

## Awareness of Patient Regarding Multi Sclerosis at Al-Monira Outpatient Clinics

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### Abstract

**Background:** Multi Sclerosis is a chronic autoimmune disease that affects the central nervous system, leading to symptoms as fatigue, numbness, difficulty with coordination and balance, and vision problems. When patients are well-informed about the symptoms and progression of MS, more likely to seek timely medical advice, leading to a quicker diagnosis and more effective treatment options. **Aim:** This study aimed to assess the awareness of patient regarding multi sclerosis at al-Monira outpatient clinics. **Research design:** A descriptive study design was used to conduct the study. **Setting:** Brain and Nerve Clinic at Al-Monira Outpatient Clinics. **Sample:** Purposive sample used to choose 110 patients. **Tool of data collection:** One tool included five parts, **1<sup>st</sup> part:** Demographic characteristics, **2<sup>nd</sup> part:** Medical history, **3<sup>rd</sup> part:** Knowledge of patients about multi sclerosis, **4<sup>th</sup> part:** Patient's reported practices, and **5<sup>th</sup> part:** Patient's attitude toward multi sclerosis. **Results:** 60.2 % of the studied patient had poor knowledge. While, 55.1 % of them had unsatisfactory total reported practices regarding multi sclerosis and 70.2 % of the studied patient had negative total attitude. There was highly statistically significant relation between studied patient's total knowledge, total reported practices and total attitude and all items of demographic characteristics **Conclusion:** More than quarter of the studied patients had average total knowledge, and less than half of them had satisfactory total reported practices. While, less one third had positive total attitude toward multi sclerosis. There a relation between patients' knowledge, reported practices and attitude towards multi sclerosis. There is highly statistically significant relation between patients' demographic characteristics and their knowledge, reported practices and attitude towards multi sclerosis. **Recommendations:** Provide health education program for patients about multi sclerosis to improve their condition.

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**Keywords:** *Al-Monira Outpatient Clinics, Awareness, Multi Sclerosis and Patient*

### Introduction:

Multiple Sclerosis (MS) is a chronic autoimmune disease that affects the central nervous system, particularly the brain and spinal cord. In MS, the body's immune system mistakenly attacks the protective covering of nerve fibers, called myelin, causing inflammation and damage. This disruption slows or blocks the transmission of electrical signals between the brain and the rest of the body, leading to a wide range of neurological symptoms (Jafari et al., 2024).

Prevalence of MS a total of 2.8 million patients is estimated to live with MS worldwide 35.9 per 100.000 population. MS prevalence has increased in every world region since 2013 but gaps in prevalence estimates persist. The pooled incidence rate across 75 reporting countries is 2.1 per 100.000 patients/year, and the mean age of diagnosis is 32 years. Females are twice as likely to live with MS as males. In Egypt, found about 1.41 % or 14.1 per 1000 other neurological diseases (Khedr et al., 2024).

The exact cause of MS remains unknown, but it is believed to result from a combination of genetic and environmental factors. MS is classified as an autoimmune disorder, where the body's immune system mistakenly attacks the protective sheath (myelin) that covers nerve fibers in the central nervous system. This damage disrupts

communication between the brain and the rest of the body, leading to the neurological symptoms of the disease (*Allogmanny et al., 2024*). Genetic factors play a role, as patients with a family history of MS are at a higher risk, although the condition is not directly inherited. Environmental factors, as viral infections (particularly the Epstein-Barr virus), low vitamin D levels, and smoking, have also been linked to an increased risk of developing MS. Additionally, geographic location plays a role, as MS is more common in regions farther from the equator, suggesting that sunlight exposure and vitamin D may influence the disease's development (*Bobillo et al., 2023*).

Signs and symptoms of MS can vary widely from person to person, depending on the severity and location of the nerve damage in the central nervous system. Common symptoms include fatigue, muscle weakness, numbness or tingling in the limbs, and difficulty with coordination or balance. Many patients with MS experience vision problems as blurred or double vision, or even temporary loss of vision in one eye, a condition known as optic neuritis. Patients with MS may have difficulty walking due to muscle stiffness (spasticity) and impaired motor control. Other symptoms include bladder and bowel problems, cognitive changes like memory loss or difficulty concentrating, and emotional disturbances such as depression or anxiety (*Carlson & Fox, 2024*).

Several risk factors are associated with the development of MS, though the exact cause remains unclear. One of the most significant risk factors is genetics, age, gender, women are two to three times more likely to develop MS than men. Environmental factors, as vitamin D deficiency due to less sunlight exposure may contribute to the risk. Additionally, viral infections, particularly the Epstein-Barr virus (the virus that causes mononucleosis), have been implicated in triggering MS in genetically predisposed patients. Smoking is another modifiable risk factor that has been shown to increase the likelihood of developing MS and can worsen disease progression (*Clarelli et al., 2024*).

There is no single test to definitively diagnose MS; instead, physician use a combination of methods. Thorough medical history and neurological examination are essential first steps, followed by diagnostic tests as Magnetic Resonance Imaging (MRI), which can detect lesions or areas of damage in the brain and spinal cord. Lumbar puncture (spinal tap) is another diagnostic tool that may reveal abnormal levels of certain proteins in the cerebrospinal fluid, which are characteristic of MS. Additionally, evoked potential tests measure the electrical activity in the brain in response to stimuli, helping to identify nerve pathway disruptions (*Fymat, 2023*).

Various treatments are available to manage the disease and improve quality of life. Disease-Modifying Therapies (DMTs), as interferons or monoclonal antibodies, aim to slow the progression of the disease and reduce the frequency of relapses by targeting the immune system. Steroids used to manage acute flare-ups by reducing inflammation. For symptom management, medications can help address specific issues as muscle spasticity, fatigue, pain, and depression. Additionally, a multidisciplinary approach to treatment, including physical therapy, occupational therapy, and psychological support, can assist individuals in managing the physical and emotional challenges of living with MS (*Giuliano et al., 2024*).

