

Health Literacy of Multiple Sclerosis among Youth

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Abstract

Background: Multiple sclerosis (MS) is an immune disease affecting the central nervous system that causes disability. MS affects an estimated 2.5 million people across the world, with unknown definite etiology. Lack of knowledge about the disease decreases the opportunity for better disease outcome. Aims: to assess the knowledge about MS with evaluation of the health education campaign in rising up the student's awareness in Fayoum University, Egypt.

Subjects & Methods: An Interventional study carried out on 1500 Fayoum University students randomly selected by multistage technique. A structured questionnaire used to assess the knowledge level before and after a health education campaign.

Results: 1446 students completed the questionnaire. Female participants represented (60.9%) of all the participants. Only (1.1%) of students had previous knowledge about (MS) disease. The level of increase in knowledge was significantly higher in females (17.7 ± 3.6) ($p < 0.001$) and those who had a family history of (MS) disease (18.6 ± 2.2) ($p = 0.02$).

Conclusion: Health education campaign improves the level of knowledge, this information aid in early detection, with proper management of the disease.

Keywords: Multiple Sclerosis (MS); Youth; Awareness; Promotion; Literacy

Introduction

Multiple sclerosis (MS) is a chronic inflammatory demyelinating disease of the central nervous system (CNS). It is the most common cause of non-traumatic disability in young adults [1]. MS affects an estimated 2.8 million people across the world, with a higher prevalence and incidence in the northern hemisphere [2]. The incidence of MS is low in childhood and increases after the age of 18, reaching a peak between 20 and 40 years with the mean age of incidence are 30 years; and women affected earlier than men did by 2–5 years, with a decrease in the incidence above the age of 50 years [3]. Around 30000 cases under age of 18 years old, every 5 minutes a cases of MS diagnosed. In Egypt the prevalence of disease was 59 per 100000 populations, with 75% of cases were females versus 25% were males with 2% of them were children. In Egypt 65% of cases were relapsed type, 25% were secondary progressive, and 10% were primary progressive type [4].

The etiology of MS is unknown. However, several epidemiological data recognized that both environmental and genetic factors play an essential role in the development of MS, with obvious variations in different regions [5,6]. In Europe, the prevalence rate of MS is about 83:100,000. On the other hand, the exact prevalence of multiple sclerosis in Egypt is unknown, as there is no organized national survey carried out for this purpose. The prevalence of MS among neurologic disease patients was 1.41% [7]. A survey done in Al Quseir city, Egypt found that the MS age specific prevalence of more than 17 years was 13.7/100,000, also age and sex specific prevalence of MS was 27.5/100,000 for female more than 17 years of age [8]. This indicates that MS is more common in women than in men, and the female-to-male ratio has increased over the last decades from 1.4 in the year (1955) to 2.3 in year (2000). This corresponds to a lifetime risk of 2.11% in women compared to 1% in men [3,5].

Increasing the overall prevalence of MS contributed to the longer life expectancy of MS patients rather than an increased overall disease risk [6]. It explained by advances in diagnosing and early treatment that slows the disease progression and reduces disabilities with maximizing lifelong brain health [9,10]. As MS is an unpredictable, disabling disease, a lack of knowledge about the disease

symptoms may cause patients to present late and miss the opportunity for better disease outcome. So, improvement of the public awareness about the disease will benefit in early intervention as proper diagnosis, effective management to delay complication and better prognosis [11]. The current study aims to assess the knowledge among university students about MS with evaluation of the health education campaign in rising up the student's awareness about the disease in Fayoum University, Egypt.

Methods

An Interventional study conducted in the months of October - November 2019 in the Fayoum University. First step was to conduct a cross sectional descriptive survey of 1500 students out of 25,000 Fayoum University students to assess their knowledge about MS; they were randomly selected by multi stage random sample, first stage was a cluster technique from various faculties; The second stage was a stratified random sampled to include more female students. The substantial criteria for sample selection included: first year students aged 18–20 years; as this was the peak age of incidence.

The knowledge of the students assessed using a questionnaire before starting the educational intervention and after the end of the two weeks intervention. A structured questionnaire in Arabic language developed based on the information drawn from literature and formal discussions with experts then the questionnaire was pretested; it included three sections; the first section described the demographic information such as age, sex, and residence. The second section determined student's knowledge about disease epidemiology (7 questions) and symptoms of MS (15 questions). The third section includes affection of the student's relatives with MS and the physician specialty that they asked for help and the correct physician specialty that must be targeted (3 questions). The questionnaires administered and collected in the same setting, the questions answered by yes or no except for the last section with multiple choices; each correct answer scored by two and incorrect scored from zero to summate the total knowledge score. All the questions pre-coded for easy data entry.

