

Impact of Self Care Management Program on Improving Self Efficacy of Multiple Sclerosis Patients

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ABSTRACT

Background: Multiple sclerosis (MS) affects more women than males and is a prevalent, persistent, lifelong, unpredictable, and possibly severely crippling neurologic illness. Although it most frequently begins in young adulthood, it can also begin in infancy and adolescence.

Aim: To determine the impact of self-care management program on improving self-efficacy of multiple sclerosis patients. **Design:** a quasi-experimental study design.

Setting: The study was conducted at MS outpatient clinic at Ain Shams University Hospitals Cairo, Egypt.

Subjects and Methods: Purposive sample of (65) adult patients from both sexes diagnosed with MS with age ranged from 20 to more than 50 years old.

Tools: Four tools were used to collect data including: I. Patients' interview questionnaire has two parts; personal characteristics and knowledge assessment questionnaire, II. Health related needs questionnaire of MS patients, III. Health problems of MS patients, and IV. Quality of life questionnaire (MSQOL-54).

Results: Better attention to physiological and psychological factors may be important in guaranteeing a better level of well-being despite the functional limitations caused by the disease. Total health needs have a highly statistically significant correlation with total health problems and total QOL. Also, total knowledge had a highly statistically significant correlation with total follow up QOL and had a significant correlation with post QOL.

Conclusion: The findings highlight the need of creating efficient self-care management programmes to minimise illness effects and enhance patients' self-efficacy and treatment adherence.

Keywords: MS, Self-Care Management, QOL, Self-Efficacy.

INTRODUCTION

Inflammation, demyelination, and neurodegeneration are hallmarks of the central nervous system condition known as multiple sclerosis (MS). In young adults, it is the most typical non-traumatic impairment cause. According to 2020 epidemiological statistics, there are 2.8 million MS sufferers globally. Although MS's initial symptoms can manifest at any age, the majority of people are identified between the ages of 20 and 50. The likelihood of having MS rises with distance from the location and is two to three times greater in women ⁽¹⁾.

Although MS has little effect on life expectancy, people often have the illness for a long time because there is presently no treatment. As a result, MS patients frequently confront significant obstacles to their future goals, work chances, and possibilities for a fulfilling life. Even when patients are successful in recovering from prior relapses (or exacerbations or attacks), further relapses result in new restrictions, necessitating more adaptation to the unfamiliar conditions. As a result, the ongoing difficulties MS patients experience have a profoundly detrimental impact on their QOL ⁽²⁾.

Chronic diseases like MS have a negative impact on QOL. Additionally, the ability of the patient to execute self-care is impacted by the direct and indirect costs that disability, pain, and suffering place on society. One of the factors contributing to MS patients' repeated hospitalisations is a lack of awareness and a weakness in self-care. Therefore, self-care education is crucial since it will help MS patients feel more

confident, less frustrated, and prevent recurrent hospitalisations ⁽³⁾.

Chronic neurological disorders like MS may require a different approach to therapy than other chronic periodic diseases. MS patients have chronic illnesses that need ongoing observation and management, and many healthcare providers frequently offer care in a variety of settings. Additionally, MS sufferers need to comprehend their illnesses in order to properly manage them. Due to the fact that there is currently no treatment for MS, individuals may experience many difficulties for the rest of their lives. Additionally, maintaining circumstances becomes more challenging and laborious due to the unexpected and complicated nature of the disease. Self-management is therefore crucial in the lives of MS sufferers ⁽⁴⁾.

Self-management, which refers to a person's capacity to manage symptoms, therapies, lifestyle modifications, and health status as well as social, psychological, and cultural challenges, is a dynamic, active coping process that is routinely used to manage chronic diseases. The self-management programme is a collection of regular tasks designed to help people with chronic illnesses. Additionally, a self-management programme encourages patients to take an active role in managing variables that impact their health, keeping track of their symptoms, and taking the proper actions to manage the intricacies of their condition. Self-management programmes have been effective in treating a variety of chronic conditions, and they have improved patients' health status while

also assisting doctors in controlling pain, easing depressed symptoms, and acting quickly ⁽⁵⁾.