Multiple sclerosis can lead to a range of complications that significantly impact a patient's daily life and long-term health. Over time, the progressive nerve damage caused by MS can result in increasing disability, including difficulty with mobility, muscle weakness, and loss of coordination. As the disease affects the central nervous system, patients may experience cognitive impairment, as memory loss, difficulty concentrating, or problems with problem-solving, vision problems, bladder and bowel dysfunction emotional and psychological complications, and infections, particularly urinary tract infections or respiratory infections (*Hsieh et al., 2023*).

Community Health Nurses (CHNs) play a crucial role in supporting patients with MS by providing education, advocacy, and care coordination. Nurses are often the first point of contact for patients in community settings, helping to raise awareness about MS, its symptoms, and the importance of early diagnosis and treatment. These nurses educate patients and their families on managing the disease, offering practical advice on coping with daily challenges as fatigue, mobility issues, and medication management (*Kania et al., 2023*). Nurses provide emotional support, helping patients with MS navigate the psychological and emotional challenges that can arise, as anxiety or depression. CHN serve as advocates, connecting patients with necessary resources, support groups, and rehabilitation services, and ensuring nurses have access to essential healthcare services (*Levard et al., 2024*).

**Significance of the study:**

There are approximately 7.673 billion patients in the world. Of those, around 2.8 million have been diagnosed with MS. Based on that data, less than 1% of the population has MS. MS is thought to be relatively uncommon in the Asia Pacific region with prevalence estimated between 0 and 20 per 100,000. There is reason to doubt these estimates due to lack of data from many countries and the growing evidence of variability in prevalence across small geographic areas. Long believed to be a disease primarily of white people. Recently, incidence of MS is highest in black followed by white patients and significantly lower in Hispanic and Asian individuals residing in southern California (*Noseworthy et al., 2022*).

National MS Society estimate that nearly 1 million people in the United States (US) are living with MS. This is more than double the last reported number and the first national research on MS prevalence since 2022. Many four times as many women have MS as men. Although more patients are being diagnosed with MS today than in the past, the reasons for this are not clear. In Egypt, the Ministry of Health and Population's statistics show that MS cases comprise 1.4 % of all neurological diseases (*Hamdy et al., 2023*).

Community health nurse help patients to modifies a lifestyle which the most effective approach to managing MS successfully and reducing the severity of symptoms includes get plenty of rest, regular exercise can help improve strength, muscle tone, balance and coordination, avoiding exposure to heat and using devices as cooling scarves or vests, support a particular diet as vitamin D, and relieve stress result cause worsen signs and symptoms through yoga, tai chi, massage, meditation or deep breathing (*Daroff, 2022*). So, Therefore, it was important to assess awareness of patient regarding multi sclerosis at Al-Monira Outpatient Clinics.

**Aim of the study:**

This study aimed to assess the awareness of patient regarding multi sclerosis at al-Monira outpatient clinics through the following:

- 1-Assessing patients' knowledge about multi sclerosis.
- 2- Appraising patients' reported practices regarding care of multi sclerosis.
- 3- Evaluating patients' attitude toward multi sclerosis.

**Research questions:**

- 1-What is the patients' knowledge about multi sclerosis?
- 2-What are the patients' reported practices regarding the prevention of multi sclerosis?
- 3- What is the patients' attitude regarding multi sclerosis?
- 4-Is there relation between patients' knowledge, practice, attitude and their demographic data?

**Subjects and Methods:****Research design:**

A descriptive research design was used to achieve the aim of the study.

**Study Setting:**

This study was conducted in Brain and Nerve Clinic at al-Monira outpatient clinics. The outpatient clinic includes two rooms for the checkup, reception for the patients and room for oxygen pressure. All clinics were opened in the same direction and fulfilled with personnel protective equipment. One room for lab investigation beside the clinics. Two bathrooms are available for all clinics. Clinics are located in the second floor. It includes two physicians and two nurses. The working in this clinic was two days per week Tuesday & Thursday from 9.00 Am-1.00 Pm.

**Type of sample:**

A purposive sample was used in this study.

**Sample size:**

The calculated sample size was choosing 110 patients' total number of patients in one year beginning of November 2021 to the end of October 2022 equal 240 patients the sample size calculation was done based on the power analysis Herbert Equation.

$$n = \frac{p(1-p)}{(SE \div t) + [p(1-p) \div N]}$$

N = 240

t = 1.96

SE = 0.05

P = 0.50

$$n = \frac{0.50 (1-0.50)}{(0.05 \div 1.96) + [0.50 (1-0.50) \div 240]} \quad n = 110$$

### Inclusion Criteria:

Patients aged 20 - 60 years, and accept to participate in the study.

### Exclusion Criteria:

Psychiatric patients, and not have multi sclerosis

### Tool for data collection:

Data was collected using the following one tool:

**Tool: A structured interviewing sheet:** was used in the study, it's developed by investigator after reviewing the national and international related literature and contains five parts:

**Part (I): Demographic characteristics of patient consisted of 11 items included** age, marital status, education level, occupation.

**Part (II): Medical history of patient:** It divided into 2 sub-items:

**1<sup>st</sup>: Past medical history for patient consisted of 8 closed ended questions included** suffer from any chronic diseases, if the answer is yes, what is it, take some medications for a specific disease.

**2<sup>nd</sup>: Current health status for patient consisted of 25 closed ended questions included** suffer from numbness in one of the limbs, suffer from weakness in one of the limbs, suffer from sensations similar to an electric shock that are accompanied by certain movements in the neck.

