Based on the experiments carried out in animal model, we have reported that genes related to astrocyteo IGF-1 and also its receptor are increased in the process of destruction of the autoimmune myelin sheath in comparison with natural model in MS.^[3,9]

Cognitive assessment has a significant role to play in coping with the disease. Lazarous believed that people confronting stressors used problem-oriented coping method and excitement-oriented coping method.^[6]

Problem-oriented coping is a cognitive approach wherein the problems are directly encountered and efforts are made to solve them.

Excitement-oriented method is excited response to tension, especially with the help of defensive mechanism.^[6] Naturally, successful people in confronting tension usually use both problem-oriented and excitement-oriented approaches.^[10] Although, in long term, problem-oriented coping is more effective than excitement-oriented coping since stress can increase recurrence and severity in MS disease.^[10] Investigation indicates that proper management of stressor can significantly decrease harmful influences.^[5] Therefore, the objective of this research is determination of the kind of stress coping for identifying and presenting an appropriate method in order to proper manage stressor in MS patients.

MATERIALS AND METHODS

Patients comprised of female MS patients who have been registered with Isfahan Multiple Sclerosis Society. The patients were between 18 to 55 ages, with a diagnosis of relapsing remitting MS and Expanded Disability Status Scale (EDSS)=1, the sample size was 50 cases in experimental group and 50 cases in control group. Based on the gender of the patients, each group was divided into two groups each of 25 men and women.

The instrument used was coping inventory for stressful situation. This 48-item questionnaire was developed by Parker Wandlery in 1990 in order to assess the ways of coping people in critical and stressful situation. Each of the coping methods has a separate scale with 16 items, and each item has five choices of which the testee should mark one choice. The ranges of answers are from 1 to 5. Choice 1 shows that the testee does not perform intended behavior; choice 5 shows that the testee performs the behavior excessively; choices 2-4 mean seldom, sometimes, and often, respectively. Validity coefficient was equivalent to 0.8132 and reliability coefficient for problem-oriented approach was 0/58, excitement-oriented approach was 0.55 and avoidance-oriented approach was 0.83.

After convincing the patients and gaining their satisfaction, some questionnaires were given to them and they were taught how to answer the questions. The questionnaires in experimental and control groups

Table 1: The results of Levin test for investigating quality of groups' variance show that the assumption of variance equality is not rejected about none of the variables ($P>0.05$), the parameter test can be used

	Freedom degree 2	Freedom degree 1	Levin statistic	Meaningfulness
Excitement oriented-style	98	1	0.970	0.32
Avoidant style	98	1	0.184	0.66
Problem-oriented style	98	1	0.008	0.93
General factor	98	1	2.94	0.08

Table 2: Results of paired comparisons of sequential test, LSD and Games-Howell

Games-Howell	LSD	Group 2	Group 1	Dependent variable
0.35	0.095	Ill men	Healthy men	
0.99	0.84	Healthy women		
0.47	0.21	Ill women		
0.35	0.095	Healthy men	Ill men	
0.33	0.06	Healthy women		
0.98	0.67	Ill women	Healthy women	
0.99	0.84	Healthy men		
0.33	0.06	Ill men		
0.46	0.14	Ill women		
0.47	0.21	Healthy men	Ill women	General factor
0.98	0.67	Ill men		
0.46	0.14	Healthy women		

Table 3: The results of multivariate analysis of (MANOVA) showing the difference between centroid of two groups regarding general factors of coping method and its subscales

Variable	Indicators					
	Influence rate	Meaningfulness	F the squares	Mean	Freedom degree	Statistic competence
General factor	0.04	0.027	5.05	1375.1	1	0.60
Excitement-oriented method	0.01	0.31	1.01	91.8	1	0.17
Avoidant method	0.03	0.04	3.9	44.7	1	0.50
Problem-oriented method	0.02	0.09	217	188.3	1	0.37

were given based on gender. Then, questionnaires' data were analyzed with regard to questionnaire scoring scale for three types: problem-oriented, excitement-oriented and avoidance-oriented coping method, and for analyzing data descriptive statistics was used, including mean and standard deviation, and inferential statistics including Levin test and analysis of variance (ANOVA) test [Table 1].

RESULTS

The results indicate that there is meaningful difference between centroid of two groups (normal and ill) with regard to general factors of coping method and its subscales (excitement-oriented method, avoidant method, problem-oriented method).

The difference between the centroid of two groups (normal and ill) regarding general factors of coping method and its subscales (excitement-oriented method, avoidant method and problem-oriented method) is zero and the obtained difference is due to random sampling [Table 2].

The table shows the paired comparisons of LSD and Games-Howell tests after MANOVA analysis. Sequential test compares groups in pairs and their results usually do not differ significantly. The results of MANOVA analysis were meaningful in the groups' difference from general factor of coping method.

The results of LSD sequential test indicate that the groups of 4 (men and women in experimental and control groups) do not differ meaningfully from general factor of coping method ($P > 0.5$).

The results of Games-Howell test are presented in the table. In this test, the observance of presupposition is not important. The result of this test is the same as the LSD test in that there is no meaningful difference between the groups of 4.

DISCUSSION

The results of MANOVA in Table 3 show that there is meaningful difference between centroid of two groups with regard to general factor of coping method.

The results of univariate analysis which have been integrated in MANOVA for surveying the groups' difference in three dependent variables indicate that there is meaningful difference between two groups from avoidant coping method. In other words, there is difference between the two groups in the application of avoidant coping style. Descriptive indices show that patient group with mean 45.01 and standard deviation

8.9 uses avoidant method more than healthy group with mean 40.8 and standard deviation 11.8.

Long-term surveys have shown that avoidant method in coping with stressor makes the disease progress, and this indicates that the existence of tension cannot lead to emotional and physical side effects. Individual reaction in confronting stressor is vital and important.^[11]

The obtained results are confirmed by studies carried out by Brown *et al.*^[10] in which they present the relation between stress and MS disease.

Also, the results obtained confirm the studies carried out by Martia *et al.*^[12] which stress on proper coping method.

The obtained result confirms the studies carried out by Golan *et al.*^[13] and Potagas *et al.*^[14] and Mitsonis *et al.*^[15,16] which present stress-related risk factors associated with relapses in MS disease.

This research confirms stress-induced influences in patients. Due to the different methods used by the patients to cope with stress in comparison with the healthy people, more appropriate techniques can be introduced to modify them and hence stress-induced side effects could be expected in this population.

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