Self-management calls for specialised abilities and training in a variety of circumstances. It is acknowledged as a low-cost, sustainable intervention that has the potential to have a significant effect on public health. Self-management, in particular for patients with chronic conditions, offers several advantages, such as enhancing their health status and quality of life ⁽⁶⁾.

An MS nurse should establish a setting where patient privacy is guaranteed. Be a patient's advocate to assist in meeting needs. Provide patients with multidisciplinary support to help them reach the highest degree of comfort. Encourage family engagement in caregiving and decision-making in line with the patient's preferences. Determine the patient's or family's needs for resources and support networks and make the relevant referrals ⁽⁷⁾.

Significance of the study:

There are 2.5 million MS patients globally, making it the third most prevalent cause of disability among adults aged 20 to 40. In Iran, there are roughly 40,000 MS sufferers. According to the Iranian MS Society, there are now 12,000 cases. In Iran, there are 20 cases of MS for every 100,000 individuals, according to reports. The quality of life, work, family life, social activities, and physical capacity are just a few of the areas in which this illness will have an impact on the patient's life ⁽⁸⁾.

The cause of MS is still a mystery. The development of the disease is influenced by a variety of variables, including a hereditary predisposition. Inflammation and neurodegeneration are the two primary mechanisms that define the pathogenesis of MS. Depending on whether parts of the brain or spinal cord are impacted, the condition can present with a variety of symptoms. Loss of motor and sensory function, issues with bowel or bladder control, sexual dysfunction, exhaustion, optic neuritis-related blindness, diplopia, imbalance, cognitive decline, and emotional disturbances are all common symptoms of MS. Relapsing-remitting form (RRMS), which makes up around 80% of all MS cases, is the most prevalent subtype. Relapses (acute neurological symptoms) and intervals of more clinical stability (remissions) are characteristics of RRMS ⁽⁹⁾.

WHO ⁽¹⁰⁾ estimates that there are 2.8 million MS sufferers globally (35.9 per 100,000 people). In addition, new studies in the Middle East show prevalence rates are presently between 55 and 85 cases per 100,000 people. About 59,671 persons in Egypt are estimated to have MS, according to the MS International Federation ⁽¹¹⁾. This translates to 9,244 new cases of diagnosis every year, or 1 in every 1,500 persons. That represents 770 diagnoses per month. In terms of age upon diagnosis, 90% of patients have relapsing-remitting MS and 10% have progressive MS.

The typical age of an MS diagnosis is 27, and 75% of those who have the disease are female.

AIM OF THE STUDY

This study aimed to determine the impact of self-care management program on improving self-efficacy of MS patients.

Research hypotheses:

- H1- Self-care management program will have a positive effect on MS patients' knowledge.
- H2- Self-care management program will have a positive effect on physical condition of MS patients.
- H3- Self-care management program will have a positive effect on psychological patients' condition.
- H4-Self efficacy of MS patients will be improved after application of self-care management program.

SUBJECTS AND METHODS

Design: The study utilized a quasi-experimental study design.

Setting: The MS outpatient clinic at Ain Shams University Hospitals served as the study's place. The first floor's MS outpatient clinic has two rooms, each of which has two chaise longues, two workstations, three seats, and examination equipment.

Subjects: Purposive sample of 65 adult patients from both sexes diagnosed with MS with age ranged from 20 to more than 50 years old were recruited from MS out-patients clinic of the previous setting. As long as the sample size does not exceed 1000, a reasonable maximum sample size is generally approximately 20% of the population.

Calculating the sample ratio according to the following formula: $n = N \times (20/100)$

- $N =$ population size, $n =$ sample size. $n = 350 \times (20/100) = 70$ patients.
- 5 patients were omitted from data collection due to their unwillingness to cooperate.

Inclusion criteria:

- 1-No severe physical symptoms.
- 2-Confirming the existence of MS.
- 3-Not having psychological diseases.
- 4-Willing to participate in the study.

Exclusion criteria:

- 1-Pregnancy.
- 2-Mental or cognitive disability.