**Part (III): Knowledge of patients about multi sclerosis consisted of 16 closed ended questions included** meaning of multiple sclerosis, multiple sclerosis occurs in the patient at the age of, symptoms of multiple sclerosis, psychological symptoms of multiple sclerosis.

### Scoring system for knowledges:

Each statement was assigned score according to patients' response were: complete correct answer was scored 2 grades; incomplete correct answer was scored 1 grade and wrong or don't know answer was scored 0. Total score were 32 grades from 16 questions. The total scores each item summed up and then converted into percent score as the following:

- Poor knowledge (< 50 %) = < 16 grades.
- Average knowledge (50 - < 75%) = 16 - < 24 grades.
- Good knowledge (≥ 75%) = ≥ 24 grades.

**Part (IV) : Patient's reported practices regarding multi sclerosis:** It divided into 6 sub-items:

**A- Reported practices of patients regarding multi sclerosis about nutrition intake included 20 closed ended questions included:** Make sure to eat yogurt, eat leeks, eat garlic, eat onions.

**B- Reported practices of patients regarding multi sclerosis about nutrition avoided included 12 closed ended questions included:** Make sure to avoid caffeine, avoid alcohol, avoid sugars.

**C- Reported practices of patients regarding multi sclerosis about exercises included 9 closed ended questions included:** Make sure to practice yoga, make sure to practice massage, make sure to practice meditation, make sure to practice deep breathing.

**D- Reported practices of patients regarding multi sclerosis about periodic follow-up and treatment included 4 closed ended questions included:** Take medication regularly, take medication irregularly.

**E- Reported practices of patients regarding multi sclerosis about sleep included 3 closed ended questions included:** Make sure to sleep on time, make sure to get enough sleep.

**F- Reported practices of patients regarding multi sclerosis about practices to reduce pain included 5 closed ended questions included:** Take painkillers regularly, do deep breathing and relaxing tense muscles help reduce pain, listening to music help reduce pain.

**Scoring system for reported practices:**

Each statement was assigned score according to patients' response were "Done" was scored 1, "Not Done" was scored 0. Total score were 53 grades for 53 items. The scores of items summed up and then converted into percentage score **as the following:**

- ( $< 60$ ) unsatisfactory practices =  $< 32$  grades.
- ( $\geq 60$ ) satisfactory practices =  $\geq 32$  grades.

**Part (V) : Patient's attitude regarding multi sclerosis included 14 closed ended questions included:** Feel that exposure to the sun makes the patient less likely to develop multiple sclerosis, tend to exercise because the patient is less likely to develop multiple sclerosis.

**Scoring system for attitude:**

Each statement was assigned score according to patients' response were "Agree" was scored 2, "Neutral" was scored 1, and "Disagree" was scored 0. Total score were 28 grades for 14 items. The scores of items summed up and then converted into percentage score **as the following:**

- ( $> 50$ ) was considered negative =  $< 14$  grades.
- ( $\geq 50$ ) was considered positive =  $\geq 14$  grades.

**I. Operational item:**

It was included preparatory phase, content validity and reliability, pilot study and field work.

**A. Preparatory phase:**

Prepare the study tool based on related literature review and develop the study tool and test its content validity and reliability.

**Pilot study:**

A pilot study conducted on 10 % equal 11 patients under study to assess the feasibility, practicability, clarity and objectivity of the tool. Patients in the pilot study were included in the main study sample because no modifications were done.

**Content validity:**

Validity was ascertained by three a panel of experts in branch of Community Health Nursing Faculty of Nursing Helwan University, who was review the tool for the format, layout, consistency, accuracy, and relevance.

**Tool Reliability:**

Reliability was tested statistically using the appropriate statistical tests to assure that the tools are reliable before data collection. Answers from the repeated testing were compared Test- re- test reliability was 0.82 for knowledge, Cronbach's Alpha reliability was 0.890 for reported practices and 0.860 for attitude.

**Ethical Considerations:**

The research approval was obtained from the Scientific Research Ethical Committee in the Faculty of Nursing, Helwan University before starting the study. The investigator was clarified the objective and aim of the study to patients included in the study, The investigator assured anonymity and confidentiality of subjects' data. Patients informed that they are allowed to choose to participate or not in the study and that they have the right to withdraw from the study at any time.

**Field work:**

- An official letter issued from the dean of Faculty of Nursing Helwan University, and Brain and Nerve Clinic at al-Monira outpatient clinics-Egypt including the aim of the study to obtain permission after establishing a trustful

relationship, each subject interviewed individually by the investigator to explain the study purpose.

- Data collected within 3 months from first of January until end of March 2023 two days /week (Tuesday-Wednesday), from 9am - 2pm, till the needed sample completed, interview of patients, informed consent obtained from patients after the investigator introduce herself for each patient, then explain the purpose of the study to assess knowledge, reported practices and attitude of patients about multi sclerosis. Study collected through structure face to face interview and the entire tool filled by the investigator.
- The investigator utilizes one tool, was need 20 -30 minutes and meeting the patients two days per week (Tuesday-Wednesday) from 9am - 2pm.
- The investigator about 36-37 patients per month, total number of patients = 110 patients.

### III- Administrative item:

An official Permission was obtained from Dean of Faculty of Nursing Helwan University and official Permission from director of Brain and Nerve Clinic at al-Monira outpatient clinics in which the study was conducted. This letter included a permission to collect the necessary data and explain the purpose and nature of the study.

### IV- Statistical item:

The collected data from the studied sample was revised, coded and entered using Personal Computer (PC). Computerized data entry and statistically analyzed using SPSS program (Statistical Package for Social Science) version 24. Data were presented using descriptive statistics in the form of frequencies and relative percentages. Chi square test ( $X^2$ ) was used to calculate difference between qualitative variables.

