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Original Research Article

Assessment of physicians' knowledge and awareness of fibromyalgia: a cross-sectional study

Airenakho Emorinken[1]*, Mercy Ofunami Dic-Ijiewere[1], Oluwaseun Remi Agbadaola[2], Tijani Idris Ahmad Oseni[3], Patrick Ojojarumiu Echekwube[4], Asuwemhe Johnson Ugheoke[1,3], Onosegbe Moses Aikhuomogbe[1]

[1]Department of Internal Medicine, Irrua Specialist Teaching Hospital, Irrua, Edo State, Nigeria
[2]Department of Internal Medicine, Al jawal General Hospital, Uyun Al-jawal, Saudi Arabia
[3]Department of Family medicine, Ambrose Alli University, Ekpoma, Edo State, Nigeria
[4]Department of Medicine, College of Health Sciences, Benue State University, Makurdi, Nigeria

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***Correspondence:**
Dr. Airenakho Emorinken,
E-mail: emosairen@gmail.com

ABSTRACT

Background: Fibromyalgia is not an uncommon cause of chronic musculoskeletal pain, and despite its rising prevalence, it remains a diagnostic challenge for physicians. This study aimed to assess the knowledge and awareness of fibromyalgia among Nigerian physicians.
Methods: This was a cross-sectional, self-reported online survey. A total of 502 physicians participated in the study. The data was collected using a semi-structured questionnaire. The questionnaire comprised of sociodemographic data and questions related to fibromyalgia. A scoring system was developed to stratify knowledge of fibromyalgia into very low, low, average, high, and very high. The level of significance was set at $p<0.05$.
Results: Responses were obtained from 502 physicians with a mean age of 36±7.02 years. Most of the respondents (41.3%) had low fibromyalgia knowledge levels. Only 15.2% of the respondents obtained their knowledge of fibromyalgia during their undergraduate training, and 33.5% were familiar with at least one diagnostic criteria. Physical exercise (79.2%), opioids (65.6%), and non-steroidal anti-inflammatory drugs (63.8%) were the most selected treatment options. The years in clinical practice, type of health facility, respondents' cadre, and specialty were significantly associated with fibromyalgia knowledge levels ($p<0.001$). The number of years in clinical practice was found to be a predictor of fibromyalgia knowledge ($p=0.001$).
Conclusions: This study found low levels of fibromyalgia knowledge among Nigerian physicians. The survey emphasizes the importance of improving Nigerian physicians' training modules for the diagnosis and treatment of fibromyalgia.

Keywords: Awareness, Fibromyalgia, Knowledge, Physician

INTRODUCTION

Fibromyalgia (FM) is a chronic pain disorder characterized by the presence of widespread musculoskeletal pain and tenderness.[1] In addition, patients with FM experience sleep disturbances, fatigue, cognitive dysfunction, mood disturbances, and a host of somaticsymptoms.[2-4] The existence of FM has been questioned, even among medical practitioners.[5] The condition affects about 0.6-6% of the general population, with females being the most affected.[6,7] According to Wolfe et al, the prevalence in the United States (US) is estimated to be 2%.[7] In Nigeria, the prevalence of FM is unknown. However, studies have been conducted to assess the frequency of FM across different populations and regions of the country.[8,9] This condition directly

affects the quality of life of a person and imposes a substantial financial burden.[10,11] It is estimated that three out of four people with FM go undiagnosed, despite its impact.[12] The diagnosis of FM continues to be a clinical problem and has evolved over time.[6] The diagnosis is made solely clinically, as there are no conclusive radiologic or analytical biomarkers.[13,14] A number of easy-to-use diagnostic criteria have been developed. However, the diagnosis is frequently delayed due to a lack of understanding of these criteria.[15]

Wolfe et al proposed the American College of Rheumatology (ACR) classification criteria in 1990, which included a physical examination to detect at least 11 of 18 tender sites and chronic widespread musculoskeletal pain.[16] For the past thirty years, these characteristics have been used as an FM diagnostic approach. There have been several revisions and updates of the FM diagnostic criteria with the latest in 2016.[1,17,18] These were developed to place a greater emphasis on somatic symptoms than on physical examination, as well as to address the problem of physicians performing tender point examinations infrequently and insufficiently.[1]

Current recommendations for treating FM propose a multidisciplinary strategy that incorporates pharmacological treatment as well as complementary therapies such as aerobic exercises, cognitive behavioural therapy (CBT), and meditative therapies.[2]

Pregabalin, milnacipran, and duloxetine have been approved for the treatment of FM by the US Food and Drug Administration. However, different antidepressants and medications have been utilized with varying degrees of evidence supporting their usefulness.[19] Some studies have been conducted to assess physicians' understanding of FM.[14,20-23] In general, these studies found inadequate knowledge of FM among respondents, with variations between specialties. This study seems to be the first in Nigeria to assess physicians' knowledge of FM. The primary goal is to assess the knowledge of clinical presentation, diagnosis, and treatment of FM among Nigerian physicians. The findings of this study will provide crucial insight into Nigerian medical experts' understanding of FM. It will also serve as a foundation for future research aimed at enhancing FM clinical diagnosis and patient management, with the goal of improving patient outcomes.

