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RESEARCH ARTICLE

Functional Evaluation of Multiple Sclerosis Patients in Khoy (IRAN)

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Abstract:

Introduction and Purpose:

Multiple Sclerosis (MS) is a common, hidden, degenerative, and progressive chronic disease that is more prevalent in women than in men. It is caused by damage to the myelin of central nervous system and results in neuropathy. The clinical pattern of the disease is 70 percent relapsing - remitting, and depending on the severity and type of nervous involvement, results in a variety of physical, psychological and social disabilities. The present study was designed to determine the functional level of MS patients.

Methods:

In this cross-sectional study, 70 MS female patients referred to the Health Center for Special Diseases at the Madani Hospital of Khoy in 2016 were selected total samples *via* Census. Two questionnaires were used: the demographic information form and the 29-question MSISS questionnaire that consists of both physical and psychological dimensions. Data analyses were carried out using SPSS v.16 software for an independent sample T-test, and ANOVA.

Results:

The 69% of the sample was comprised of married women, 74% were housewives, 83% were found to be disabled, 77% had a relapsing-remitting form of illness and 89% had no communication problems. The average age was 35 years and the average duration of illness was 4 years. Severe physical disability was found in 11.4% and 17.1% suffered from severe psychological disability. The general disease-related disability was considered mild in 65.7%. Disability was related to age, lifestyle, the presence or absence of a caregiver, the type of illness and communication problems. Physical and psychological dimensions of disability were unrelated ($p < 0.001$).

Conclusion:

According to the high rate of psychological disability compared to physical dimension and effects of physical disorders on the soul, it is necessary to minimize the severity of disability by directing and controlling tensions, changes in lifestyle, the use of complementary therapies, rehabilitation Interventions, psychosocial support, and receiving services from the Association for the supportive of MS patients.

Because psychological disability was greater than physical disability, therapy needs to address psychological stressors. Changes in lifestyle, use of complementary therapies, rehabilitation interventions and psychosocial support are recommended. Support associations for MS patients can also be helpful.

Keywords: Function, Physical disability, Psychological disability, Multiple sclerosis, Chronic disease, Neuropathy.

1. INTRODUCTION

Multiple Sclerosis (MS) is a common, hidden, degenerative, and progressive chronic disease that is more prevalent in women than in men [1 - 3]. MS is one of the most common neurological diseases and the most debilitating disease

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in young ages. The disease is twice as common in women as in men and it is associated with inflammation, scarring, and gradual demyelination of the nerves of the brain and the spinal cord [1 - 3]. MS was first described in 1868 by Jean-Martin Charcot who was a French nerve specialist. There is no cure for multiple sclerosis, but it was proven that many treatments could be useful. In Iran, there are more than 50 thousand MS patients. Iran is one of the countries with a high prevalence rate of MS (15-30 per 100,000 people) [4, 5]. The disease affects more than 2.5 million people in the world and adds 200 people per week. MS is the third cause of disability in the US and 80% of people have some degree of disability [6, 7]. While the cause is not clear, studies point to viral infection and immune system disorders [8]. It seems that the activation of immune mechanisms against myelin tissue is involved in the development of the disease [9]. The incidence of the disease-related disability depends on the location of the nerves. The visual nerves, cerebellum, brain stem, cerebellum, and spinal cord are more likely to be affected than other parts of the central nervous system [10]. This chronic and progressive disorder causes sensory impairment, weakness, muscle cramps, visual impairment, cognitive impairment, fatigue, limb tremor, urinary tract disorder, feces, sexual function, balance, forgetfulness, hearing loss, numbness, and speech impairment. The range of symptoms varies from mild to severe and from transient to chronic [11, 12]. The clinical course of MS is different and unpredictable to different people, and its most common form is associated with a period of relapsing - remitting. Patients have different symptoms at different times, and each person may have certain symptoms, although some symptoms are more common. Physical symptoms associated with psychological problems such as anxiety, depression and cognitive impairment lead to significant disability [13, 14] and physical, psychological and social impairment in individuals [15]. People suffer from a variety of physical and psychological disorders during their lifetime and these disorders affect Daily performance, family life, and social and functional autonomy [16]. The disease often affects people who are at the stage of their productive life and are concerned about their family responsibilities and role [17]. This disease threatens the individual's independence and ability to participate effectively in the family and community, and affects all aspects of life and gradually leads to disability [2, 13]. Patients experience a higher level of psychiatric disorders such as depression, stress, and anxiety, which may occur due to direct effects of inflammation and demyelination of the nerves or resulting from the psychological effects of multiple sclerosis [18]. In the Grossman study, 17.9% of patients with MS had severe physical problems and 38.8% had severe social problems, and severe depression and anxiety were 11.2% and 14.9% respectively [19]. The psychological problems compared to physical changes make severe problems to the patient [20, 21]. Due to the complex nature of the disease, various mental and physical disabilities can arise, and family, occupational, and social causes, care and rehabilitation of patients are necessary to consider [22]. In order to achieve the highest level of health and have a positive belief in abilities, it is important to have multi-supportive programs [23]. Training about the disease, the importance of follow-up therapy and self-efficacy can improve physical, mental, and limit performance [24]. Based on the increasing population of patients, the mortality rate, increased costs of treatment and multiple problems, the reduction of the patient's problems should be considered as a priority of health and research [4]. Regarding the nature of the disease and the importance of the issue, by conducting numerous studies, it is possible to identify and determine the frequency of symptoms and to take positive steps towards proper management and reduction of patients' disability. The present study is aimed to determine the capability level of MS patient referred to the health center for Special Diseases in Madani Hospital of Khoy in 2016.

