Psychosocial Nursing Intervention for Improving Quality Of Life of Patient with Multiple Sclerosis

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Abstract

Multiple sclerosis (MS) is the most common chronic, non-traumatic neurological disorder afflicting young people during their peak productive ages. It affects approximately 2.5 million people worldwide, and 1.4% of all Neurology cases in Egypt. Once the disease has developed, it continues lifelong, and there is still no cure. The course of the disease can be relapsing–remitting which diminish quality of life (QOL) by interfering with the ability to work, pursue leisure activities, and carry on usual life roles. This study was **aiming** to assess the effect of psychosocial nursing intervention on quality of life of patient with multiple sclerosis. It was **conducted** on 50 cases with MS in El-Demerdash day care unit. Data were **collected** using: 1) Interviewing questionnaire containing the following parts A) Socio-demographic sheet. B) History of illness, C) Patient's knowledge regarding multiple sclerosis. 2) Multiple Sclerosis Quality Of Life (MSQOL-54) instrument. The **result** of this study showed that, there are highly statistically significant differences were found between pre- and post- intervention as regard knowledge about disease of patient with multiple sclerosis (P= .000). Additionally, there are highly statistically significant difference were found between pre- and post- intervention as regard physical health composite and mental health composite of patient with multiple sclerosis (P= .000) respectively. As well as, there is highly statistically significant difference was found between pre-and post-intervention as regard total overall quality of life of patient with multiple sclerosis, (P= .002). Results **concluded** that the implementation of psychosocial nursing intervention had a positive effect on quality of life of patient with multiple sclerosis. Based on the results, it is **recommended** to incorporate non-drug therapy (psychosocial intervention) along with pharmacological therapies in MS management to improve quality of life of patients with MS.

Key words: Multiple sclerosis – Quality of life – Psychosocial nursing intervention

INTRODUCTION

Multiple sclerosis (MS) is the most common demyelinating disorders and the predominant CNS disease among young adults that strikes without warning. This chronic disease involves unpredictable episodes of inflammatory demyelination and axonal transection that result in lesions along axons of nerve fibers in the brain and spinal cord **(Courtney, 2014).**

Although many aspects of MS pathogenesis have been elucidated, the exact causal mechanisms are still not fully understood; an interplay between environmental factors in genetically susceptible individuals is assumed **(Castrop, et al., 2013).**

Multiple Sclerosis (MS) is currently thought to affect more than 2.5 million people worldwide and globally 200 individuals are diagnosed weekly with the disease **(Courtney, 2014).**

In Egypt, MS represent 1.4% of all Neurology cases; overall, there are about 50,000 patients in Egypt diagnosed with MS **(Hamdi, 2013).**

As regards disease onset, it is most frequently in young adulthood, between 20 to 40 years of age, and it affects women twice as often as men **(Castrop, et al., 2013).**

MS clinical picture vary but can include abnormal gait, spasticity, disturbances in sensation and vision, bowel and bladder disturbances, sexual dysfunction, pain, fatigue, ataxia, and cognitive dysfunction, which are directly related to demyelination and axonal loss, along with other symptoms such as anxiety, reactive depression, social isolation, as well as, impact on the individual's sense of self can result in functional limitations, disability and reduced quality of life (QoL) **(Bašić, et al., 2013).**

Once the disease has developed, it continues lifelong, and there is still no cure. The course of the disease can be relapsing–remitting, which means that episodes with exacerbation of neurological symptoms alternate with periods of remission. Over time, these relapses often do not fully resolve, leading to a stepwise accumulation of disability **(Polman, et al., 2011).**

There is no cure for MS; the treatment of MS is divided into treatment of MS relapses, prevention of new relapses and disease progression, and symptomatic treatment. Symptom management includes medications, surgical procedures and nonpharmacological methods such as rehabilitation and psychosocial support **(Bašić, et al., 2013).**

Quality of life (QoL) is a wide-ranging concept that is affected not only by people`s health status, but also by their social settings, psychosocial state, level of independence, and their relationship to the environment in which they live **(Al-Tahan, et al., 2011).**

