ORIGINAL ARTICLE

The Effect of an Educational Program on Fatigue Level Among Multiple Sclerosis Patients

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ABSTRACT

Background: Multiple sclerosis is a chronic disease that affect all aspects of the patients' life causing multiple progressive symptoms; most common fatigue which leads to dependency of patients on their family for carrying out their daily routine activities.
Aim: The present study aims at evaluating the effect of an educational program on fatigue level among multiple sclerosis patients.
Design: A quasi-experimental one-group pretest-posttest was used.
Setting: the study was conducted in multiple sclerosis outpatient clinic in El-Kasr El-Eini University Hospital.
Sample: A convenient sample of (250) multiple sclerosis patients.
Tools: Two tools were used: first tool was Structured MS patient dietary knowledge questionnaire, second tool was The Arabic Version of Modified Fatigue Impact Scale.
Results: Showed a highly statistical negative correlation between dietary knowledge and cognitive, psychosocial fatigue among MS patients in pre, post and 3 months after implementation of the program.
Conclusions: The results of this study indicated that MS patients' dietary knowledge improved after application of the educational program as well as there was a decline in MS patients' fatigue level with statically significance differences between pre, post and 3 months after application of the program.
Recommendation: Dissemination of dietary knowledge program among other multiple sclerosis patients.
Keywords: Multiple sclerosis patients, dietary knowledge, fatigue.

BACKGROUND

Multiple sclerosis (MS) is the silent killer not only for MS patients' life but also for the path of the community development. The disease most commonly appears in people aged 20 to 40 years, the age group who considered to be the economically active population and the backbone of the national economy. Multiple sclerosis affects individuals during the most productive time of their life and directly limits their work capacity leading to tremendous social and economic consequences (Ibrahim, 2018).

Multiple sclerosis is unpredictable in its overall course, in the type and severity of symptoms experienced by each patient, and in its long-term outcome. Symptoms of MS are extremely varied and depend on the location and severity of the lesions within the central nervous system. Multiple sclerosis (MS) always associated with muscle weakness, numbness, pain and fatigue is actually the most common, most often reported symptom and one of the most disabling symptoms of multiple sclerosis. Nearly 70 : 85% of people diagnosed with MS experience fatigue at some point (Marck., et al.,2018).

Although it's an invisible symptom, fatigue is very real problem for MS patient. It is considered the most disabling symptom. Fatigue which is associated with MS is very difficult to cope with, and is also difficult to be explained to other people. MS fatigue can be overwhelming and for some people it is considered a critical problem which have a negative impact on work and family life, mental , physical health, social and recreational activities(Riccio and Rossano, 2015).

Multiple sclerosis is thought to be a result from a combination of genetic predisposition and environmental influences. Diet has a significant impact on body weight, cholesterol levels, and other vascular risk factors that affect MS risk and disease course. So, increasing dietary knowledge of MS patients will help them to choose healthy diet which help decreasing their fatigue level (Payamani et al., 2016).

There are few studies conducted in Egypt in relation to the effect of an educational program on MS patients' fatigue in Egypt.So, the results of this study will add to the nursing body of knowledge and will improve MS patients' dietary knowledge and help in decreasing their fatigue level. More over eating healthy diet will help in decrease fatigue level, promote MS patients' health, and prevent relapses and exaggeration of MS symptoms

Aim of the study: The present study aims at evaluating the effect of an educational program on fatigue level among multiple sclerosis patients

Research hypotheses:
To fulfill the aim of the study, the following hypotheses were formulated:
H1: The mean scores of MS patient dietary knowledge questionnaire will be increased after implementation of the educational program.
H2: The mean scores of Modified Fatigue Impact Scale will be decreased after Implementation of the educational program.

Research Design: Quasi-experimental one group pre-test-post-test design was utilized to fulfill the aim of the study.
Setting: The current study conducted in multiple sclerosis outpatient clinic in El-Kasr El-Einy University Hospital.

Sample: A convenient sample of (250) multiple sclerosis patients without cognitive or memory impairment was collected during a six months period.

Tools of Data Collection:

First tool: Structured MS patient's dietary knowledge questionnaire: It was developed by the researcher and is divided into 2parts:

Part one: MS patients' demographic characteristics: It was used only before the implementation of training program. It includes 23 questions about demographic characteristics such as age and education.

Part two: MS patients' dietary knowledge: It includes 50 questions about knowledge of MS patients about components and sources of healthy diet as protein and carbohydrates.