2. MATERIALS AND METHODS

This cross-sectional study was carried out after coordination and obtaining the consent of 70 MS female patients, who referred to the health center for Special Diseases in Madani Hospital of Khoy in 2016. The researcher explained the research goals and the inclusion criteria such as confirmation of MS disease by a physician, age range of 20-50 years, cooperation, and ability to answer questions, lack of samples in the acute phase of the disease, and exclusion criteria such as the incidence of other acute or chronic physical, mental, or psychiatric disorders. For the emotional and mental status of sample to answer the questions and referral patients, only female patients were considered due to research limitations. Total samples were selected *via* censuses in 2016. The measurement tools included 15-questions Patients characteristic of form (indicates the individual characteristics and its information about the disease) and 29-questions MSISS questionnaires (to measure the capability of patients) in two physical (20 questions) and psychological (9 questions) dimensions (about their concerns and ability restrictions over the past two weeks). To measure the level of ability, the 5-option Likert scale was used (from never to very much with the range of points 29-145), which a high score indicated an aggravation of disability. The validity of questionnaires was approved by the perspective of 12 experts and the reliability of the questionnaire was verified by retesting on 20 patients with an internal correlation of Cronbach's alpha ($\alpha=0.85$). Data analyses were carried out using SPSS v.16 software with independent sample T-test,

and ANOVA ($P \leq 0.05$).

3. RESEARCH FINDINGS

According to the present study, the majority of studied units included married women (69%), housewives (74%) with 83% disability, relapsing - remitting (77%), without communication problems (89%) (Table 1). In physical dimension, the most frequent disability was related to the mild disability (74% and with a score less than 45) and in psychological dimension (21-32), it was 45.7% (Table 2). Generally, in the present research, the severity of disease-related disability was mild (65.7%) (Table 3). In the evaluation of statistical relationship, there were significant differences between limitation of disease-related disability and age, disablement, lifestyle, having a caregiver, type of illness and communication problems in the level lower than ($\alpha=0.05$). Besides, based on the results, there was a connection between physical and psychological dimension ($P < 0/001$) (Table 4).

Table 1. Patients characteristics.

Personal and social profile	Variable ranking	Frequency	Percentage
Age	20-35	34	48.6
	36-50	36	51.4
Education	High school degree or lower	20	28.6
	High school diploma	28	40
	Associate Degree	2	2.9
	BS	16	22.9
	MSc and higher	4	5.7
Job	Housewife	52	74.3
	clerk	2	2.9
	Self-employed	2	2.9
	unemployed	6	8.6
	student	8	11.4
Disablement	never	58	82.9
	minor	8	11.4
	major	4	5.7
Income	low	26	37.1
	average	38	54.3
	high	6	8.6
Having caregiver	yes	12	17.1
	no	58	82.9
Having support	yes	14	20
	no	56	80
Type of disease	unknown	2	2.9
	relapsing - remitting	54	77.1
	Progressive	14	20
Get cinnovex	yes	91.4	64
	no	8.6	6

Table 2. Distribution of relative and absolute frequency of physical and mental dimensions in multiple sclerosis patients.

Overall disability	Frequency	Percentage
Mild (less than 67)	46	65.7
Average (68-105)	14	20
Severe (higher than 106)	10	14.3
Total	70	100

Table 3. Distribution of relative and absolute frequency of overall disability in multiple sclerosis patients.