The disabling nature of the disease significantly impacts the lives of individuals with the disease and their families. Symptoms that affect QOL include: Role limitations, impaired mobility, fatigue, depression/anxiety, pain, spasticity, cognitive impairment, emotional problems, sexual dysfunction, bowel and bladder dysfunction, vision and hearing problems, seizures, and swallowing and breathing difficulties **(Zwibel, & Smrtka, 2011).**

Furthermore, comparative studies suggest that, compared with other chronic diseases as diabetes, epilepsy, and rheumatoid arthritis, MS patients have the most decline overall and specific QoL ; as general health, vitality, physical functions, as well as greater limitations in social activities **(Ghodsbin, et al., 2013).**

SIGNIFICANCE OF THE STUDY:

Multiple sclerosis (MS) produces profound effects on patients' physical, social, and psychological well-being, which are form vital segments of health-related quality of life (HRQoL) and may be exacerbated by disease uncertainty and depression **(Halper, & Holland, 2011).**

In this context, maintaining a reasonable quality of life in the face of the illness is very challenging, it is about reducing the impact that the illness has on day-to-day living maintaining a flexible approach to life, and being able to express negative emotions openly but not being overwhelmed by these emotions **(Mitchell, et al., 2005).**

Beside the universal tasks of all nursing care, specific requirements in liaison MS nursing care involve: full knowledge of the disease and its range of physical, functional, and neurologic implications. Other requirements include skills to teach, inspire, educate, and empower patients and their families, as well as the ability to advocate for treatments, programs, and services needed by individuals and families affected by MS **(Halper, & Holland, 2011)**.

AIM OF THE STUDY

This study aimed to evaluate the effectiveness of psychosocial nursing intervention on quality of life of patient with multiple sclerosis.

MATERIAL AND METHODS

Research design:

The current research design is a quasi-experimental design.

Setting of the study:

The study was conducted at MS day care unit in El-Demerdash hospital- affiliated to Ain Shams University Hospitals. This study was conducted from the beginning of November 2013 to the end of May 2015, in Cairo, Egypt.

Subjects:

The subjects were 50 cases of patients with MS "purposive sample" who met the following criteria during the study period: age between 20 and 40 years old, from both sex, at least had average education, had a definite diagnosis of MS "of any type" - confirmed by a neurologist-, diagnosed with MS for at least one year, able to ambulate, free from psychiatric disorders, had no other co-morbid serious chronic illnesses (e.g. a malignancy), and did not participate in other psychological therapies at the time of the study.

Tools of Data Collection:

The data were collected by:

I. Interview questionnaire sheet:

This sheet is designed by the researcher after reviewing related literature. It includes the parts as the following:

Part 1: Socio-demographic:

Assess socio-demographic characteristics of the studied patients such as age, gender, residence, level of education, occupation, and monthly income.

Part 2: History of illness:

This part included date of diagnosis, sign and symptoms, compliance with treatment, type of MS, duration of illness

Part 3: Patients' level of knowledge regarding multiple sclerosis:

This part included assessment of patients` level of knowledge regarding nature, causes, type, sign and symptoms, and treatment of multiple sclerosis.

II. Multiple Sclerosis Quality of Life (MSQOL-54) instrument:

The Multiple Sclerosis Quality of Life - 54 is standardized; an outcome assessment instrument developed by Vickrey and colleagues, 1995 and translated in Arabic language by the researcher. It is consisting of 54 items organized into 12 scales along with two summary scores, and two additional single-item measures. The subscales are: physical function, role limitations-physical, role limitations-emotional, pain, emotional well-being, energy, health perceptions, social function, cognitive function, health distress, overall quality of life, and sexual function. The summary scores are the physical health composite summary and the mental health

composite summary. It provides a quality of life measure specifically tailored to MS **(Acquadro, et al., 2003).**

RESULTS:

Table (1): Distribution of Socio-demographic characteristics of patient with MS: This table clarifies that, slightly more than three fifth (62%) of the sample were females; half of studied sample (50%) felt at age group between 31-40years old; and more than half (56%) of the sample were married. Regards residence more than two third (68%) of the sample lived in urban areas, as well as slightly more than three fifth (62%) of the sample had finished university education. In addition two third of studied sample (66%) were employed, as well less than three fifth (58%) of the sample had monthly income enough to some extent.