Data collection tools:

Four tools were used to collect data include:

Tool I: Patients' interview questionnaire

To measure the patients' health state, this instrument was designed based on a thorough evaluation of related literature. It is divided into two parts:

Part 1: personal characteristics of patients included age, gender, marital status, residence, education and occupation.

Part II: Knowledge assessment questionnaire; was adapted from **Chen *et al.*** ⁽¹²⁾. It included 10 questions about the definition of MS, causes, risk factors, signs and symptoms, types of MS, diagnostic investigation, medication used in treatment of MS, aim of treatment, precautions must be taken to prevent MS frequent injury and how to cope with it.

Scoring system: The total scoring system of patients' knowledge: Each question had three levels of scoring as follows: - Correct and full answer received (2) points. - Correct and partial responses were both rated (1). - Incorrect or unknown answer was scored (0). As a result, the total score of 11 questions was 22.

- **Tool II: Health related needs questionnaire of MS patients:** included questions related to nutrition, exercises, sleep and rest, pain treatment and monitoring of the disease.
- **Tool III: Health problems of MS patients,** it included 32 questions related to physical, social and psychological health problems of MS patients.
- **Tool IV: MS Quality of life questionnaire (MSQOL-54)** this tool, which was developed from **Salehpoor *et al.*** ⁽¹³⁾, was used to evaluate patients with MS quality of life. 54 questions were included over 5 parts. It was altered by the scientists. Its domains assessed issues in the areas of the physical (10 things), psychological (15 items), family and social (10 items), spiritual (10 items), and marital (9 items).

The total scoring system of patients' quality of life: The items were scored on a 5-point Likert-type scale ranging from "Never" to "Always" for the positive statement and vice versa for the negative statement. Never=0, Rarely=1, Sometimes=2, Usually=3, and Always=4 were assigned to these objects. Patients with MS quality of life was evaluated as excellent ($\geq 75\%$) equal to ≥ 160 degrees, average (50- <75%) equivalent to (108- <160) degrees, and bad (<50%) equal to < 108 degrees.

Validity:

By making the tools available to five academic experts in adult nursing (medical surgical nursing) from the Faculty of Nursing, the instruments' validity was put to the test. Expert opinions were rated as agreeable or disagreeable for the tools' relevancy, clarity, thoroughness, and comprehensiveness. After reviewing their feedback, a final questionnaire was created and used.

Reliability:

The reliability of the tools was measured through ten percent of the patients using the established questionnaire and retested after four weeks on the same sample and the results were the same in each time. The reliability of the questionnaire was approved by a Cronbach's alpha coefficient of 0.96.

Pilot Study:

To assess the effectiveness, dependability, clarity, and application of the tools, a pilot study involving 7 patients, representing 10% of the sample size, was conducted. The tools were then possibly modified in light of the findings of the pilot research. Due to no changes being made to the research equipment, subjects who participated in the pilot study were not eliminated from the entire sample.

Field work:

After receiving the necessary governmental approval to conduct the study. The patients were introduced to the researchers and given a brief explanation of the study's objectives. The participants provided their written consent. The researchers were present in the study settings three times per week from 9.00 a.m. to 1.00 p.m. for the duration of the three-month data collecting period from the beginning of July 2023 to the end of September 2023. The structured interview questionnaire was completed in around 25 minutes. A post-test was administered after the programme.

The Self Care management program was done in four phases:

Assessment phase:

After explaining the purpose of the study and conducting individual interviews with each respondent, the researchers solicited participation. They met the subjects and had them complete the questionnaire in order to evaluate their symptoms, gather personal information, and determine the patient's status. The information gathered during this stage served as the pre-test for the self-care management programme.

Planning phase:

Based on the findings from the assessment phase, the researchers presented the self-care management programme after identifying the patient condition and symptoms. It was intended to enhance the subject's psychological, social, and physical health.