NO.	In the past two weeks, how much has your MS limited your ability to ...	Not at all		Alittle		Moderately		Quite a bit		Extremely	
		n	%	n	%	n	%	n	%	n	%
1	Do physically demanding tasks?	36	51.4	4	5.7	24	34.3	2	2.9	4	5.7
2	Grip things tightly (e.g. turning on taps)?	50	71.4	6	8.6	10	14.3	2	2.9	2	2.9
3	Carry things?	36	51.4	14	20	10	14.3	4	5.7	6	8.6
In the past two weeks, how much have you been bothered											
4	Problems with your balance?	28	40	22	31.4	14	20	2	2.9	4	5.7
5	Difficulties moving about indoors?	42	60	8	11.4	12	17.1	4	5.7	4	5.7
6	Being clumsy?	48	68.6	10	14.3	6	8.6	4	5.7	2	2.9
7	Stiffness?	36	51.4	12	17.1	10	14.3	10	14.3	2	2.9
8	Heavy arms and/or legs?	36	51.4	8	11.4	12	17.1	12	17.1	2	2.9
9	Tremor of your arms or legs?	34	48.6	16	22.9	6	8.6	12	17.1	2	2.9
10	Spasms in your limbs?	36	51.4	12	17.1	18	25.7	4	5.7	0	0
11	Your body not doing what you want it to do?	32	45.7	16	22.9	12	17.1	6	8.6	4	5.7
12	Having to depend on others to do things for you?	50	71.4	8	11.4	2	2.9	6	8.6	4	5.7
In the past two weeks, how much have you been bothered by...?											
13	Limitations in your social and leisure activities at home?	40	57.1	12	17.1	8	11.4	8	11.4	2	2.9
14	Being stuck at home more than you would like to be?	42	60	14	20	2	2.9	4	5.7	8	11.4
15	Difficulties using your hands in everyday tasks?	50	71.4	10	14.3	0	0	6	8.6	4	5.7
16	Having to cut down the amount of time you spent on work or other daily activities?	26	37.1	18	25.7	10	14.3	4	5.7	12	17.1
17	Problems using transport (e.g. car, bus, train, taxi, etc.)?	50	71.4	2	2.9	6	8.6	4	5.7	8	11.4
18	Taking longer to do things?	36	51.4	14	20	8	11.4	6	8.6	6	8.6
19	Difficulty doing things spontaneously (e.g. going out on the spur of the moment)?	46	65.7	10	14.3	4	5.7	0	0	10	14.3
20	Needing to go to the toilet urgently?	54	77.1	2	2.9	10	14.3	4	5.7	0	0
21	Feeling unwell?	16	22.9	20	28.6	22	31.4	8	11.4	4	5.7
22	Problems sleeping?	24	34.3	16	22.9	14	20	6	8.6	8	11.4
23	Feeling mentally fatigued?	18	25.7	10	14.3	24	34.3	12	17.1	6	8.6
24	Worries related to your MS?	12	17.1	6	8.6	18	25.7	12	17.1	22	31.4
25	Feeling anxious or tense?	8	11.4	16	22.9	14	20	18	25.7	14	20
26	Feeling irritable, impatient, or short tempered?	12	17.1	6	8.6	14	20	20	28.6	18	25.7
27	Problems concentrating?	14	20	18	25.7	26	37.1	10	14.3	2	2.9
28	Lack of confidence?	24	34.3	12	17.1	24	34.3	4	5.7	6	8.6
29	Feeling depressed?	26	37.1	6	8.6	16	22.9	12	17.1	10	14.3

Table 4. Relationship between disability and Underlying variables in samples under study.

Type of test and its relationship	Type and test statistic	Degree of freedom (df)	p-value
Total disability			
Age	Pearson (0.31)	-	0.009
History of disease	Pearson (0.88)	-	0.468
Education	Kruskal Wallis (5.96)	2	0.202
Marital status	Anova (8.49)	1	0.005
Disablement	Kruskal Wallis (17.12)	2	0.001
Income	Kruskal Wallis (5.41)	2	0.067
Lifestyle	Independent T Test (-8.45)	67	0.001
Type of support	Independent T Test (-2.03)	16	0.059
Type of medication	Anova (4.26)	2	0.018
Communication ability	Independent T Test (3.88)	10.7	0.003
Physical disability / Physiological disability	Pearson (0.65)	-	0.001