Table (2): History of illness of patient with MS: this table represents that, slightly less than two fifth (38%) of the sample experienced their first complains "clinically isolation syndromes" from 5-10 years, with mean 3.88 ± 3.224 years since diagnosis confirmation. As regard disease pattern the majority (88%) of sample experienced relapsing–remitting pattern of MS, as well as the highest percentage (92%) of them had previous relapses with mean number 4.36 ± 3.463, and (90%) of them had no chronic illness. Concerning commitment to treatment slightly more than two fifth (42%) of them adhered to treatment, while one fifth (20%) of them not adhered to treatment.

Table (3) and figure (1): Comparison between mean scores pre and post – intervention regarding knowledge of patient with MS: This table and figure represent that, there are highly statistically significant differences were found between pre- and post- intervention as regard knowledge about disease of patient with multiple sclerosis "nature, causes, manifestation, diagnosis, treatment, and total knowledge" (p=≤0.001).

Table (4) and figure (2): Comparison between mean scores pre and post – intervention of regarding MSQOL domains of patients with MS: This table and figure show that, there are highly statistically significant difference were found between mean scores pre- and post- intervention as regard physical health, total role limitations due to physical problems, health perception, pain, energy, social function, sexual function, change in health, role limitations due to emotional problems, emotional well-being, cognitive function, health distress, overall quality of life and total quality of life of patients with multiple sclerosis, (p=≤0.001).

Table (5): Comparison between mean scores pre- and post- intervention as regard MSQOL health composites of patients with MS: this table represents that, there are highly statistically significant difference were found between pre- and post- intervention as regard physical health composite and mental health composite of patient with multiple sclerosis (p=<0.000).

Table (6): Correlation between socio-demographic characteristics of patient with MS and MSQOL: this table represents that, there are statistically significant differences were found between income, and physical health composite pre- and post- intervention as well as income and mental health composite post- intervention (p=<0.05). As well as, there are highly statistically significant differences were found between marital status and physical health composite; and mental health composite post-intervention, as well as between occupation and physical health composite post intervention (p=<0.000).

Table (7): Correlation between socio-demographic characteristics of patient with MS and total knowledge pre- and post-psychosocial nursing intervention: this table shows that, there are highly statistically significant differences were found between educational level of patient with MS and

their total knowledge pre- and post-intervention. As well as, between monthly income of patient with MS and their total knowledge post- intervention (p=<0.000).

Table 1: Socio-demographic characteristics of patients with MS (n=50)

Statement	No	%
Gender	19	38
Male	31	62
Female		
Age		
20 : 25	9	18
26 : 30	16	32 } 50%
31 : 35	11	22
36 : 40	14	28
Residence		
Urban	34	68
Rural	16	32
Educational Status		
Secondary education	5	10
Higher education	9	18
University education	31	62
Post graduate	5	10
Marital status		
Single	22	44
Married	28	56
Divorced	0	0
Widow	0	0
Occupational Status		
Unemployed	17	34
Governmental	15	30
Private	9	18
Free	9	18
Adequacy of monthly income		
Enough =adequate	7	14
Enough to some extent	29	58
Not enough=inadequate	14	28

Table 2: History of illness of patients with MS (n=50).