#### Degrees of Significance of the results were:

- Non-Significant (NS) if  $p > 0.05$ .
- Significant (S) if  $p < 0.05$ .
- High Significant (HS) if  $p < 0.01$ .

**Table (1):** Frequency Distribution of the Studied Patient according to Demographic Characteristics (n=110).

Demographic Characteristics	No.	%
<b>Age/ Years</b>		
> 25 years	24	21.8
25- > 35 years	35	31.8
35- > 55 years	30	27.3
55 years and more	21	19.1
<b>Mean <math>\pm</math> SD</b>		<b>28.4 <math>\pm</math> 1.7 years</b>
<b>Marital status</b>		
Single	25	22.7
Married	70	<b>63.6</b>
Divorced	5	4.5
Widower	10	9.2
<b>Educational Level</b>		
Not read or write	5	4.5
Read or write	12	10.9
Basic education	31	28.2
Secondary education	2	1.8
University education	60	<b>54.6</b>
<b>Occupation</b>		

Employee	70	63.6
Housewife (not working)	20	18.2
Student	20	18.2
<b>Number of children</b>		
1:2	27	24.5
2:4	65	59.1
More than 4	18	16.4
<b>Average monthly family income</b>		
Enough and save	30	27.2
Not enough for basic needs	50	45.5
Enough for basic needs	30	27.2
<b>Number of family members</b>		
<3	27	24.5
3-5	65	59.1
>5	18	16.4
<b>Mean <math>\pm</math> SD</b> 4.4 $\pm$ 0.3 members		
<b>Number of home rooms</b>		
<3	36	32.7
3-5	40	36.4
>5	34	30.9
<b>Mean <math>\pm</math> SD</b> 4.9 $\pm$ 1.8 rooms		
<b>Home crowdedness (no. of rooms/ no. of members)</b>		
From 2 to 3	35	31.8
From 4 to 5	50	45.5
More than 5	25	22.7
<b>Family type</b>		
Central	80	72.8
Extended	30	27.2

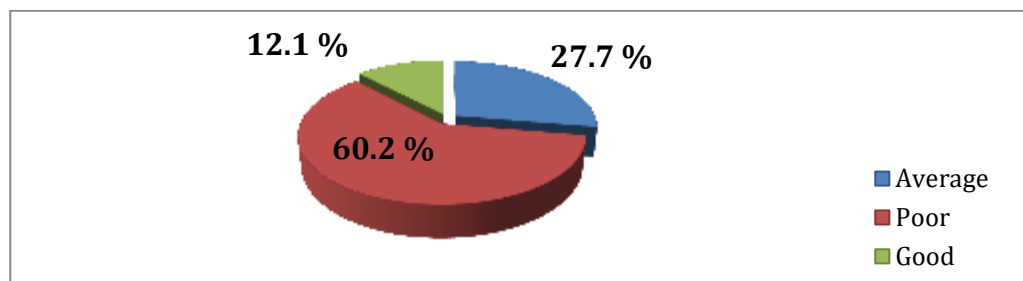
**Table (1): Shows that,** the mean age of studied patient was  $28.4 \pm 1.7$  years. Also, 54.6 % of the studied patient's educational level was university education and 63.6 % of the studied patient's occupation was employee. Additionally, 45.5 % of the studied patient's monthly income was not enough for basic needs, and 72.8 % of the studied patient were live in central family.

**Table (2):** Frequency Distribution of Studied Patient's Past and Current Medical History (n=110).

Item	No.	%
<b>Past Medical History</b>		
<b>Suffer from any chronic diseases</b>		
Yes	90	81.8
No	20	18.2
<b>- If the answer is yes, what is it: (N=90)</b>		
Diabetes	55	61.1
Parkinson's disease	20	22.2
Joint stiffness	15	16.7
<b>Take some medications for a specific disease</b>		
Yes	90	81.8

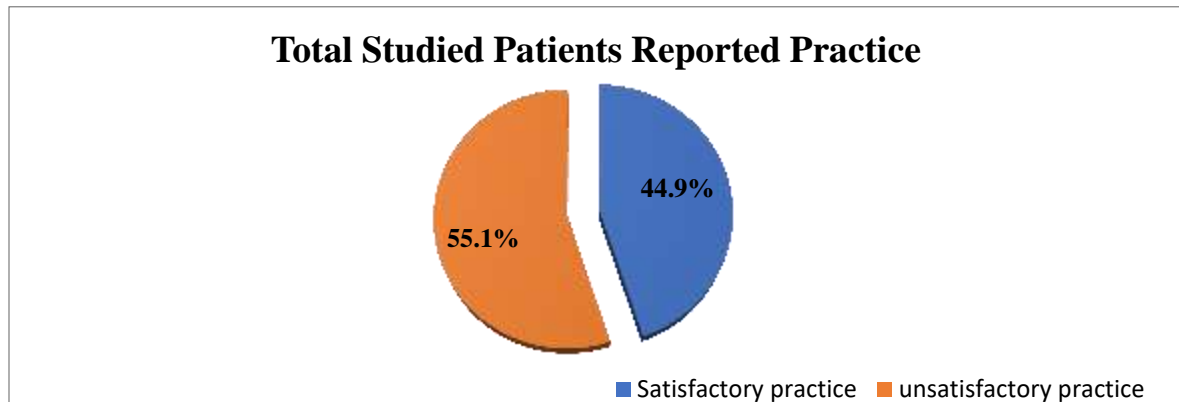
No	20	18.2
<b>- If the answer is yes, what is it: (N=90)</b>		
Fortamet	55	61.1
Levodopa	20	22.2
Anakinara	15	16.7
<b>Suffer from respiratory diseases</b>		
Yes	80	<b>72.8</b>
No	30	27.2
<b>- If the answer is yes, what is it: (N=80)</b>		
Allergies	65	<b>81.25</b>
Bronchitis	15	18.75
<b>Generally, sleep without bouts of shortness of breath</b>		
Yes	50	45.5
No	60	54.5
<b>Have ever osteoporosis</b>		
Yes	40	36.4
No	70	63.6
<b>Current Medical History</b>		
<b>Suffer from numbness in one of the limbs</b>		
Yes	70	<b>63.6</b>
Sometimes	20	18.2
No	20	18.2
<b>Suffer from tingling in parts of the body</b>		
Yes	70	63.6
Sometimes	20	18.2
No	20	18.2
<b>Suffer from pain during eye movement</b>		
Yes	60	54.5
Sometimes	30	27.3
No	20	18.2