Scoring of Construction workers' first aid knowledge: For each question, every correct answer was scored 1 and every incorrect answer or don't know was scored zero. Total knowledge was categorized as less than 60% is considered unsatisfactory, 60% to less than 75% is partially satisfactory and 75% or more is considered satisfactory (Abd El-Hay , El.Mezayen, 2015).

Second tool: The Arabic Version of Modified Fatigue Impact Scale: It is adopted from Fisk et al, (1994). It is a structured, self-report questionnaire that consists of 21 questions forming three sub-scales; physical, cognitive, and psychosocial functioning. It is used to assess fatigue level during the past month.

Scoring of The Arabic Version of Modified Fatigue Impact Scale: Each question response rates from 0 for never – 4 for almost always .The total score of the MFIS is the sum of the scores of the 21 items. The higher scores indicate a greater impact of fatigue on a person's activities.

Content Validity: Five experts of community health nursing department, Cairo University were asked to check the dietary knowledge questionnaire for its content validity and modifications of content were done according to panel judgment on clarity of sentences and appropriateness of the content. Reliability of the knowledge tool and fatigue scale were tested using cronbach's alpha (r) = 0.84 and 0.81 respectively.

Data collection procedure: An official permission was obtained from Research Ethics Committee and related committees at Faculty of Nursing, Cairo University to conduct the study. An official permission was obtained from manager of the Kasr El- Ainy then from the head of Kasr El- Ainy neurology department. The purpose and the nature of the study were explained to MS patients. The researcher emphasized that, MS patients in the study were entirely volunteer, anonymity and confidentiality was assured through data code and written informed consent was obtained from patients.

The study was carried out on 4 phases: assessment phase, planning phase, implementation and evaluation phases.

Assessment phase, assessment of the MS patients' dietary knowledge by using structured interview questionnaire and fatigue level using modified fatigue impact scale.

Planning and designing phase: Based on the results of the assessment phase, comprehensive review of relevant literature, the researcher designed the educational program to improve MS patients' dietary knowledge and decrease fatigue level.

Implementation phase: This phase was concerned with the implementation of the educational program. Multiple sclerosis patients were divided into small groups of 15-20 patients for each session, the program was carried out on 2 sessions in the form of group teaching classes and discussion. The educational sessions included careful explanation of balanced healthy diet; definition, component, sources and the importance of eating healthy diet for decreasing the number of MS episodic attacks and fatigue level. At the end of every session, the researcher summarized the content of the session and allowed the patients to ask questions then answer these questions, correct any misunderstanding. At the end of the sessions, booklet containing the main points was distributed to MS patients who attended the sessions to be used as a guide for them.

During evaluation phase, the researcher reassesses the same MS patients by using the same tools post and three months after implementation of the educational program in order to assess the degree of the knowledge, change in their fatigue level after implementation of the educational program.

Ethical and legal considerations: A written approval was obtained from the Committee of Research Ethics at the Faculty of Nursing, Cairo-University and from manager of the Kasr El- Ainy then from the head of Kasr El- Ainy neurology department. The researcher informed MS patients that all data gathered during the study would be confidential and they had the right to withdraw from the study at any time without giving any reason.

Statistical Analysis: Statistical Package for the Social Sciences (SPSS) program, version 20. Numerical data were expressed as means and standard deviations. Quantitative data were expressed as frequencies and percentages. Comparison between pretest, posttest, and 3 months follow up test was done by using t-test and ANOVA.

RESULTS

Table 1: Frequency distribution of demographic characteristics of multiple sclerosis patients (N=250).

Variables (Personal data)	N	%
Marital status		
Single	94	37.6
Married	145	58.0
Divorced	11	4.4
Gender		
Male	75	30
Female	175	70
Income		
Enough	65	26.0
Not Enough	62	24.8
Not enough & borrow	123	49.2
Work		
No	165	66.0
Yes	85	34.0
Education		
Primary	41	16.4
Secondary	102	40.8
University	107	42.8

Table (1) indicates that 58% of MS patients were married and only 4.4% were divorced. Regarding to gender, 70% of MS patients were females while 30% were males. As regard to income, 49.2% of MS patients didn't have enough income and need to borrow. According to work, 34.0% of the MS patients were working, Regarding education, 42.8% of MS patients were university educated.
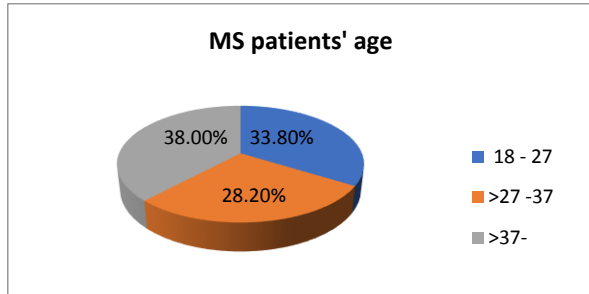