4. DISCUSSION

Occurrences of some symptoms as well as disabilities in patients with MS result in dependency and social solitary. Although the main goal of nursing is to maintain the activity and independence of patients through rehabilitation

programs by the recognition of needs and mental health support, mentioned issues prevent the realization of therapeutic goals. According to the aims of the present study, the most frequent disability was mild. In the study of Sanglaji and colleagues, based on Expanded Disability Status Scale (EDSS), mild, average, and severe disability were 33.7%, 51.1%, and 15.2% respectively, which is partly consistent with the present study. Considering the similar results of various studies, the necessity of establishing rehabilitation centers with educational and counseling programs to increase the capacity and improve the health of these patients at the community level is necessary [25]. Comparing the two physical and mental dimensions showed that the frequency of severity of disability in psychological problems was more than physical. This result indicated that patients suffered from more mental and physiological problems, which could be related to the patient's concern about the disease, the effects of the illness and the outcome of the therapeutic intervention. In the study of Mitchell and colleagues, about 48% of patients experienced anxiety, stress, and depression in the first year after diagnosis [26]. The results of Sicily and Johnson's study also showed a significant and direct relation between the anxiety and stress of MS patients with severity of illness, so that the severity of disability increased the stress and anxiety of patients [27]. Those of Etemadi Far and colleagues showed that with the increasing severity of disease, mental health of patients was more affected than their physical health [28]. Concerns of patients with MS include two parts such as the effect of the disease on physical activity and concern about the impact of the severity of the disease on social interactions, family relationships, and daily activities [29]. Therefore, in order to cope with the psychological effects of the disease, maintaining mental and psychological support is essential. In the physical dimension, the highest incidence of severe inability was the lack of ability to perform for a long time and in the mental-psychological dimension, irritability, irregularity, and anxiety. In the study of Dehghi and colleagues, among physical problems, motion constraints limited the daily routine task and social activities more than other symptoms of illness [30]. In the study of Ravanmehr and colleagues, the frequency of movement disorders, visual acuity, and balance problems were 40%, 30%, and 40%, respectively and they showed the highest frequency. Besides, speech and digestive problems had the lowest frequency [31]. Therefore, it is necessary to identify the type of physical or psychological disabling symptoms and to act appropriately to control the problems of the treatment team [32]. As a result, the disabilities could be treated by providing the necessary training along with self-management and stimulating the forgotten abilities of the patients. Since nurses spend the most time with patients, they can play an important role in identifying the unobservable symptoms, the effect of these symptoms on daily functioning, and how to reduce the adverse effects of these disabilities [33]. Sutherland and colleagues concluded that the relaxation program would generate more energy and would result in less limitation of MS patients in performing physical and psychomotor roles [34]. The results of the present study indicated that there was a statistically significant relationship between Limitations of disease-related disability with age, disablement, lifestyle, having caregiver, type of illness and communication problems. Moreover, there was a correlation between physical and mental disability, while, according to those of Etemadi Far and his colleagues, there was no significant relationship between quality of life and with demographic characteristics of age, gender, occupation, and education level, severity, and type of disease. The results of the mentioned study were different with background variables of the present study. It seems that the geographical difference, the severity of the disability and the type of instrument affected this difference. Besides, in the study of Etemadi Far, there was a significant relationship between physical health and mental health, which was in agreement with our findings [28]. Therefore, resolving the problems of MS patients, empowerment in identifying the nature of the disease, relieving symptoms, increasing self-care awareness and self-confidence, will be possible by facilitating the adaptive methods and support.

CONCLUSION

Regarding the results of the study and the frequency of severity of disability in MS patients in the psychological dimension compared to the physical dimension and the effect of physical and mental disorders, it is necessary to minimize the severity of the disabilities by teaching how to control the stress, changing lifestyle, and by creating conditions for the use of complementary therapies such as relaxation, guided visualization, thought diversion, music therapy, massage therapy and rehabilitation measures (physiotherapy, occupational therapy, use of assistive devices), counseling, psychotherapy and community support services for MS patients. Since the MS affects all aspects of physical, psychological, family and community, and only medical treatment and control of period of disease are not enough to treat patients, therefore, the medical community, especially nurses, should provide comprehensive rehabilitation plans to increase the performance of patients.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study was granted ethical clearances for the entire program of research by the ethical committee of Vice-Chancellor for Research and Technology University.

HUMAN AND ANIMAL RIGHTS

70 MS Female patients were referred to the health center for Special Diseases in Madani Hospital of Khoy in 2016.

CONSENT FOR PUBLICATION

Informed and written consent was obtained from all the subjects.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest, financial or otherwise.

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