**Table (2): Demonstrates that,** 81.8 % of studied patient suffer from any chronic diseases, 61.1% of them suffer from diabetes. Moreover, 72.8 % of them suffer from respiratory diseases, 81.25 % of them suffer from allergies. Also, 63.6 % of studied patient suffer from numbness in one of the limbs.



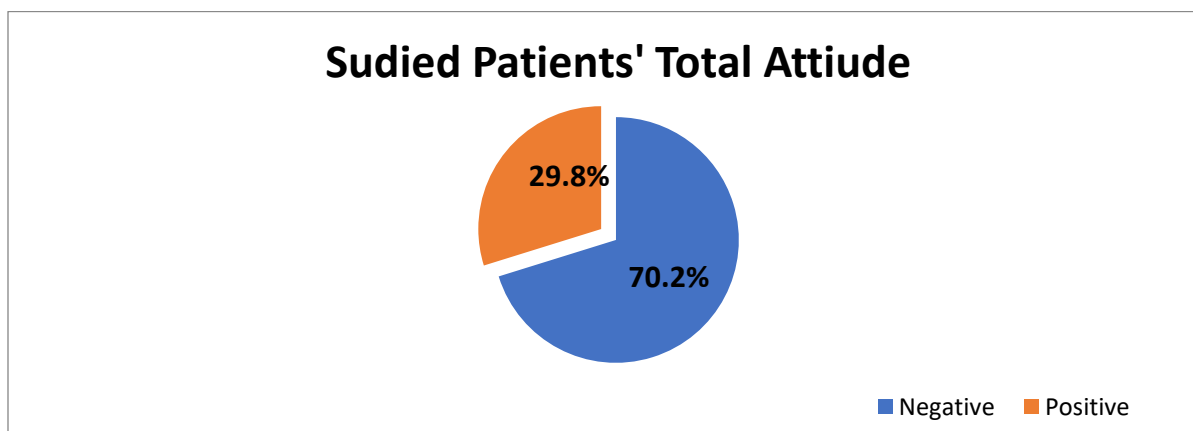
**Figure (1): Percentage Distribution of the Studied Patient's Total Level of Knowledge Regarding Multi Sclerosis (n= 110).**

**Fig (1): Shows that,** 60.2 % of the studied patient had poor knowledge regarding multi sclerosis. Also, 27.7 % of them had average knowledge regarding multi sclerosis. While, 12.1 % of them had good knowledge regarding multi sclerosis.



**Figure (2):** Percentage Distribution of the Studied Patient's Total Level of Reported Practices Regarding Multi Sclerosis (n=110)

**Fig (2): Shows that,** 44.9 % of the studied patient had a satisfactory level in total reported practices level regarding multi sclerosis. While 55.1 % of them had unsatisfactory total reported practices level regarding multi sclerosis.



**Figure (3):** Percentage Distribution of the Studied patient's Total Level of Attitude regarding Multi Sclerosis (n=110)

**Fig (3): Shows that,** 29.8 % of the studied patient had positive total level of attitude level toward multi sclerosis. While 70.2 % of the studied patient had negative total attitude level.

**Table (3):** Relation between Studied Patient's Demographic Characteristics and their Total Knowledge Level (n=110).

Demographic characteristics	Poor (66)		Average (31)		Good (13)		X <sup>2</sup>	P – value
	No.	%	No.	%	No.	%		
Age (year)								
> 25 years	15	62.5	5	20.8	4	16.7	11.391	.000*
25- > 35 years	25	71.4	5	14.3	5	14.3		
35- > 55 years	20	66.7	6	20.0	4	13.3		
55 years and more	6	28.6	15	71.4	0	0.00		
Marital status								
Single	20	80.0	5	20.0	0	0.00	15.558	.001**
Married	40	57.1	20	28.6	10	14.3		
Divorced	3	60.0	2	40.0	0	0.00		
Widower	3	30.0	4	40.0	3	30.0		
Educational Level								
Not read or write	3	60.0	2	40.0	0	0.00	17.239	.000**
Read or write	7	58.3	3	25.0	2	16.7		
Basic education	30	96.8	1	3.2	0	0.00		
Secondary education	2	100.0	0	0.00	0	0.00		
University education	27	45.0	25	41.7	11	18.3		
Occupation								
Employee	50	71.4	10	14.3	10	14.3	11.558	.001**
Housewife (not working)	8	40.0	9	45.0	3	15.0		
Student	8	40.0	12	60.0	0	0.00		
Number of children								
1:2	20	74.1	7	25.9	0	0.00	18.199	.000**
2:4	40	61.5	20	30.8	5	7.7		
More than 4	6	33.3	4	22.2	8	44.5		
Average monthly family income								
Enough and save	30	100.0	0	0.00	0	0.00	19.177	.000**
Not enough for basic needs	30	60.0	10	20.0	10	20.0		
Sufficient for basic needs	6	20.0	21	70.0	3	10.0		
Number of family members								
<3	20	74.1	7	25.9	0	0.00	18.199	.000**
3-5	40	61.5	20	30.8	5	7.7		
>5	6	33.3	4	22.2	8	44.5		
Number of home rooms								
<3	30	83.3	6	16.7	0	0.00	22.239	.000**
3-5	30	75.0	10	25.0	0	0.00		
>5	6	17.6	15	44.2	13	38.2		