Second step was to prepare health education materials and delivered the messages. The educational intervention content included PowerPoint presentation lectures about basic concepts of (MS), focusing on anatomy and function of the brain; symptoms for early detection of the disease to seek prompt medical consultation with the proper physician and general preventive measures to avoid complications. The intervention, educational session carried out for two months. The students divided into groups. Each group included 50 students; each group received two sessions with one separate session per week. The total number of students' groups was 30 groups, and 60 sessions of health education, that provided in duration of two months. The key messages of educational lectures carried out, at the end of the session brochure designed as take-home messages to enhance their understanding.

Ethical Consideration

Students informed about the aim of the study and the topic addressed. Participation was voluntary; permission from the lecturer was a prerequisite for class participation. A written consent obtained from all the students who agreed to participate in the study. All procedures performed in the study were in accordance with the ethical standards of Helsinki Declaration and approved by the Faculty of Medicine Fayoum research ethics committee.

Statistical Analysis

Simple descriptive analysis in the form of numbers and percentages of qualitative data, and arithmetic means as central tendency measurement, standard deviations as a measure of dispersion of quantitative parametric data. Quantitative data included in the study first tested for normality by One-Sample Kolmogorov-Smirnov test in each study group then inferential statistic tests selected. For quantitative parametric data: In-dependent student t-Test used to compare measures of two independent groups, and paired T-test for two dependent groups. For qualitative data; Chi square test to compare two of more than two qualitative groups. The P-value < 0.05 considered the cutoff value for significance.

Results

Information about MS disease		Before		After		P-value
		No.	%	No.	%	
Previous knowledge about MS		16	1.10%	1236	85.50%	<0.001*
MS is immune to disease		10	0.69%	1304	90.20%	<0.001*
MS is a genetic disease		11	0.76%	752	52.00%	<0.001*
MS associated with viral infection		5	0.35%	1277	88.30%	<0.001*
MS associated with Vit D deficiency		4	0.28%	1295	89.60%	<0.001*
Affected gender with MS	Females	11	0.76%	1332	92.10%	<0.001*
	Males	5	0.35%	114	7.90%	
Susceptible age group	<16 years	5	0.35%	172	11.90%	<0.001*
	16-40 years	9	0.62%	1223	84.60%	
	>40 years	2	0.14%	51	3.50%	

*statistical significance difference with p-value <0.05

Table 1: Comparison of knowledge level about MS disease etiology among study group

A study conducted on 1500 students; 1446 were complete the questionnaire with a response rate of (96.4%). They distributed as 566 (39.1%) of the study group were males versus 880 (60.9%) were females. Also 811 (56.1%) of them were living in rural areas, while 635 (43.9%) were living in urban areas. Knowledge about the etiology, age and sex susceptibility of Multiple Sclerosis (MS) disease assessed among students. It illustrated that only (1.1%) of them had previous knowledge about (MS) disease, which statistically significantly increased in all items about the disease after the health education session intervention; this increase was ranged between (52% and 90.2%) for the item of considering (MS) as a genetic disease, and as an immune disease respectively (Table 1).

Knowledge about Multiple Sclerosis (MS) disease symptoms was less than (1%) of before intervention, which statistically significant increased to percentage ranged between (74.2% and 90.9%) after the intervention of health education (Table 2).

Symptoms of MS disease	Before		After		p-value
	No.	%	No.	%	
Dizziness and easy fatigue	10	0.69%	1301	90%	<0.001*
Peripheral tingling & numbness	11	0.76%	1314	90.90%	<0.001*
Muscle cramps, spasm, or stiffness	5	0.35%	1206	83.40%	<0.001*
Weakness of one limb	9	0.62%	1129	78.10%	<0.001*
Imbalance	11	0.76%	1125	77.80%	<0.001*
Dull vision	5	0.35%	1143	79.00%	<0.001*
Diplopia (double vision)	10	0.69%	1073	74.20%	<0.001*
Colors appear dull	11	0.76%	1121	77.50%	<0.001*
Partial or total blindness	5	0.35%	1130	78.10%	<0.001*
Bladder problems	9	0.62%	1136	78.60%	<0.001*
Swallowing difficulty	9	0.62%	1103	76.30%	<0.001*
Nausea	10	0.69%	1165	80.60%	<0.001*
Speech difficulty	11	0.76%	1276	88.20%	<0.001*
Dementia; fuzzy memory	5	0.35%	1297	89.70%	<0.001*
Sleep disorders	9	0.62%	1248	86.30%	<0.001*

*statistical significance difference with p-value <0.05

Table 2: Comparison of Knowledge about MS Symptoms among study group

Only (1.1%) of the students involved in the study were known about (MS), 31.3% of them know about (MS) because one of the parents affected by the disease, and (12.5%) of them had affected relatives. As regards specialist, they consulted for diagnosis and management; (37.5%) of them seek medical advices from neurology, which is the correct specialty, but the rest of them mention other specialties, which could not diagnose or manage (MS) disease, but after health education the percentage of consulting correct specialty increased to (90%) (Table 3).