Items	No	%
Years since first complains (CIS)*	4	8
One year	7	14
2:3 years	16	32
4:5 years	19	38
5:10 years	4	8
11≤ years		
Mean ±SD		
	3.24 ± 1.06	
Years since diagnosis		
1:5 years	40	80
6:10 years	9	18
11≤ years	1	2
Mean ±SD	3.88 ± 3.224	
Disease pattern	44	88
Relapsing–remitting MS	1	2
Secondary progressive MS	4	8
Primary progressive MS	1	2
Progressive relapsing MS		
Chronic illness	45	90
No	5	10
Yes		
Previous relapses	4	8
No	46	92
Yes		
Number of relapses		
0:5 relapses	35	70
6:10 relapses	12	24
11≤ relapses	3	6
Mean ±SD	4.36 ± 3.463	
Commitment to treatment	21	42
Adhered to treatment	19	38
To some extent	10	20
Not adhered		

Table 3: Comparison between mean scores pre- and post- intervention regarding knowledge of patients with MS (n=50).

Items	Pre		Post		t	P value
	Mean	SD	Mean	SD	test	
MS nature	**73.7**	**19.35**	**94.5**	**8.71**	**-7.84**	**.000****
MS Causes	**54.2**	**24.11**	**90.2**	**14.62**	**-10.80**	**.000****
Common manifestations	**94.9**	**8.11**	**98.3**	**3.58**	**-3.65**	**.001****
MS diagnosis	**53**	**24.68**	**93.2**	**12.68**	**-11.31**	**.000****
MS treatment	**82**	**22.49**	**98.4**	**5.09**	**-5.83**	**.000****

****Correlation is highly significant at the 0.01 level**
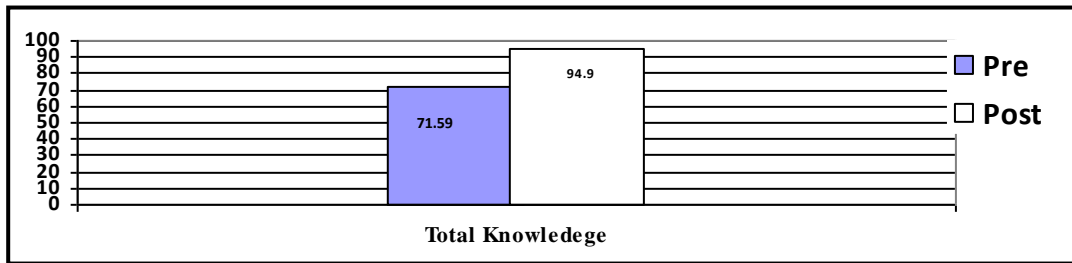
Figure (1): Comparison between mean scores pre- and post- psychosocial nursing intervention regarding total knowledge of patients with multiple sclerosis (n=50).

Table 4: Comparison between mean scores pre- and post- intervention regarding MSQOL domains of patients with MS (n=50).

Items	Pre		Post		t test	P value
	Mean	SD	Mean	SD		
Physical Health	58.6	13.92	61.7	10.08	-3.57	**.001****
Role Limitations Due to Physical Problems	18.5	24.12	49	18.8	-8.664	**.000****
Role Limitations Due to Emotional Problems	18	24.47	61.3	21.67	-10.65	**.000****
Health Perception	28.3	16.67	66.3	7.81	-21.86	**.000****
Pain	38.7	23.43	41	21.45	-3.80	**.000****
Emotional Well-being	36.5	15.44	61.5	7.13	-13.76	**.000****
Energy	23.6	11.74	58.9	6.405	-22.08	**.000****
Social Function	51.5	19.68	65.1	10.47	-6.639	**.000****
Cognitive Function	47.6	15.81	52.4	14.25	-4.95	**.000****
Health Distress	33.2	16.53	54.6	11.24	-14.21	**.000****
Sexual Function	59.2	25.98	61.4	24.26	2.054	**.050***
Change in Health	32.5	17.6	38.5	12.5	-3.56	**.001****
Overall Quality of Life	52.1	15.74	60.4	10.26	-3.221	**.002****