Home crowdedness (no. of rooms/ no. of members)								
From 2 to 3	25	71.4	5	14.3	5	14.3	16.365	.001**
From 4 to 5	40	80.0	10	20.0	0	0.00		
More than 5	1	4.0	16	60.0	8	36.0		
Family type								
Central	60	75.0	20	25.0	0	0.00	12.554	.000**
Extended	6	20.0	11	36.7	13	43.3		
Place of residence								
Rural	30	78.9	8	21.1	0	0.00	10.210	.000**
Urban	36	50.0	23	31.9	13	18.1		

**\*\*Highly statistically significant at p-value <0.001**

**Table (3): Shows that,** there were highly statistically significant relation between studied patient's total knowledge and all items of demographic characteristics, where ( $P = < 0.0001$ ).

**Table (4):** Relation between Studied Patient's Demographic Characteristics and their Total Attitude Level (n=110).

Demographic characteristics	Negative (77)		Positive (33)		X <sup>2</sup>	P – value
	No.	%	No.	%		
Age (year)						
> 25 years	20	83.3	4	16.7	12.002	.000*
25- > 35 years	25	71.4	10	28.6		
35- > 55 years	25	83.3	5	16.7		
55 years and more	7	33.3	14	66.7		
Marital status						
Single	20	80.0	5	20.0	17.241	.001**
Married	50	71.4	20	28.6		
Divorced	5	100.0	0	0.00		
Widower	2	20.0	8	80.0		
Educational Level						
Not read or write	5	100.0	0	0.00	18.552	.000**
Read or write	10	83.3	2	16.7		
Basic education	25	80.6	6	19.4		
Secondary education	2	100.0	0	0.00		
University education	35	58.3	25	41.7		
Occupation						
Employee	40	57.1	30	42.9	10.212	.001**
Housewife (not working)	17	85.0	3	15.0		
Student	20	100.0	0	0.00		
Number of children						
1:2	20	74.1	7	25.9	20.021	.000**
2:4	50	76.9	15	23.1		
More than 4	7	38.9	11	61.1		
Average monthly family income						
Enough and save	30	100.0	0	0.00	20.012	.000**
Not enough for basic needs	20	40.0	30	60.0		

Sufficient for basic needs	27	90.0	3	10.0		
Number of family members						
<3	20	74.1	7	25.9	20.021	.000**
3-5	50	76.9	15	23.1		
>5	7	38.9	11	61.1		
Number of home rooms						
<3	30	83.3	6	16.7	23.254	.000**
3-5	30	75.0	10	25.0		
>5	17	50.0	17	50.0		
Home crowdedness (no. of rooms/ no. of members)						
From 2 to 3	30	85.7	5	14.3	17.210	.001**
From 4 to 5	30	60.0	20	40.0		
More than 5	17	68.0	8	32.0		
Family type						
Central	60	75.0	20	25.0	17.021	.000**
Extended	17	56.7	13	43.3		
Place of residence						
Rural	38	100.0	0	0.00	12.002	.000**
Urban	39	54.2	33	45.8		

\*\*Highly statistically significant at p-value <0.001

**Table (4): Shows that,** there was highly statistically significant relation between studied patient's total attitude and all items of demographic characteristics, where ( $P = < 0.0001$ ).

**Table (5):** Relation between Studied Patient's Demographic Characteristics and their Total Reported Practices Level (n=110).

Demographic characteristics	Unsatisfactory (60)		Satisfactory (50)		X <sup>2</sup>	P – value
	No.	%	No.	%		
Age (year)						
> 25 years	20	83.3	4	16.7	13.225	.000*
25- > 35 years	30	85.7	5	14.3		
35- > 55 years	10	33.3	20	66.7		
55 years and more	0	0.00	21	100.0		
Marital status						
Single	20	80.0	5	20.0	19.225	.001**
Married	30	42.9	40	57.1		
Divorced	5	100.0	0	0.00		
Widower	5	50.0	5	50.0		
Educational Level						
Not read or write	5	100.0	0	0.00	17.102	.000**
Read or write	10	83.3	2	16.7		
Basic education	25	80.6	6	19.4		
Secondary education	2	100.0	0	0.00		
University education	18	30.0	42	70.0		
Occupation						
Employee	35	50.0	35	50.0		

Housewife (not working)	5	25.0	15	75.0	11.104	.001**
Student	20	100.0	0	0.00		
Number of children						
1:2	20	74.1	7	25.9	20.214	.000**
2:4	40	61.5	25	38.5		
More than 4	0	0.00	18	100.0		
Average monthly family income						
Enough and save	30	100.0	0	0.00	20.335	.000**
Not enough for basic needs	30	60.0	20	40.0		
Sufficient for basic needs	0	0.00	30	100.0		
Number of family members						
<3	20	74.1	7	25.9	19.662	.000**
3-5	40	61.5	25	38.5		
>5	0	0.00	18	100.0		
Number of home rooms						
<3	30	83.3	6	16.7	23.021	.000**
3-5	30	75.0	10	25.0		
>5	0	0.00	34	100.0		
Home crowdedness (no. of rooms/ no. of members)						
From 2 to 3	30	85.7	5	14.3	18.225	.001**
From 4 to 5	30	60.0	20	40.0		
More than 5	0	0.00	25	100.0		
Family type						
Central	30	37.5	50	62.5	14.251	.000**
Extended	30	100.0	0	0.00		
Place of residence						
Rural	38	100.0	0	0.00	11.365	.000**
Urban	22	30.6	50	69.4		

\*\*Highly statistically significant at p-value <0.001

**Table (5): Shows that,** there was highly statistically significant relation between studied patient's total reported practices and all items of demographic characteristics, where ( $P = < 0.0001$ ).