Variables	Frequency	Percentage
Know patients with MS [n=16 (1.1%)]		
One of parents	5	31.30%
Brothers /sisters	3	18.80%
Friend	3	18.80%
Uncle / aunt	3	18.80%
Cousin	2	12.50%
Actual consulted Specialist		
Neurology	6	37.50%
General practitioner	3	18.80%
Internal medicine	2	12.50%
Ear –nose- throat	1	6.30%
Physiotherapy	1	6.30%
Immunology	1	6.30%
Different specialist	1	6.30%
Mediation and spiritual treatment	1	6.30%
Correct Specialty for consultation		
Neurology	1302	90%
Other specialty*	144	10%

*Other specialty (Ear –nose- throat, General practitioner, Physiotherapy, Immunology, Internal medicine and surgery)

Table 3: Frequency of student’s relatives affected with MS

There was a statistically significant increase in knowledge score about (MS) disease after providing health education sessions, with p-value <0.001, also there is a statistically significant higher mean of knowledge score among female, and students who had affected relatives, as well as students who consulted right specialty with p-value <0.001. On the other hand, there is no statistically significant different in knowledge score after health education sessions with p-value >0.05 between urban and rural areas (Table 4).

Variables	Knowledge score after HE sessions		P-value
	Mean \pm SD		
Mean knowledge score (before and after)			
Before	0.69 \pm 3.3		<0.001*
After	17.3 \pm 3.9		
Sex			
Male	16.6 \pm 4.4		<0.001*
Female	17.7 \pm 3.6		
Residence			
Rural	17.4 \pm 4.1		0.1
Urban	17.1 \pm 3.7		
Have relative			
Yes	18.6 \pm 2.2		0.02*
No	17.2 \pm 3.9		
Correct specialty			
Correct	17.4 \pm 3.9		0.005*
Incorrect	16.4 \pm 4.4		

Table 4: Comparisons of knowledge score in different study variables

Discussion

The current study intent was assessing the effect of health education in increasing student's awareness about the MS in Fayoum. The study results revealed poor knowledge about MS with only 1.1% of the students new the disease. The mean knowledge score among the study group was (0.69 \pm 3.3) this is consistent, but much worse than Saudi studies that found levels of knowledge about the disease was low. Despite that, they both found that about one third of their participant's knew about MS [11,12]. In a different context, a study done among MS patients reported low knowledge levels, especially about the disease types, diagnostic measures, and treatment efficacy [13]. In addition, in an Iranian study among early-diagnosed MS patients, it found that patients' knowledge about treatment was very low [14].

Generally, public awareness of MS is poor, and this limited knowledge delays the early diagnosis and treatment of patients [15] especially early symptoms of the disease may cause patients present late and miss the opportunity to gain the benefits of early intervention [16]. Multiple studies stated that an early recognition of the inflammatory process of the disease enables patients to begin treatment even before the technical diagnosis of definite MS so that the degenerative progression of MS can retard [15,16]. Not only in physical but also in psychological terms, the quality of life of MS patients is conditioned; thus, there is a need to seek care, support, and professional rehabilitation of patients in relation to psychological assistance. A holistic approach to the patient should be the complete recovery package and include physical, cognitive, mental, family, and social aspects [17]. Unfortunately, we found that less than 1% of our students knew about MS symptoms, and regarding doctors to consult when such symptoms appear almost none of them knew whom to consult.

On the other hand, regarding the portion of our students who knew somebody had the disease, only 37.5% of them reported that they already consulted a Neurology specialist, but after health education session, this percentage increased to 90%. Increase in the knowledge about the disease symptoms and specialty to consult save time for the patients, make early diagnosis and treatment [11]. This necessitates increasing public knowledge about the disease, especially in the most affected age groups by repeated health education. After conducting health education, we found that the mean knowledge score had significantly increased. This is consistent with two studies that both found that educational interventions increase knowledge, awareness and self-efficacy [18,19]. We also found the mean knowledge score was significantly higher among females and those who had a family history of the disease. This is similar to studies conducted in Saudi Arabia [13,14]. Females realized that they were highly susceptible to MS disease, so they became more interested to gain more information about it. Participants who knew somebody with the disease had a significant higher knowledge level, as the main source of information was exposure to cases [11,12]. It explained by knowing somebody with the disease would increase motivation to gain more knowledge about it.

Conclusion & Recommendations

The current study concluded that there was a low level of MS disease awareness, especially in terms of demographic characteristics, symptoms, and consultation specialty. The campaign for health education has improved the level of awareness, especially among women and students who have known someone with the disease. This knowledge will help to design more focused public health education program that can help to diagnose MS early, treat the disease better, improve the prognosis of disease, and imitate complications.

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