Implementation phase:

Two 60-minute training sessions were required as part of the self-care management programme. Simple inquiries about the underlying illness and its source, mobility skills for self-care, abilities to lessen bodily symptoms (fatigue, and improved diet), and abilities to lessen emotional and psychological symptoms were addressed during the sessions. A self-care brochure was also issued, covering the social, emotional, psychological, and physical aspects of MS. Each month, the individuals were contacted and tracked by the researchers. One month following the final session, the patients underwent a second evaluation using the same questionnaire, followed by a third month of follow-up.

Evaluation phase:

A posttest utilising the same structure as the pretest tools was used to evaluate the evaluation four weeks later.

Limitation of the study: Five participants were removed from the trial due to mental health issues and a lack of compliance; the remaining 65 patients continued the study.

Ethical considerations:

After receiving official approval from the manager of the study setting at the MS outpatient clinic by presenting an official letter acquired from the Faculty of Nursing, Helwan University, and after the purpose of the study was made explicit, the current study was carried out. The Helwan University Faculty of Nursing's Ethics Committee gave the study its blessing on October 7, 2023 (N0.35). The individuals who accepted to participate in the study are given an explanation of the purpose and goals of the study by the researchers. The right to select whether or not to participate in the study and the flexibility to leave at any moment were both made clear to subjects. The Helsinki Declaration was followed throughout the study's conduct.

Statistical analysis

Using SPSS, all statistical analyses were carried out. Prior to performing any calculations, the distribution of the data was checked for normalcy. Continuous data were reported as mean±SD. Numbers and percentages were used to convey categorical data. P value was fixed at 0.05 for statistical significance and <0.001 for high significant result.

RESULTS

Table (1) shows that, 53.8% of the study sample were between the age of 30-<40 years and 55.4% of them were females. In relation to marital status, 53.8% of them were married. 38.5% of them had bachelor degree. As regard occupation, 60% of them were working and live in urban area. 47.7% of the study sample had number of family less than 5, 49.2% of them saw that their family income was not enough. In relation to chronic illness, 29.2% of them had hypertension.

Table (1): Frequency and percentage distribution of personal characteristics of the studied subjects (n=65).

	Items	N	%	t	P
Age Category	20-<30y years	6	9.2	23.024	0.000
	30-<40y years	35	53.8		
	40-<50y years	15	23.1		
	->50 years	9	13.8		
	Age Mean± SD	32.235 ± 6.65			
	Range	20->50			
Gender	Male	29	44.6	25.007	0.000
	Female	36	55.4		
Marital Status	Single	13	0	18.647	0.000
	Married	35	53.8		
	Divorced	6	9.2		
	Widow	11	16.9		
Education	Read and write	9	13.8	29.693	0.000
	Primary education	12	18.5		
	Secondary	19	29.2		
	Bachelor	25	38.5		
Occupation	Working	39	60	22.862	0.000
	Not Working	26	40		
Residence	Rural Area	26	40	26.128	0.000
	Urban area	39	60		
No. of family members	Less than 3 members	13	20	20.416	0.000
	3 to less than 5	31	47.7		
	5 to less than 7 members	15	23.1		
	More than 7 members	6	9.2		
	Family income			23.880	0.000
	Enough	33	50.8		
	Not Enough	32	49.2		
Chronic Disease	Diabetes	18	27.7	13.510	0.000
	Hypertension	19	29.2		
	Anemia	9	13.8		
	Heart Disease	6	9.2		
	Kidney Disease	8	12.3		
	Liver disease	5	7.7		

Table (2) illustrates that, 66.2% of the study sample had satisfactory answer about the definition of MS. 64.6% of them had satisfactory knowledge related to medication used in MS treatment and precautions that prevent recurrence of MS and 63.1% of them had satisfactory knowledge related to the aim of treatment of MS.