*Correlation is significant at the 0.05 level - **Correlation is highly significant at the 0.01 level
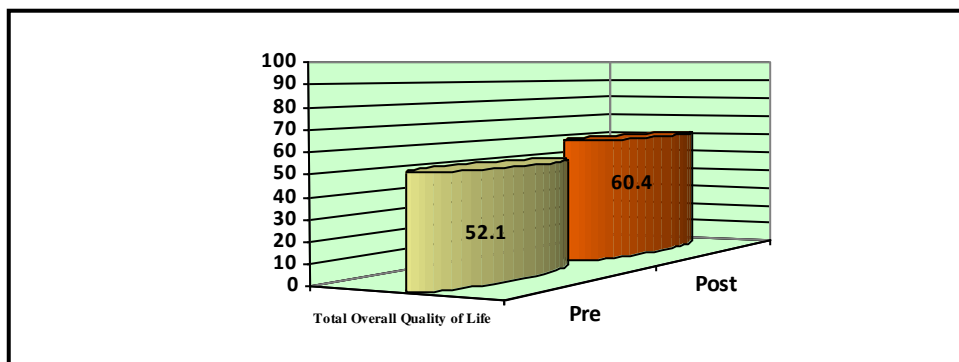
Figure (2): Comparison between mean scores pre- and post- intervention as regard total overall quality of life of patients with MS (n=50).

Table (5): Comparison between mean scores pre- and post- intervention as regard MSQOL health composites of patients with MS (n=50).

MSQOL Health Composites	Pre Mean±SD	Post Mean±SD	t test	P value
Physical Health Composite	36.4 ± 10.6	55.7 ± 5.8	**-21.076**	**.000****
Mental Health Composite	35.7 ± 10.6	58.9 ± 6.5	**-18.051**	**.000****

*Correlation is significant at the 0.05 level - **Correlation is highly significant at the 0.01 level

Table (6): Correlation between socio-demographic characteristics of patient with MS and MSQOL (n=50).

Items	MSQOL Pre Physical health composite r test	P value	Mental health composite r test	P value	MSQOL Post Physical health composite r test	P value	Mental health composite r test	P value
Gender	-.083	.566	-.080	.579	.034	.814	.007	.960
Age	-.130	.370	.002	.990	-.007	.959	-.169	.241
Residence	-.021	.885	-.185	.198	-.029	.843	-.114	.432
Educational level	.261	.068	.109	.450	.122	.399	-.131	.365
Marital status	.207	.150	-.005	.974	-.361	.010**	-.440	.001**
Occupation	.243	.089	.098	.498	.372	.008**	-.052	.718
Income	.332	.019*	-.072	.621	.340	.016*	.284	.045*

*Correlation is significant at the 0.05 level - **Correlation is highly significant at the 0.01 level

Table (7): Correlation between socio-demographic characteristics of patient with MS and total knowledge pre- and post- psychosocial nursing intervention (n=50).

Items	Total Knowledge Pre r test	P value	Post r test	P value
Gender	-.078	.592	.008	.958
Age	.067	.642	-.195	.174
Residence	.419	.002**	.516	.000**
Educational level	.502	.000**	.835	.000**
Marital status	.171	.236	-.203	.158
Occupation	.112	.440	-.086	.554
Income	.162	.262	.380	.006**

**. Correlation is highly significant at the 0.01 level

DISCUSSION

Multiple sclerosis (MS) is a chronic neurological disease that usually affects young adults characterized by areas of demyelination. The combination of a progressive, incurable, and unpredictable disease process creates stressful illness which powerfully impacts upon the quality of life (QoL): physical, emotional, financial and psychosocial of both the patients and their relatives throughout its course **(Al-Tahan, et al., 2011).**

Maintaining a reasonable quality of life in the face of the illness, where possible, it is about reducing the impact that the illness has on day-to-day living maintaining a flexible approach to life, and being able to express negative emotions openly but not being overwhelmed by these emotions. The role of nurses in MS includes the provision of information and support, at diagnosis and during relapses, to both patients and carers. Nurses are also responsible for coordinating the healthcare.

According to research evidence psychosocial interventions improve the psychological, social and physical well-being of individuals with MS by improving self-management and adherence, enhancing self-efficacy and self-esteem, reducing stress, enhancing coping skills and improving general quality of life .

The aim of this study was to assess the effect of psychosocial nursing intervention on quality of life of patient with multiple sclerosis.