Figure 1: Percentage distribution of multiple sclerosis patients' age (n=250).
Figure 1: Indicates that, 38% of the MS patients age was >37- 47 years, while 33.80% of them were between 18-27 years.
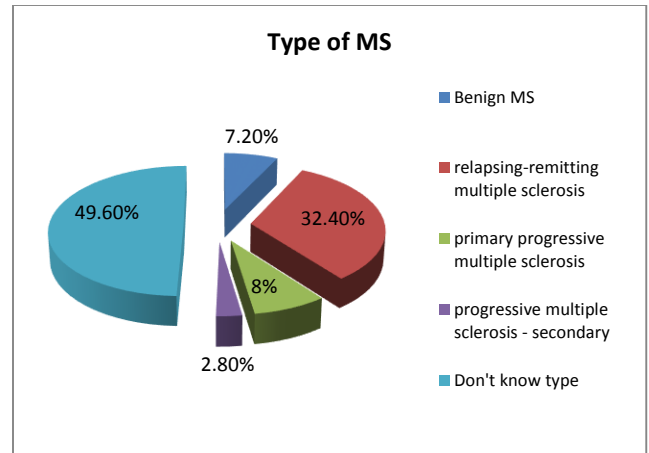

Figure 2: Percentage distribution of multiple sclerosis types (n=250).

Figure (2) indicates that, 49.6 % of multiple sclerosis patients don't know their MS type while 32.4 % had relapsing-remitting multiple sclerosis.
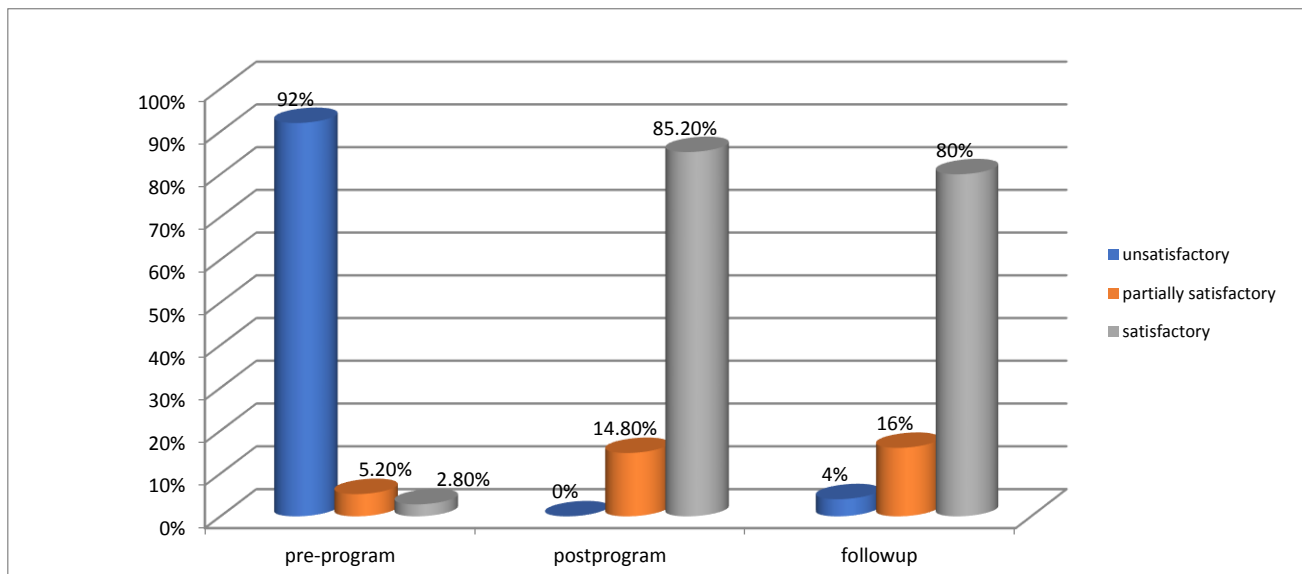

Figure 3: Difference between MS patients' dietary knowledge levels through program phases (pre, post-program and follow up) (n=250).

Table 2: Difference between MS patients' physical, cognitive and psychological fatigue subscales through program phases (pre, post-program, and follow up) (n=250).