Table (2): Frequency and percentage distribution of patients' knowledge about multiple sclerosis (n=65):

Items	Satisfactory		unsatisfactory		t	P
	N	%	N	%		
Definition of MS	43	66.2	22	33.8	11.184	0.000
MS is common Disease	26	40	39	60	6.532	0.000
Causes of MS	28	43.1	37	56.9	6.959	0.000
Signs and symptoms of MS	39	60	26	40	9.798	0.000
Diagnosis of MS	40	61.5	25	38.5	10.119	0.000
Types of MS	32	49.2	33	50.8	7.878	0.000
Medication used in treatment of MS	42	64.6	23	35.4	10.811	0.000
Aim of treatment of MS	41	63.1	24	36.9	10.456	0.000
Precautions that prevent recurrence of MS	42	64.6	23	35.4	10.811	0.000
Adaptation with MS	39	60	26	40	10.119	0.000

Table (3) reveals that, in relation to nutrition, 56.9% of the study sample had correct knowledge related to eat three meals per day, eat fruits and fresh vegetables and decrease eating of red meat and eggs. 61.5% of them drink plenty of fluids and juices, decrease carbohydrates and fat at the same percentage.

Table (3): Frequency and percentage distribution related to dietary health needs of multiple sclerosis patients (n=65).

Items of Nutrition	Correct		Incorrect		t	P
	N	%	N	%		
*Nutrition: Eat three meals per day	37	56.9	28	43.1	9.196	0.000
Eat Fruits and fresh vegetables	37	56.9	28	43.1	9.196	0.000
Decrease carbohydrate and fat	40	61.5	25	38.5	10.119	0.000
Prepare food with olive oil	38	58.5	27	41.5	9.491	0.000
Decrease eating of red meat and eggs	37	56.9	28	43.1	9.196	0.000
Eat white meats as fish and poultry	38	58.5	27	41.5	9.491	0.000
Drink plenty of fluids and juices	40	61.5	25	38.5	10.119	0.000

Cont'd table (3) explains that, in relation to sport, 78.4% of the study sample practiced walking, 46.2% of them used to sleep 6-8 hours per day. In relation to treatment and follow up, 61.5% of them had regular time for it and 60% of them did physiotherapy in regular time also.

Cont'd table (3): Frequency and percentage distribution related to health needs of the multiple sclerosis patients (n=65).

	Items	N	%	t	P
*Sport	Walking	51	78.4	18.735	0.000
	Running	14	21.5		
Kind of sport	Daily	21	23.3	18.854	0.000
	Day After Day	13	20		
	Two times per day	17	26.2		
	Weekly	14	21.5		
Rate of doing exercises	Less than 15 min	18	27.7	21.802	0.000
	15-30 min	31	47.7		
	More than 45 min	16	24.6		
Time spent in playing exercises	6-8 hours	30	46.2	18.267	0.000
	8-10 hours	23	35.4		
	More than 10 hours	12	18.5		
*Sleep and rest	Use analgesics	28	43.1	15.428	0.000
	Massage site of pain	15	23.1		
	Bed rest	15	23.1		
	Cold or Hot compresses	7	10.8		
*Pain overcome	Regular	40	61.5	22.768	0.000
	Irregular	25	38.5		
*Treatment and follow up	Regular	39	60	22.862	0.000
	Irregular	26	40		

Table (4) reveals that, as regards physical problems, 69.2% of the study sample had loss of weight with MS, 64.6% of them had fatigue, 72.3% of them had tingling of limbs and 70.8% of them had immunodeficiency and disorders in gastrointestinal system. In relation to blurred vision, 61.5% of them had it and 84.6% of them had disorders in musculoskeletal system.

Table (4): Frequency and percentage distribution related to health problems of multiple sclerosis patients (n=65).

Physical problems	Present		Not present		t	P
	N	%	N	%		
Loss of appetite	36	55.4	29	42.6	23.274	0.000
Loss of weight	45	69.2	20	30.8	12.000	0.000
Fatigue	42	64.6	23	35.4	10.811	0.000
Tingling of limbs	47	72.3	18	27.7	12.927	0.000
Hypertension	37	56.9	28	43.1	9.798	0.000
Overweight	38	58.5	27	41.5	5.527	0.000
Disorders in urinary system	40	61.5	25	38.5	3.567	0.001
Immunodeficiency	46	70.8	19	29.2	12.448	0.000
Persistent headache	34	52.3	31	47.7	8.378	0.000
Blurred vision	40	61.5	25	38.5	10.119	0.000
Disorders in musculoskeletal system	55	84.6	10	15.4	18.762	0.000
Disorders in gastrointestinal system	46	70.8	19	29.2	12.448	0.000
Disorders in circulating system	38	58.5	27	41.5	9.491	0.000
Disorders in respiratory system	26	40	39	60	6.532	0.000

