

Assessment of knowledge and prevalence of fibromyalgia among medical students and physicians in Riyadh region

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ABSTRACT

Background: Fibromyalgia is a chronic condition that is characterized by widespread musculoskeletal pain and tenderness of soft tissue. The prevalence of FM in Saudi Arabia is not known. The diagnosis of FM is mainly clinical. The knowledge about fibromyalgia is poor, even among healthcare providers. **Aim:** To assess the knowledge and prevalence of fibromyalgia among medical students and physicians in the Riyadh region. **Materials and Methods:** A cross-sectional study was conducted at all medical colleges in Riyadh and Riyadh hospitals. The study was conducted on both medical students and physicians using a questionnaire. The SPSS program was used to analyze the data. **Results:** A total of 556 participants were involved; 56.5% heard about fibromyalgia, and only 5.6% attended Continuing Medical Education (CME) activity. There were 31.5% had high knowledge, whereas 68.5% had low knowledge. The level of knowledge was associated with the year ($P = 0.002$), specialty ($P = 0.013$), hearing about fibromyalgia ($P = 0.0001$), attending lectures ($P = 0.009$), and being aware of diagnostic criteria ($P = 0.0001$). **Conclusion:** The prevalence of FM was high, and there was poor knowledge among medical students and physicians regarding fibromyalgia.

Keywords: Fibromyalgia, knowledge, medical students, physicians, prevalence

Introduction

Fibromyalgia (FM) is a chronic condition that is characterized by widespread musculoskeletal pain and soft tissue tenderness.^[1] The American College of Rheumatology (ACR) 1990 classification defined FM as a widespread pain affecting both sides of the body in both the upper and lower limbs combined with tenderness in at least 11 of 18 specific tender sites.^[2] Patients with FM may experience fatigue, sleep

disturbance, mood changes, cognitive problems, and a variety of somatic symptoms.^[1]

Almost 6-10 million individuals in the US have FM. The global prevalence of FM ranges between 0.5% and 5% and affects more females than males.^[3] FM affects women in their fourth and fifth decades, and the prevalence of FM increases with age.^[1,4] However, the prevalence of FM in Saudi Arabia is unknown.^[3]

FM is of unknown causes and with uncertain pathophysiology.^[5] Patients with FM may experience fatigue, sleep disturbance, mood changes, cognitive problems, and a variety of somatic symptoms.^[1] The diagnosis of FM is mainly clinical, and there are no definitive radiologic or analytic biomarkers for FM.^[6]

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Three out of four individuals affected with FM are undiagnosed despite the impact of FM.^[7]

Knowledge, perception, and attitude regarding FM have been investigated in studies by medical students, general practitioners, and rheumatologists. These investigations showed large variations between the different specialties and even within the same specialties.^[8] The awareness about FM is poor, even among healthcare providers.^[8] Therefore, this study was conducted to assess the knowledge and prevalence of fibromyalgia among medical students and physicians in the Riyadh region.

Materials and Methods

Study design and subjects

This study was cross-sectional; it was conducted at all medical colleges in Riyadh and Riyadh hospital. The study was conducted on medical students and physicians; the study included medical students and physicians who completed the questionnaire and provided informed consent, whereas other practitioners from other specialties and medical students and physicians who did not complete the questionnaire or did not provide the informed consent were excluded. The study was conducted using a questionnaire that involved questions that investigated the demographics and knowledge about fibromyalgia among the participants. Ethical approval was obtained from Al-Imam Muhammad Ibn Saud Islamic University, Institutional Review Board on January 17, 2019, with An institutional review board (IRB) of HAPO-01-R-001.

Statistical analysis

SPSS program version 22 was used to analyze the collected data; frequency and proportions were used to represent qualitative data. The correlations between different variables and the level of knowledge were performed using a Chi-square or T-test based on the type of data; a *P*-value at ≤ 0.05 was considered significant.

Results

A total of 556 participants were included in the current study; more than one-half were females, 356 (64%), and most of the participants, 409 (73.6%), were in the age range of 18-24 years. The largest frequency of participants, 131 (23.6%), were from King Saud University, whereas the fewest frequency, 4 (0.7%), were from Inaya Medical College. Medical students from the third year and fourth years represented the largest proportions of medical students, 115 (20.7%) and 111 (20%), respectively. Students and other specialties represented 414 (74.5%) of all participants, followed by those specialized in basic science 62 (11.2%). The demographics of the participants are shown in Table 1.