Concerning the socio-demographic characteristics of patients with multiple sclerosis; slightly more than three fifth were females and the ratio between female and male patients in the current study was (1.6:1). This is consistent with MS being a disease which more commonly affects females.

This result agrees with **Hashem, et al., (2010),** who studied epidemiology of multiple sclerosis in Egypt, and stated that, the ratio between female and male patients in the study was (1.6:1). This results also in accordance with **Roche, et al., (2012),** who mentioned that, MS diagnosis is typically between the ages of 20-50 years with a female predominance, the ratio between female:male is 2:1 ratio .

Also these findings matched with study carried out to estimate the economic burden on patients with MS by **Vozikis, & Sotiropoulou (2013),** and who indicated that 35.8% of the study sample were male and 64.2% female.

Also, the current study showed that, half of them felt at age group between 31-40 years old; and more than half of the sample were married. As well as slightly more than three fifth of the sample had finished university education. This is coincided with typical onset of MS is in the mid-30s and young age.

These findings are in agreement with **National Institute of Neurological Disorders and Stroke (2010),** which confirmed that, the onset of MS usually occurs during the peak productive ages of 20 to 50 years. As well as, **Tsang, & MacDonnell, (2011),** who indicated that, mean age at symptom onset and diagnosis is the mid-30s .

As regard residence of the studied sample more than two third of the sample lived in urban areas. As this study carried out in Cairo "the capital" where the main and major health services as MS care society and

El-Demerdash hospital day care, and patients with MS who live in rural regions must always travel to the capital where they can have access to the proper health services.

Also these findings matched with **Vozikis, & Sotiropoulou (2013),** and who indicated that, the majority of patients were married (55.6%) and 81.9% live in the big city. On the other hand, 8.7% live in the village, as well, 34.7% indicated unemployed and their family help them to cover the costs of MS.

In addition the current study revealed that, two third of studied sample were employed, as well less than three fifth of the sample had monthly income enough to some extent. This is may be due to that, half of the studied sample felt at age group between 31-40 years old which considered main production years, as well as more than half of the sample were married, so they remained in full time work to fulfill marriage and treatment responsibilities.

This results are contradicted with **Mitchell et al., (2005),** who stated that, up to 70% of community dwelling patients with MS are unemployed, half of these due to the consequences of their disease. Within 10 years of onset, half of all patients with MS are unable to fulfill household and employment responsibilities.

Regarding health history of the studied sample in the current study, slightly less than two fifth of the sample experienced their first complains "clinical isolation syndrome" from 5-10 years, with mean 3.88 ± 3.2 years since diagnosis confirmation. The fact that MS symptoms flare-up and subside, combined with the unpredictability of symptoms, has made MS a difficult disease to be recognized, and treated.

This is consistent with **El-Nabil, & Ibrahim, (2008),** who studied sleep disturbance in multiple sclerosis, and mentioned that, the duration of MS in their studied sample ranged between 2 and10 years with a mean of 5.59 ± 2.98.

As regard disease pattern in the current study, the majority of studied sample experienced relapsing–remitting pattern of MS, as well as the highest percentage of them had previous relapses with mean number 4.36 ± 3.46.

It agrees with **Hashem, et al., (2010),** who studied epidemiology of multiple sclerosis in Egypt, and showed that 73.45% of patients had relapsing remitting type.

Additionally, this is supported by **Roche, et al., (2012),** who stated that, the majority of patients (85%) who develop MS will present with the relapsing-remitting form of the disease, and the annual relapse rate initially averages about 2-2.5 and thereafter drops to approximately one per year.

Concerning commitment to treatment in the current study, slightly more than two fifth of patient adhered to treatment, while one fifth of them not adhered to treatment. This is may be due to that patient trying to reduce prevalence from transition from RRMS to SPMS. As well as, the educational level of an individual affects the adherence to medical regimens, as slightly more than three fifth of the sample represented in the current study had finished university education, this supports a comprehensive patient education and support are vital in maintaining adherence to MS therapies.