Cont'd table (4): shows that in relation to psychological problems, 69.2% of the study sample had frustration and depression, 70.8% of them had mood swings and quick anger.72.3%, 61.5%, 84.6% of the study sample had change in eating habits, insomnia, and use of sedatives and hypnotics and difficulty getting time to sleep respectively. In relation to social problems, 70.8% of the study sample had losing hope in treatment and 58.5% of them had isolation and introversion and disturbance in marital life while 61.5% of them had unwillingness to spend time with family and avoidance of family visits.

Cont'd table (4): Frequency and percentage distribution related to health problems of multiple sclerosis patients(n=65).

Psychological problems	Present		Not present		t	P
	N	%	N	%		
Frustration and depression	45	69.2	20	30.8	12.000	0.000
Mood swings	46	70.8	19	29.2	12.448	0.000
Feeling of despair	42	64.6	23	35.4	10.456	0.000
Change in eating habits	47	72.3	18	27.7	9.491	0.000
Nervous tension	37	56.9	28	43.1	13.443	0.000
Lack of concentration	38	58.5	27	41.5	12.448	0.000
Insomnia	40	61.5	25	38.5	13.443	0.000
Quick anger	46	70.8	19	29.2	13.443	0.000
Difficulty making a decision	34	52.3	31	47.7	10.456	0.000
Use of sedatives and hypnotics	40	61.5	25	38.5	10.811	0.000
Difficulty getting time to sleep	55	84.6	10	15.4	10.811	0.000
Social problems						
Embarrassment in dealing with people due to difficult pronunciation	37	56.9	28	43.1	9.798	0.000
Isolation and introversion	38	58.5	27	41.5	12.927	0.000
Inability to go out with family	40	61.5	25	38.5	10.456	0.000
Losing hope in treatment	46	70.8	19	29.2	12.000	0.000
Inability to go to work	37	56.9	28	43.1	10.119	0.000
Disturbance in marital life	38	58.5	27	41.5	8.124	0.000
Avoid family visits	40	61.5	25	38.5	12.000	0.000

Table (5) illustrates that, 69.2% and 72.3% of the investigated sample had poor QOL in the physical and social dimensions, respectively, and 89.3% had poor QOL in the psychological area, while 30.8% had average QOL in the spiritual domain.

Table (5): Frequency and percentage distribution of patients studied based on their total QOL in MS Domains (n=65).

Domain	Good		Average		Poor	
	N	%	N	%	N	%
Physical Domain	5	7.7	15	23.1	45	69.2
Psychological Domain	1	1.5	6	9.2	58	89.3
Social Domain	3	4.6	15	23.1	47	72.3
Spiritual Domain	15	23.1	20	30.8	30	46.2
Marital Domain	14	21.5	21	32.3	30	46.2
Total QOL	2	3	13	20	50	77

Figure (1) shows that 40% of them had average total QOL after 2 months (follow up) of the self-care management program.