The questions and answers of the participants on fibromyalgia knowledge are shown in Table 2. More than one-half of the participants reported hearing about fibromyalgia, 314 (56.5%), but only 142 (25.5%) and 31 (5.6%) reported hearing lectures

Table 1: The demographics of the participants

Variables	Description (n=556)
Gender	
Male	200 (36)
Female	356 (64)
Age	
18-24	409 (73.6)
25-28	94 (16.9)
29-35	23 (4.1)
>35	30 (5.4)
University	
King Saud University	131 (23.6)
Imam Muhammad Ibn Saud Islamic University	124 (22.3)
King Saud Bin Abdulaziz University For Health Science	117 (21)
Others	58 (10.4)
Princess Nora Bint Abdul Rahman University	41 (7.4)
Alfaisal University	37 (6.7)
Almaarefa University	27 (4.9)
Dar Al Uloom University	17 (3.1)
Inaya Medical College	4 (0.7)
Year	
First year	47 (8.5)
Second year	82 (14.7)
Third year	115 (20.7)
Fourth year	111 (20)
Fifth year	67 (12.1)
Intern	60 (10.8)
Other	74 (13.3)
Specialty	
Basic science	62 (11.2)
Internal medicine	30 (5.4)
Surgery	17 (3.1)
Pediatrics	16 (2.9)
Obstetrics and Gynecology	5 (0.9)
Dermatology	4 (0.7)
Ophthalmology	3 (0.5)
ENT	3 (0.5)
Psychiatric	2 (0.4)
Other/Student	414 (74.5)

Table 2: The answers of the participants regarding fibromyalgia knowledge

Questions and answers	Description (n=556)
Did you hear about fibromyalgia?	
Yes	314 (56.5)
No	148 (26.6)
I am not sure	94 (16.9)
Have you heard any lectures about fibromyalgia during your undergraduate teaching?	
Yes	142 (25.5)
No	268 (48.2)
I am not sure	146 (26.3)
Have you attended any CME activity or awareness event about fibromyalgia?	
Yes	31 (5.6)
No	525 (94.4)

about fibromyalgia and attended CME activity about fibromyalgia, respectively.

A few proportions of our participants reported hearing about widespread pain index 93 (16.7%). Less than one-half of the participants reported that the widespread pain index should be 4-7 for the diagnosis of fibromyalgia. Also, less than one-half of the participants, 247 (44.4%), reported that the symptoms associated with fibromyalgia diagnostic criteria included fatigue, waking refreshed, and cognitive symptoms. There, 163 (29.3%) stated that fibromyalgia is common among pediatrics, adults, and geriatrics. Multi-disciplinary team 187 (33.6%) and rheumatology 177 (31.8%) were the most reported to whom the patient was referred, Table 3.

Regarding the diagnosis of fibromyalgia, the American College of Rheumatology diagnostic criteria were reported by 406 (73%) to be used to confirm fibromyalgia diagnosis.

Table 3: The knowledge of participants regarding characteristics and factors associated with fibromyalgia

Questions and answers	Description (n=556)
Did you hear about WPI (widespread pain index)?	
Yes	93 (16.7)
No	347 (62.4)
I am not sure	116 (20.9)
How much the widespread pain index should be (how many joints are involved) for diagnosis of fibromyalgia?	
0-3	99 (17.8)
4-7	261 (46.9)
>7	196 (35.3)
Which of the following symptoms are part of the diagnostic criteria of fibromyalgia?	
Somatic symptoms, in general: (muscle pain, irritable bowel syndrome, muscle weakness, headache, pain/cramps)	194 (34.9)
Fatigue	66 (11.9)
None of the above	25 (4.5)
Waking unrefreshed	12 (2.2)
cognitive symptoms	12 (2.2)
All of the above	247 (44.4)
Is fibromyalgia common in?	
Pediatric	37 (6.7)
Adult Male	56 (10.1)
Adult Female	200 (36)
Geriatric	100 (18)
All of the above	163 (29.3)
To whom do you refer a patient suspecting fibromyalgia?	
Rheumatology	177 (31.8)
Orthopedic	52 (9.4)
Pain management	36 (6.5)
Neurology	36 (6.5)
Family medicine	21 (3.8)
Physiotherapy	19 (3.4)
Rehabilitation	15 (2.7)
Psychiatry	13 (2.3)
Multi-disciplinary team (more than one)	187 (33.6)