This supported by **Courtney, (2014)**, who mentioned that, without treatment,

approximately half of individuals with RRMS convert to SPMS within 10 years.

According to patient's knowledge about MS, there are highly statistically significant differences were found between pre- and post- intervention as regard "nature, causes, manifestation, diagnosis, treatment, and total knowledge about disease". This is may be due to that slightly more than three fifth of the sample represented in the current study had finished university education and were young adults so they were able to practice self-learning about the disease and treatment.

Similarly, **Zohrevand, (2005),** studied the relation between multiple sclerosis and education and suggested that, training is more effective in people with college degrees.

This is in accordance with **Sahebalzamani, et al., (2012),** who stated that, lack of awareness and self-care deficit are among the reasons leading to frequent hospitalizations of MS patients. Thus, self-care training is primary linked with ability of patient to learn, which has an important role since it will prevent frequent hospitalizations, reduce frustration and increase confidence in MS patients.

The results of the current study showed that, there are highly statistically significant difference were found between mean scores pre- and post- intervention as regard physical health, total role limitations due to physical problems, health perception, pain, energy, social function, sexual function, change in health, role limitations due to emotional problems, emotional well-being, cognitive function, health distress, overall quality of life and total quality of life of patients with multiple sclerosis, (p=≤0.001).

These results can indicate the intervention to be effective on improving health related quality of life. This is may be contributed to the participants' young age, high educational level, and their participation in MS care society as a source of social support.

These results in accordance with **Ghodsbin, et al., (2013),** who investigate the effect of self-care education on the quality of life of patient referring to institute MS in Fars – Iran, and who stated that the findings of the research showed all aspects of QOL enhanced in patients that receive self-care education to a large extent. Paired t test showed a statistically significant difference in interventional group between before and after self-care education (P<0.001).

Also, in concordance with the results of the current study, **HamidReza et al., (2013),** carried out a study to investigate the effect of intervention based on health belief model on improving the quality of life in patients with multiple sclerosis, and found that after the intervention program, the average scores for the 8 aspects of quality of life: general health, physical functioning, mental health, physical role, emotional role, vitality, social functioning, and bodily pain had a significant difference compared to before the intervention (P <0.05).

As regards overall quality of life of patient with multiple sclerosis in the current study, there is highly statistically significant difference was found between pre-and post-intervention. This supports the psychosocial intervention and life style modification to have a positive impact on patients' quality of life this result matched with **Sahebalzamani, et al., (2012),** who revealed that training to be effective on well-being and quality of life from the patient's perspective (p = 0.001), i.e.

a significant difference was seen after the training.

However, **Solari, and Radice, (2001),** who studied health status of people with multiple sclerosis, and concluded that, training, had no effects on quality of life from the patient's perspective (p > 0.05).

The results of current study indicate that, there are highly statistically significant difference were found between mean scores pre- and post- intervention as regard physical health composite and mental health composite of patients with multiple sclerosis. This is may be contributed to the highest percentage of studied sample of current study complained from fatigue which is the primary determinant of poor QOL affecting both physical and mental components independent of disability level.

This was in accordance with **Pilutti (2012),** who studied the effect of adapted exercise interventions for persons with progressive multiple sclerosis, and who indicated that a significant improvement in both physical (p=0.02) and mental (p=0.01) subscales of the MSQoL-54 was found following 12 weeks of body weight supported treadmill training.

In this context, **Ahmadi, et al., (2010),** found that, the yoga intervention group showed a significant increase in physical and mental health composite by 10% (p=0.02) and 24% (p=0.00) respectively after 8-weeks.

The results of the current study revealed that, there are highly statistically significant differences were found between marital status and physical health composite; and mental health composite post- intervention (p=<0.000). In other words married patients had lower quality of life than single patients.

These results are similar to **Costa, et al., (2013),** who studied social characteristics and quality of life of Portuguese multiple sclerosis patients, and found a statistically significant relationship between marital status; and physical function and general health.

These results are contradicted with **Gottberg, et al., (2006),** who assessed health related quality of life in a population-based sample of people with multiple sclerosis in Stockholm County, and observed that there was no statistically significant relationship between marital status and HRQoL measures.