**Table (6):** Correlation between Studied patient's Total Knowledge, Total Practices and Total Attitude (n= 110).

Total knowledge and Total Attitude	Changes of scores of total knowledge and Total practice			
	Total knowledge		Total practices	
	R	P	R	P
Total knowledge	-----	----	0.168	0.094
Total Attitude	0.588	0.000	0.662	0.000

**Table (6): Illustrates that,** there was strong positive correlation between total knowledge, total practices and total attitude.

### Discussion:

Multiple Sclerosis (MS) is a long-lasting (chronic) disease of the central nervous system. It is thought to be an autoimmune disorder, a condition in which the body attacks itself by mistake. MS is an unpredictable disease that affects patients differently. Some patients with MS may have only mild symptoms. Others may lose their ability

to see clearly, write, speak, or walk when communication between the brain and other parts of the body becomes disrupted (*Sahib et al., 2024*).

Awareness about MS is essential for improving patient outcomes and fostering a supportive environment. MS is a chronic autoimmune condition affecting the central nervous system, causing symptoms like fatigue, mobility challenges, vision problems, and cognitive changes. Raising awareness ensures early diagnosis and timely intervention, which are critical for managing disease progression. It reduces stigma, helping patients feel understood and supported. Public education campaigns, support groups, and resources for patients and caregivers play a significant role in enhancing understanding of the condition. Empowering patients with MS through education about their condition enables them to advocate for better care and access to therapies, ultimately improving their quality of life (*Hatem et al., 2023*).

Regarding age of studied patients, the current study result revealed that, mean age of studied patients were  $28.4 \pm 1.7$  years. This result in the same line with **Nada et al., (2021)** who carried out a study conducted in Egypt about " Behavior and awareness of multiple sclerosis patients during COVID-19 pandemic in a tertiary center in Egypt ", they found that, mean  $\pm$  SD were  $27.8 \pm 2.2$  years for studied patients. **From the investigator point of view**, stressful life events or high levels of physical or emotional stress, which are common in young adulthood, might act as triggers for MS symptoms in genetically susceptible patients.

Concerning marital status of studied patients, the current study result revealed that, less than two thirds of the studied patients were married. This result in the same line with **Fahmy et al., (2024)** who carried out a study conducted in Egypt about " Advances in Understanding and Treating Multiple Sclerosis: A Comprehensive Review ", they found that, 62.1 % of studied patients had married. **From the investigator point of view**, societal norms and expectations play a role, as marriage has historically been more common among patients, who now make up a significant portion of the nursing educator workforce. Furthermore, having a supportive partner can help manage the work-life balance required in the demanding field of nursing education, providing emotional and practical support that contributes to career satisfaction and stability.

Regarding level of education of studied patients, the current study revealed that, more than half of studied patients were university education. This finding wasn't accordance with **Nabil Abd Elsalam & Abd Elsatar Ali, (2022)** who conducted a study in Egypt about " Self-Management Guidelines: Effect on Knowledge, Fatigue, Self-Efficacy and Medications Adherence among Patients with Multiple Sclerosis" they found that, 60.6 % of studied samples were secondary education. **From the investigator point of view**, graduates often have better job prospects and earn higher salaries than those without higher education. Many places require university degrees for entry-level positions, making it a key to economic mobility.

Regarding past medical history of studied patients, the current study revealed that, majority of the studied patients suffer from any chronic diseases and less two thirds of them suffer from diabetes. This finding wasn't agreed with **Rasmussen et al., (2018)** who conducted a study in Denmark about " Patient awareness about family planning represents a major knowledge gap in multiple sclerosis " they found that, 70.9 % of studied samples were suffer from any chronic diseases and more than half of them suffer from hypertension. **From the investigator point of view**, unhealthy diets as high in sugar, processed foods, and unhealthy fats contribute to obesity, a major risk factor for type 2 diabetes. Lack of physical activity can impair glucose metabolism and lead to weight gain, increasing the risk of diabetes.

Concerning suffers from respiratory diseases of studied patients, the current study revealed that, more than two thirds of the studied patients suffer from respiratory diseases. This finding was agreed with **Ware et al., (2024)** who conducted a study in Athens about " Investigating relationships among interoceptive awareness, emotional susceptibility, and fatigue in persons with multiple sclerosis " they found that, 73.1 % of studied samples were suffer from respiratory diseases. **From the investigator point of view**, MS can cause damage to the nerves that control the respiratory muscles, including the diaphragm and intercostal muscles. This weakens the ability to breathe effectively, leading to conditions like hypoventilation.

Regarding current medical history of studied patients, the current study revealed that, less than two thirds of the studied patients suffer from numbness in one of the limbs. This finding was agreed with **Prusynski et al., (2021)** who conducted a study in United States about " Rehabilitation intensity and patient outcomes in skilled nursing facilities in the United States " they found that, 61.4 % of studied samples were suffer from numbness in one of the limbs. **From the investigator point of view**, MS is an autoimmune disease where the immune system attacks the myelin sheath, the protective covering of nerve fibers in the CNS. This damage disrupts the normal transmission of electrical signals along the nerves.

**Studied Patient's Knowledge about Multi Sclerosis. Answered research question number Q1: What is the patients' knowledge about multi sclerosis?**

Regarding studied patients' total knowledge regarding multi sclerosis, the current study showed that, less than two thirds of them had poor knowledge, more quarter had average knowledge and more than tenth of them had good knowledge, this result agrees with **Khedr et al., (2023)** who conducted a study in Egypt titled "Adherence to Disease Modifying Treatment Among Multiple Sclerosis Patients from Upper Egypt", they found that, 62.1 % of the studied sample had good total knowledge. Also, 26.0 % had average knowledge and 11.9 % of them had good knowledge. **From the investigator point of view**, MS is believed to result from a complex interplay of genetic susceptibility and environmental factors like infections, vitamin D deficiency, smoking, or stress. Since no single factor has been conclusively identified as the cause, patients may be confused about what patients can do to prevent it.