However, only 151 (27.2%) reported awareness of the diagnostic criteria of fibromyalgia. By asking about the area that could be tender, soft tissue point for the diagnosis of fibromyalgia, there were 311 (55.9%) selected all the suggested areas. There 245 (44.1%) thought that fibromyalgia could be treated; however, a close percentage, 241 (43.3%), were unsure. Eight treatment suggestions were stated, and the largest proportion of the participants selected all of these suggestions, 239 (43%), Table 4.

Table 4: The knowledge of the participants regarding the diagnosis and management of fibromyalgia

Questions and answers	Description (n=556)
Are you aware of any diagnostic criteria for fibromyalgia?	
Yes	151 (27.2)
No	405 (72.8)
Which of the following area could be tender, soft tissue points for diagnosis of fibromyalgia?	
Neck	56 (10.1)
Shoulder girdle	40 (7.2)
None of the above	33 (5.9)
Upper back	19 (3.4)
Jaw	18 (3.2)
Upper arm	16 (2.9)
Lower back	14 (2.5)
Chest	12 (2.2)
Lower arm	11 (2)
Upper leg	9 (1.6)
Hip (buttock, trochanter)	6 (1.1)
Abdomen	6 (1.1)
Lower leg	5 (0.9)
All of the above	311 (55.9)
How to confirm diagnoses of fibromyalgia?	
Clinical (American College of Rheumatology diagnostic criteria)	406 (73)
Rheumatoid factor	44 (7.9)
Radiology	32 (5.8)
Blood test	30 (5.4)
ANA	20 (3.6)
ESR	13 (2.3)
CRP	11 (2)
Do you think fibromyalgia can be treated?	
Yes	245 (44.1)
No	70 (12.6)
I am not sure	241 (43.3)
If yes, what therapy would you recommend?	
Systemic steroids	54 (9.7)
Exercise program	53 (9.5)
Education (explain the condition for the patient)	41 (7.4)
Treat the comorbidity such as depression and sleep disturbance	37 (6.7)
Steroids injection acupuncture	29 (5.2)
Antidepressant and Anticonvulsant Psychiatry Therapy	24 (4.3)
Behavioral therapy	16 (2.9)
No need for treatment	23 (4.1)
None of the above	40 (7.2)
All of the above	239 (43)

The majority of participants, 488 (87.8%), thought that fibromyalgia affects the quality of life of patients. Only 37 (6.7%) were involved in the management of fibromyalgia. The large majority of participants reported awareness should be raised among doctors about fibromyalgia 506 (91%), and among patients, 505 (90.8%), and there were 498 (89.6%) thought that fibromyalgia should be a part of the curriculum. Only 56 (10.1%) thought that they had fibromyalgia symptoms, and 145 (26.1%) answered that they were ready to seek help from a specialist, Table 5.

The total knowledge of the participants was high among only 175 (31.5%), and it was low among 381 (68.5). The correlations between demographics and knowledge of the participants showed significant correlations between the level of awareness and year ($P = 0.002$), specialty, and ($P = 0.013$), Table 6.

By investigating the correlations between the level of awareness and other variables, there were significant correlations between the level of awareness and the answers regarding hearing about fibromyalgia ($P = 0.0001$), hearing lectures about fibromyalgia ($P = 0.009$), and awareness of diagnostic criteria of fibromyalgia ($P = 0.0001$), Table 7.