As well as, there are highly statistically significant differences were found between occupation and physical health composite post intervention (p=<0.000). Also, there are statistically significant differences were found between income and mental health composite post- intervention (p=<0.05).

In other word employed patients and those with adequate income had better quality of life than unemployed patients; this is may be contributed to financial consequences of employment, as they were able to fulfill treatment cost which in turn affect their physical health, as well as the intervention may positively affect their time planning, problem solving and stress management which in turn affect their mental health.

These results are coincided to **Costa, et al., (2013),** who stated that, the employment status of MS patients presents a statistically significant relationship with all HRQoL dimensions. Employed patients had better scores than those who were unemployed, retired and student/housewife/inactive, and these differences were statistically significant.

These results are similar to those obtained by **Gottberg, et al., (2006);** Shawaryn, et al., (2002); **and Pluta-Fuerst, et al., (2011),** and who clearly determined that patients with better employment status had better HRQoL measures than the unemployed or those who were not in paid employment.

The results of the current study showed that, there are highly statistically significant differences were found between educational level of patient with MS and their total knowledge pre- and post- intervention.

In other word, the higher level of education leads to more knowledge of participants. as educational level increased the patients' knowledge is increased, this is may be due to participants young age and increased commitment to treatment which aid them to acquire knowledge about their disease, as well, this results may indicate the psychosocial nursing intervention to be effective for patients with MS as a source of information.

This is similar to a study carried out by **Abolfazli, et al., (2014),** to study knowledge and attitude assessment of Iranian multiple sclerosis patients receiving interferon beta, and stated that level of education was significantly associated with patients' knowledge (P = 0.001).

Also, similar to study carried out by **Costa, et al., (2013),** and who mentioned that patients who had higher levels of education achieved better scores than those with lower education levels.

As well as, a highly statistically significant relationship between monthly income of patient with MS and their total knowledge post- intervention (p=<0.000).

This is may be due to psychosocial practices and skills which provided for them by this study intervention to be effective for them.

This similar to **Patti, et al., (2007)**, who studied the Effects of education level and employment status on HRQoL in early relapsing-remitting multiple sclerosis, and concluded that mental HRQOL is significantly influenced by level of education in MS patients and that higher level of education may result in better awareness of the disease, as well as an increased ability to cope with its challenges.

CONCLUSION

In the light of the present study findings, it can be concluded that:

- ✓ The implementation of psychosocial nursing intervention had a positive effect on quality of life of patients with multiple sclerosis
- ✓ There are highly statistically significant differences were found between mean scores pre- and post- intervention as regard knowledge about disease of patients with multiple sclerosis "nature, causes, manifestation, diagnosis, treatment, and total knowledge".
- ✓ There are highly statistically significant difference were found between mean scores pre- and post- intervention as regard MSQOL 54 domains, physical health composite, and mental health composite of patients with multiple sclerosis.
- ✓ There is highly statistically significant difference was found between mean scores pre-and post-intervention as regard Total overall quality of life of patients with multiple sclerosis.

RECOMMENDATIONS

The research hypothesis and findings of the current study showed that, the utilization of psychosocial nursing intervention has a positive effect on quality of life of patient with multiple sclerosis. Accordingly, the following are the main recommendations deduced by this research:

- **Clinically:**

Most clinicians adopt a drug only approach in disease modification. So, it is important to construct integrated approach by incorporating non-drug therapy (psychosocial intervention and life style modification) along with pharmacological therapies in MS management to improve quality of life of patients with MS.

- **Research:**

A further research is needed to carry out qualitative studies about the physical, emotional, social, and, spiritual consequences of MS especially in Egypt and in Arabic Nation.

- **Community:**

Establishment of formal governmental associations under the umbrella of health insurance system and affiliated to the Ministry of Health, to provide a medical examination, diagnostic procedures, medical care, health education, and low cost treatments. As well as, support people's efforts to remain productively employed as long as they are able and interested.

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