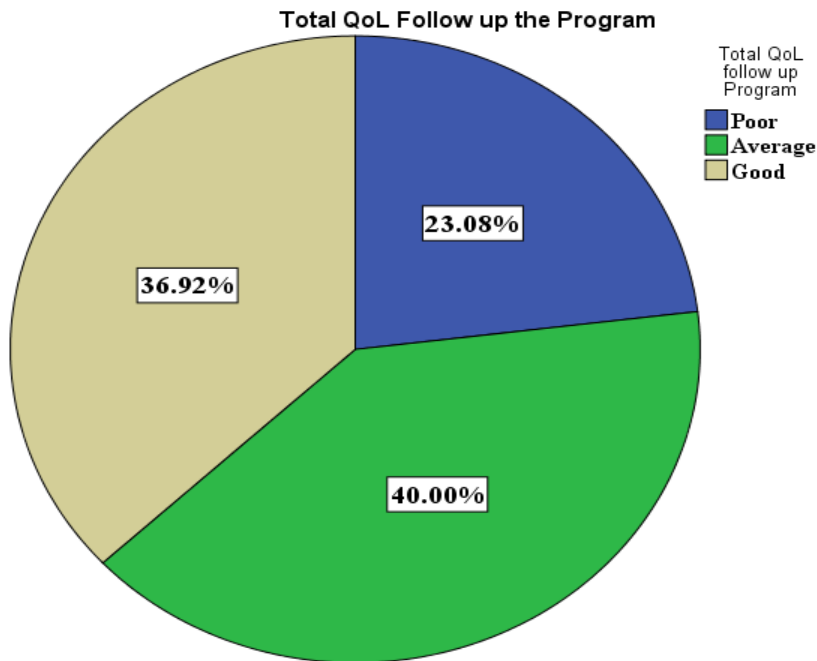


Figure (1): Total QOL of MS patients follow up the program (n=65).

Table (6) reveals that, total health needs had highly statistical correlation with total health problems and total QOL.

Table (6): Correlation between the total knowledge, total health problems, total health needs and total QOL

Correlations	Total Knowledge	Total health needs	Total health problems	Total QOL
Total Knowledge r	1.00	0.227	0.289	0.179
P		0.276	0.160	0.393
Total health needs r	0.227	1.00	0.680**	0.598**
P	0.276		0.000	0.002
Total health problems r	0.289	0.680**	1.00	0.372
P	0.160	0.000		0.067
Total QOL r	0.179	0.598**	0.372	1.00
P	0.393	0.002	0.067	

r: Correlation coefficient, **: Highly significant

Table (7) reveals that total knowledge had highly statistically significant correlation with total follow up QOL and had a statistically significant correlation with post QOL.

Table (7): Correlation between the total knowledge, total Pre QOL, total Post QOL and total follow up QOL.

Correlations	Total Knowledge	Total pre QOL	Total post QOL	Total Follow up QOL
Total Knowledge r	1.00	0.247	0.316*	0.565**
P		0.047	0.010	0.000
Total pre QOL r	0.247*	1.00	0.450**	0.738**
P	0.047		0.000	0.000
Total post QOL r	0.316*	0.450**	1.00	0.797**
P	0.010	0.000		0.000
Total Follow-up QOL r	0.565**	0.738**	0.797**	1.00
P	0.000	0.000	0.000	

r: Correlation coefficient, *: Significant, **: Highly significant

DISCUSSION

The growth of the community as well as the lives of MS patients are both silent victims of MS. The disease most frequently affects those between the ages of 20 and 40, who are seen to be the most economically active age group and the foundation of the country's economy. The most productive years of a person's life are when they are affected by MS, which severely reduces their ability to work and had serious social and economic repercussions ⁽¹⁴⁾.

In the medical and health services sector, self-care comes first. By providing just nursing care, nurses play a crucial role in raising patients' understanding of the condition and their capacity for self-care. However, it is important to stress that patients should be responsible for their own self-care. Relapses (episodes) of MS cause changes to neurological processes. Following the relapses, there is a period of partial or complete functional recovery and relative stability (remission) until the next episode ⁽¹⁵⁾.

In MS patients, self-efficacy has a special role in determining physical activity, productivity at work, adherence to therapy, tiredness, depressive symptoms, and anxiety. It is an essential part of the social cognitive theory, according to which interactions between a person's environment, behaviour, and personal characteristics determine how well their psychosocial functioning works ⁽¹⁶⁾.

The results of the current study revealed that more than half of the study sample were between the age of 30-<40 years with a mean age 32.235 ± 6.65 and more than half of them were females. In relation to marital status, more than half of them were married. More than one third of them had bachelor degree. As regard occupation, about two thirds of them were working and live in urban area. More than two fifth of the study sample had number of family less than 5 and about half of them saw that their family income is not enough. In relation to chronic illness, less than one third of them had diabetes and hypertension.