Subscale	Pre program		Post program		Follow up		ANOVA test	p-value
	Mean	SD	Mean	SD	Mean	SD		
Physical	22.29	6.17	20.45	4.47	21.67	6.22	6.768	.001*
Cognitive	23.11	7.66	20.70	5.75	22.35	7.55	7.684	.0001*
Psychosocial	4.78	1.57	4.28	1.34	4.74	1.51	8.793	.0001*
Total	50.18	13.55	45.43	9.14	48.76	13.60	9.853	.000*

*Significant at p-value<0.05.

It is obvious in figure (3) that, there was a highly statistical significant improvement in dietary knowledge level of MS patients through the program phases (preprogram, post, and 3 months after implementation of the program); 85.2% , 80 % of MS patients had satisfactory level of dietary knowledge in posttest and follow up test respectively as compared to 2.8% in the pretest.

Table (2) verifies a significant decrease in physical, cognitive and psychological fatigue subscales of MS patients in immediately post program and in follow up compared to preprogram (P=.001), (P=.0001), and

(P=.0001) respectively. Also, table (2) summarizes a significant decrease in total Modified Fatigue Impact Scale (MFIS) score of MS patients in immediately post program and in follow up compared to preprogram (P=.000).

Table 3: Correlation between fatigue mean score and dietary knowledge mean score among MS patients through program phases (pre, post- program and follow up) (n=250).

Fatigue score	Knowledge score	
	r	p
Physical	0.08	0.16
Cognitive	-0.16	0.01*
Psychosocial	-0.34	0.0001*
Total	-0.04	0.52

*significant at p-value<0.05

Table (3) indicates a highly statistical negative correlation between dietary knowledge mean score and cognitive , psychosocial fatigue score among MS patients in pre, post and follow up test (P=0.01).

DISCUSSION

Multiple sclerosis (MS) is a chronic central nervous system disease with inflammatory and neurodegenerative components.MS is a mysterious disease as the cause of it is still unknown. Experts think both genetic and environmental factors may play a role. As MS progresses, patients encounter new manifestations of the disease, fatigue is a real serious symptom that face MS patients (Payamani et al., 2016).

The results of the current study showed an improvement in MS patients' knowledge after implementation of the educational program and this results in accordance with many researches as the study done by Mohammed, Abou Zed , 2020 in Qena on 60 adolescents to evaluate the effect of educational program on frequency of epileptic attacks and self-efficacy for adolescents. The study results indicated that there were statistically significant differences between mean scores of the pre and post implementation of the educational program as regards adolescents' dietary knowledge regarding frequency of epileptic attacks.

In this study, after the education, participants adhered to a recommended diet and meal planning significantly more and had better knowledge regarding foods that increase blood glucose. These results clearly point to the positive effect of education on the knowledge and behavior of the participants in this study.

The results of the current study was supported with a study done by Gvozdanović et al., 2019 on 109 diabetic patients with the aim to examine the effect of dietary education on glycemic control in patients with any type of diabetes at four-week and two-year follow-up, the result of this study indicated that there was a significant difference in the patients' dietary knowledge before and after education, patients had better knowledge regarding foods that increase blood glucose after education.

Regarding MS patients fatigue level, the current study results indicates a significant decrease in fatigue subscales of MS patients in immediately post program and in follow up compared to pre-program. These results in the same line with the study done by Wang, etal., 2016 on 22 patients with heart failure to investigate the effects of a

supportive educational nursing care program on fatigue in patients with heart failure. The participants in the intervention group exhibited a significant decrease in the level of fatigue after 12 weeks, whereas those in the control group exhibited no significant changes compared with the control group.

The current study results indicates a highly statistical negative correlation between dietary knowledge mean score and cognitive , psychosocial fatigue score among MS patients in pre, post and follow up test (P=0.01). This results in the same line with the study done by Gunhild M. Gjerset, Cecilie Kiserud, Jon håvard Loge, Sophie D. Fosså, 2019 on 26 Cancer survivors to compare the level of fatigue and health-related quality of life (HRQOL) of cancer survivors admitted to a one-week inpatient educational program, the result of this study indicated that there were statistically significant improvement in physical fatigue, in total fatigue and with negative correlation between their knowledge and fatigue level throughout the study at (P = 0.004).

CONCLUSION

The results of this study indicated that MS patients' dietary knowledge had been improved after application of the educational program with statically significance differences between pre, post and follow up test. Also MS patients' fatigue level decreased after implementation of the program.

Recommendations

Based on the results of the current study, the following recommendations are suggested:
1- Dissemination of educational program among other MS patients in other MS units.
2- Future researches should be implemented to study the effect of educational program on MS patients' fatigue level on anther sample and in different settings.
3- Campaign should be done to inform the public with MS disease.

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