Table 5: The knowledge of the participants regarding increasing awareness of fibromyalgia

Questions and answers	Description (n=556)
Do you think fibromyalgia could affect patient quality of life?	
Yes	488 (87.8)
No	20 (3.6)
I am not sure	48 (8.6)
Have you ever been involved in the management of any fibromyalgia cases?	
Yes	37 (6.7)
No	519 (93.3)
Do you think we have to raise doctors' awareness about fibromyalgia as a possible diagnosis?	
Yes	506 (91)
No	50 (9)
Do you think we have to raise patient awareness about fibromyalgia as a possible diagnosis?	
Yes	505 (90.8)
No	51 (9.2)
Do you think fibromyalgia should be part of your curriculum or any medical school curriculum?	
Yes	498 (89.6)
No	58 (10.4)
Do you think you have any of the fibromyalgia symptoms?	
Yes	56 (10.1)
No	384 (69.1)
I am not sure	116 (20.9)
If you answer the above questions as yes, are you ready to seek help from a specialist?	
Yes	145 (26.1)
No	146 (26.3)
I am not sure	265 (47.7)

Discussion

The prevalence of FM was reported to be in the range of 2% to 9% of the population in different countries.^[9,10] This variation in FM prevalence may result from the variation in the diagnostic criteria.^[8] It was reported that the prevalence of FM is unknown in Nigeria^[4] and Pakistan.^[11] Also, the prevalence of FM in Saudi Arabia was reported to be unknown.^[3] Therefore, there is an undervaluation of the prevalence of FM in different countries. However, a previous Saudi study conducted on medical students reported a high prevalence of FM, where 9.6% of 450 medical students were affected with FM.^[12] A higher proportion was found in our study, where 10.1% reported that they thought that they had FM symptoms; however, a definite diagnosis was not made, and they require a further diagnosis to confirm this proportion.

A previously published Saudi study conducted on medical practitioners demonstrated that only 8.7% attended educational programs about FM.^[3] A higher proportion in our study (25.5%) heard lectures about FM during undergraduate teaching, but a much lower proportion (5.6%) reported attending CME activity.

The ACR in 2010 published preliminary revised criteria for FM diagnosis that do not include tender points but the severity of fatigue, cognitive symptoms, and walking unrefreshed as part of the core diagnostic assessment.^[13] More than one-half of our participants reported that the 13 investigated sites should be tender for the diagnosis of FM. Additionally, less than one-half reported that the widespread pain index (WPI) should be 4-7 for the diagnosis of FM, and most of the participants reported that ACR criteria are used for confirming the diagnosis of FM. According to the ACR 2016 revision, the FM diagnosis should fulfill WPI 4-6 and a symptom severity scale score ≥ 9 .^[14]

In a previous Saudi study that assessed the knowledge of medical practitioners regarding FM, only 33.7% were familiar with the diagnostic criteria.^[3] In our study, a lower proportion was found; only 27.2% were aware of the diagnostic criteria of FM.^[3]

The treatment of FM should be multi-disciplinary and should involve both pharmacological and nonpharmacological measures.^[3] However, the main components of the management strategy should involve exercise, education, and cognitive-behavioral therapy.^[15] The evidence-based exercise and physical therapy are the cornerstones of FM treatment.^[15,16] In our analysis, only a few proportions reported that patients suspected FM should be referred to a multi-disciplinary team, and few proportions recommended exercise (9.5%), education (7.4%), and behavioral therapy (2.9%). A previous Saudi study conducted on medical practitioners showed that physiotherapy was the major reported treatment for FM (37%), followed by medications (34%), whereas steroid/LA injections represented the least reported treatment (11%).^[3]

It was reported that FM has a considerable influence on the quality of life of the patient and imposes a substantial

Table 6: The correlations between the knowledge of the participants and their demographics