These results are in line with those of **Omrani et al.** ⁽¹⁷⁾, who found that 78% of the patients were females at the peak age of 20 to 30 years in their research. Additionally, according to **Al Wutayd et al.** ⁽¹⁸⁾, MS typically affects women between the ages of

20 and 40, when they are at their most productive in life. Furthermore, MS is typically diagnosed in young people and affects females two to three times more frequently than males, according to **Ortona et al.** ⁽¹⁹⁾ in their study on autoimmune illnesses. This is justified by the assumption that MS is related to female hormones throughout the gestational period.

According to **Alhazzani et al.** ⁽²⁰⁾, who reported that more than half of respondents were married in their study, the majority of the investigated patients were married in the current study. According to education level, the current study revealed that two-fifths of MS patients had an intermediate/basic level and only one-fifth had a bachelor's level. **Radmehr et al.** ⁽²¹⁾ concurred with this conclusion, reporting in his study that 78% of participants had a diploma degree or less in literacy. Additionally, these findings conflict with those of **Da Silva et al.** ⁽²²⁾ who claimed that two fifths of the patients under study had a high school education or less.

In relation to family income, the current study supported by **Elshaaer et al.** ⁽²³⁾ findings as almost 35% of the patients in their research had insufficient money, which may have been caused by the high expense of their care and physiotherapy, or it may have been because they were unable to find steady employment and income owing to their illness.

Regarding physical problems of the patients in our study, more than two thirds of the studied sample had loss of weight with MS, about two thirds of them had fatigue, less than two quarters of them had tingling of limbs and more than two thirds of them had immunodeficiency and disorders in gastrointestinal system. In relation to blurred vision, less than two thirds of them had it and the majority of them had disorders in musculoskeletal system.

This is consistent with the findings of **Verdugo et al.** ⁽²⁴⁾ who discovered that approximately three-quarters of patients with mobility impairment reported experiencing MS-related symptoms or impairments. Other complaints were weakness or exhaustion (29%) impairments in vision, hearing, or voice (20%), lack of sensitivity or cramping (20%), genitourinary problems (7%), and cognitive problems (7%).

As regards to physical domain of QOL in the current study, there was a positive effect of the self-care management program on the physical domain of the study sample evidenced by more than one third of them felt rarely their illness made them unable to do their work post the program instead of 13.8% of them before the program and two fifth of them became satisfied with the performance of their daily duties instead of one third of them pre the program.

According to the study's findings, there was a statistically significant correlation between the patient population's pre, post, and follow-up self-care management programme ranges and their overall MS self-care management programme. This is consistent with research by **Morowati et al.** ⁽²⁵⁾ who found that half of the MS patients they evaluated engaged in self-care activities. It also emphasised that a variety of variables, including age and self-management expertise, might influence patients' self-management behaviours, and that this necessitates additional research in the future.

Regarding the relationship between patients' overall knowledge of MS and their overall quality of life, the current study found a statistically significant correlation between knowledge associated with good quality of life and the ability to cope with physical impairment, manage psychological issues, improve social interactions, and engage in spiritual and religious activities. The study's findings were corroborated by **Brola et al.** ⁽²⁶⁾, who found a highly statistically significant relationship between patients' knowledge and their quality of life. They also found that knowledgeable patients were better able to cope with physical impairment, manage frustration, and deal with depression.

CONCLUSION

The findings highlight the need of creating efficient self-care management programmes to minimise the effects of the disease, enhance treatment adherence, and boost patient self-efficacy. Better attention to physiological and psychological factors may be important in guaranteeing a better level of well-being despite the functional limitations caused by the condition. Total health needs had highly statistically significant correlation with the total health problems and total QOL. Also, total knowledge had a highly statistically significant correlation with the total follow up QOL and had significant correlation with post QOL.

RECOMMENDATIONS

The following suggestions are made based on the findings of the current investigation:

- 1- Encourage patients for self-care management programs to provide healthy lifestyle.
- 2- Encourage patients to schedule numerous follow-up sessions in order to identify and avoid issues as soon as possible.

- 3- Encourage further research so that young people with MS may design strategies to improve their health while they are battling the disease.
- 4- Encourage community organisations to assist people with chronic illnesses like MS.

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