**Studied Patients' Reported Practices regarding Multi Sclerosis. Answered research question number Q2: What are the patients' reported practices regarding the prevention of multi sclerosis?**

Concerning studied patients' total reported practices regarding multi sclerosis, the current study showed that, less than half of them had satisfactory level in total reported practices, and more than half had unsatisfactory level in total reported practice, this result agrees with **Abdallah et al., (2023)** who conducted a study in Egypt titled "Factors affecting compliance of therapeutic regimen among patients with multiple sclerosis", they found that, 42.1 % of the studied sample had satisfactory level in total reported practices. Also, 57.9 % had unsatisfactory level in total reported practices. **From the investigator point of view**, due to a combination of knowledge gaps, lifestyle factors, psychological challenges, and systemic barriers. Worry about disease progression might lead to feelings of hopelessness, reducing the effort to maintain good practices.

**Studied Patient's Attitude toward Multi Sclerosis. Answered research question number Q3: What is the patients' attitude regarding multi sclerosis?**

Concerning studied patients' total attitude regarding multi sclerosis, the current study showed that, more two thirds of them had negative total attitude, and less one third had positive total attitude, this result agrees with **Abdallah et al., (2023)** who conducted a study in Egypt titled "Factors affecting compliance of therapeutic regimen among patients with multiple sclerosis", they found that, 73.1 % of the studied sample had negative total attitude. Also, 26.9 % had positive total attitude. **From the investigator point of view**, being diagnosed with MS at a relatively young age, especially between 25 and 35 years, can be highly disruptive. At this stage in life, many individuals are focused on career development, building relationships, and starting families. The sudden diagnosis of a chronic, unpredictable disease can cause feelings of loss, fear, and frustration, which may manifest in a negative attitude.

**Relation between the Studied Variables. Answered research question No (4): Is there relation between patients' knowledge, practice, attitude and their demographic data?**

Regarding to relation between studied patients' demographic characteristics and total knowledge, the current study revealed a highly statistically significant between studied patients all items of demographic characteristics and their total knowledge scores. This result agrees with the study done by **El-Tantawy et al., (2024)** who conducted a study in Saudi Arabia about "Assessment of Multiple Sclerosis Patients' awareness and knowledge about their illness in KSA: A cross-sectional study", they found that, a statistically significant relation between samples and all items of demographic characteristics. **From the investigator point of view**, MS is a chronic condition with a variable course, meaning

patients often don't know how their disease will progress. This uncertainty about the future can cause anxiety and hopelessness, leading to negative feelings about the disease and its impact on their lives.

Concerning to relation between studied patients' demographic characteristics and total reported practices, the current study revealed a highly statistically significant between studied patients all items of demographic characteristics and their total reported practices. This result agrees with the study done by **Algahtani et al., (2024)** who conducted a study in Saudi Arabia about "Assessment of social stigma among multiple sclerosis patients in Saudi Arabia: A cross-sectional study", they found that, a statistically significant relation between samples all items of demographic characteristics and their total reported practices scores. **From the investigator point of view**, MS can lead to social isolation, especially in younger patients who may have difficulty keeping up with peers or participating in activities patients once enjoyed due to physical or cognitive limitations. This isolation can lead to feelings of loneliness and resentment toward the disease.

Regarding to relation between studied patients' demographic characteristics and total attitude, the current study revealed a highly statistically significant between studied patients all items of demographic characteristics and their total attitude scores. This result agrees with the study done by **Abdallah et al., (2023)** who conducted a study in Egypt about "Factors affecting compliance of therapeutic regimen among patients with multiple sclerosis", they found that, a statistically significant relation between samples and all items of demographic characteristics. **From the investigator point of view**, encourage patients to ask questions about MS, its progression, and treatment options. Assure them that no question is too small or unimportant.

Concerning to correlation between studied worker's total knowledge, total practices and total attitude, the current study revealed there was strong positive correlation between total knowledge, total practices and total attitude (Table ٦). This result agrees with the study done by **Mshelia et al., (2023)** who conducted a study in Nigeria about "Environmental risk perceptions of residential and commercial neighborhoods of petrol stations in Maiduguri Metropolis, Nigeria", they found that, a there was strong positive correlation between total knowledge, total practices and total attitude. From the investigator point of view, workers with higher knowledge levels are more likely to engage in safe and effective practices. Understanding risks and the importance of prevention enables workers to implement proper measures, such as using protective equipment or maintaining hygiene.

### Conclusion:

**Based on the results of the present study and research questions the following conclusion includes:**

Less than two thirds of the studied patients had poor total knowledge about multi sclerosis, and more than half of them had unsatisfactory total practice regarding multi sclerosis. While, more two thirds had negative total attitude toward multi sclerosis. There a relation between patients' total knowledge, total reported practices and total attitude towards multi sclerosis. There is highly statistically significant relation between patients' demographic data and their total knowledge, total reported practices and total attitude towards multi sclerosis.

### Recommendations:

**In the light of the result of this study, the following recommendations were suggested:**

1. Provide health education program for patients about multi sclerosis to improve their condition.
2. Encourage patients to make group discussion regarding multi sclerosis to exchange knowledge, and reported practice about adaptation methods used under observation from community health nurse.
3. Apply further research in large sample and other setting for generalization.

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Vol. 4, Issue 9, Month: March 2025, Available at: <https://hijnrp.journals.ekb.eg/>

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