Variables	Awareness level		P	
	High (n=175)	Low (n=381)		
Gender				
Male	60 (34.3)	140 (36.7)	0.575	
Female	115 (65.7)	241 (63.3)		
Age				
18-24	121 (69.1)	288 (75.6)	0.319	
25-28	32 (18.3)	62 (16.3)		
29-35	10 (5.7)	13 (3.4)		
>35	12 (6.9)	18 (4.7)		
University				
King Saud University	50 (28.6)	81 (21.3)	0.107	
Imam Muhammad Ibn Saud Islamic University	34 (19.4)	90 (23.6)		
King Saud Bin Abdulaziz University For Health Science	40 (22.9)	77 (20.2)		
Princess Nora Bint Abdul Rahman University	10 (5.7)	31 (8.1)		
Alfaisal University	14 (8)	23 (6)		
Almaarefa University	7 (4)	20 (5.2)		
Dar Al Uloom University	1 (0.6)	16 (4.2)		
Inaya Medical College	0 (0)	4 (1)		
Others	19 (10.9)	39 (10.2)		
Year				0.002
First year	11 (6.3)	36 (9.4)	0.013	
Second year	16 (9.1)	66 (17.3)		
Third year	33 (18.9)	82 (21.5)		
Fourth year	30 (17.1)	81 (21.3)		
Fifth year	30 (17.1)	37 (9.7)		
Intern	22 (12.6)	38 (10)		
Other	33 (18.9)	41 (10.8)		
Specialty				
Basic science	9 (5.1)	53 (13.9)		0.013
Internal medicine	16 (9.1)	14 (3.7)		
Surgery	5 (2.9)	12 (3.1)		
Pediatrics	8 (4.6)	8 (2.1)		
Obstetrics and Gynecology	1 (0.6)	4 (1)		
Dermatology	2 (1.1)	2 (0.5)		
Ophthalmology	1 (0.6)	2 (0.5)		
ENT	0 (0)	3 (0.8)		
Psychiatric	0 (0)	2 (0.5)		
Other/Student	133 (76)	281 (73.8)		

financial burden.^[17] The majority of our participants thought that, too.

The assessment of the total level of knowledge in our study showed a low level of knowledge among our participants. Similarly, a previous Saudi study reported poor knowledge regarding FM, but the study was conducted on medical practitioners.^[3] Another Saudi study conducted on physical therapists showed that there was little awareness among the participants regarding the management and assessment of FM patients.^[8]

A study from Nigeria conducted on medical students demonstrated inadequate knowledge of the medical students regarding FM,^[6] which was in agreement with our findings. Additionally, the Nigerian study reported that the level of knowledge about FM was significantly associated with age,

gender, level of class, and current clinical posting.^[6] The contrary was found in our study, as gender and age had no association with the level of knowledge, whereas, in agreement with the previous study, the year was significantly associated with the level of knowledge. Another study from Nigeria conducted on physicians also showed low levels of FM knowledge among physicians. The knowledge of FM among Nigerian physicians was significantly affected by age, years in the clinical practice, specialty, and type of health facility.^[7] In contrast to this low level of knowledge, a study from Pakistan involved physicians reported that physicians showed satisfactory knowledge regarding the symptoms and treatment strategies of FM. However, there was a gap in their knowledge regarding the diagnostic criteria.^[11]

Insufficient knowledge of healthcare professionals about FM may lead to delays in providing the appropriate treatment for

Table 7: The correlations between the knowledge of the participants and other variables

Variables	Awareness level		P
	High (n=175)	Low (n=381)	
Did you hear about fibromyalgia?			
Yes	138 (78.9)	176 (46.2)	0.000
No	23 (13.1)	125 (32.8)	
I am not sure	14 (8)	80 (21)	
Have you heard any lectures about fibromyalgia during your undergraduate teaching?			
Yes	58 (33.1)	84 (22)	0.009
No	70 (40)	198 (52)	
I am not sure	47 (26.9)	99 (26)	
Have you attended any CME activity or awareness event about fibromyalgia?			
Yes	12 (6.9)	19 (5)	0.372
No	163 (93.1)	362 (95)	
I am not sure	0 (0)	0 (0)	
Are you aware of any diagnostic criteria for fibromyalgia?			
Yes	79 (45.1)	72 (18.9)	0.000
No	96 (54.9)	309 (81.1)	
I am not sure	0 (0)	0 (0)	

patients, poor adherence, and higher costs of healthcare related to unnecessary testing. Therefore, there is a need to improve the knowledge and training of physicians and increase their awareness as well as the medical students.^[8] The majority of our participants knew and reported the importance of increasing the awareness of physicians and patients about FM.

Conclusion

The prevalence of FM was high according to the report of participants in this study; however, confirmation is required, and this was not a definite prevalence rate. There was a low level of knowledge among the medical students and the physicians, similar to previous Saudi studies and studies from other countries. An awareness campaign should be established to increase the knowledge of physicians and students.

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Conflicts of interest

There are no conflicts of interest.

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