METHODS

Study setting and participants

This was a cross-sectional online self-reported study conducted from June 2021 to August 2021. A total of 502 physicians were enrolled in the study. Physicians who were not willing to participate were excluded. The inclusion criteria required participants to be practising medical doctors in Nigeria, regardless of their specialty and cadre. Eligible participants received an electronic survey (through social media and direct invitation applications). The institutional ethics committee approved the study, and all data and responses were fully anonymized. Acceptance to participate in the survey indicates informed consent.

Instrument for data collection

The questionnaire comprised two parts. The first section was the socio-demographic data which comprised sex, age, geographic region of the country, specialization, position, and years in practice. The second section assessed the participant's knowledge of risk factors, clinical presentation, diagnosis, and treatment of FM. The FM-related questions were developed using the literature and FM-related studies as a foundation.[21–25]

Scoring system

The scoring system was used in questions involving proposed risk factors, clinical presentation, and treatment of FM. Previous research provided the basis for the scoring system.[26] The correct responses received a score of +1 when correctly identified and a score of zero (0) when identified incorrectly. The incorrect responses received a score of +1 for correct identification and a score of -1 for incorrect identification.

The scores for risk factors ranged from -3 to 10 with very low (-3 to -1), low (0 to 2), average (3 to 5), high (6 to 8), and very high (9-10) categories. The clinical presentation scores ranged from -8 to 13 with very low (-8 to -4), low (-3 to 1), average (2 to 6), high (7 to 11), and very high (12 to 13) categories. The overall score for treatment modalities information ranged from -6 to15, with very low (-6 to -2), low (-1 to -3), average (4 to 8), high (9 to 13), and very high (14 to 15) being the categories. The overall/aggregate scores for risk factors, clinical presentation, and treatment ranged -17 to 45 with very low (-17 to -5), low (-4 to 8), average (9 to 19), high (20 to 32), and very high (33 to 45) categories.

Statistical analysis

The Statistical Package for Social Science (SPSS) version 25, (SPSS Inc., Chicago, IL, USA) was used to code and analyse the information collected. The qualitative variables were presented as frequencies and percentages, and the quantitative variables as mean and standard deviations. The Pearson's chi-square test and/or Fisher's exact test were used to test for associations. Ordinal logistic regression was computed to determine the predictors of FM knowledge. Tests were considered statistically significant at p value less than 0.05.

RESULTS

A total of 520 physicians of different specializations and cadres participated in the study. The mean age of the respondents was 36±7.02 years (range: 25 to 61 years),

with males accounting for 56% of the total. The average number of years spent in clinical practice from graduation was 8.41±5.53 years. Over 60% of the participants were from the southern part of Nigeria. The percentage of participants that were either resident doctors or medical officers was 68.3%. Consultants from different specialties involved in the study stood at 22.7%. The socio-demographic characteristics of the participants are presented in (Table 1).

As regards the general perception of physicians towards FM, almost all the respondents (98.3%) had heard about FM before taking part in the study, and 42.3% of these acquired the knowledge by self-study. As seen in Figure 1, postgraduate (PG) and undergraduate training accounted for 35.3% and 15.2%, respectively. Most respondents believe that FM is a distinct clinical entity. About 40% of the participants think FM is an inflammatory disease and that the disease condition could cause joint deformity. Though almost all the participants agreed that FM affects the quality of life of affected patients, about half of the respondents were unsure of its prognosis. Only about a third of the participants were aware of at least one diagnostic criteria for FM, and 58% of these selected the 1990 ACR criteria as their preferred diagnostic criteria. Other responses relating to the respondents' general opinions on FM are shown in Table 2.

The participants' responses to questions about the risk factors, clinical presentations, and treatment modalities for patients with FM are summarized in Table 3. The most frequently selected risk factors were female gender (71.0%), age (63.5%), and connective tissue diseases (CTD) (60.6%). Widespread pain (70.4%) was the most frequently selected clinical presentation. Others include excessive fatigue (64.2%), and sleep disturbance (57.8%). Almost a quarter of the respondents selected abnormal radiographs as part of the clinical presentation of FM.

Opioids (65.6%), non-steroidal anti-inflammatory drugs (NSAIDs) (63.8%), prednisolone (48.8%), and tricyclic antidepressants (TCA) (45.8%) were the top four preferred pharmacologic treatments selected by respondents. The preferred non-pharmacologic treatments selected by respondents were physical exercises (79.2%), massage (52.7%), CBT (51.0%), and yoga (50.8%). Overall, physical exercise was the most selected treatment approach.

The respondents' preferences for the specialist that treats FM is depicted in Figure 2. Most participants (92.5%) believe that FM should be treated by a rheumatologist, while 31.0%, 27.1%, and 22.7% say that it should be treated by a pain medicine specialist, a psychiatrist, and a neurologist, respectively.

The scoring system was used to stratify participants' knowledge of the risk factors, clinical presentation, and treatment modalities of FM into five levels: very low, low, average, high, and very high. More than one-third of participants (43.5%) had average levels of knowledge about the risk factors (Table 4). A higher number of respondents had low levels of knowledge of the clinical presentation and treatment options (33.5% vs. 42.5%). The respondents' overall knowledge of FM was also computed, and the majority (41.3%) had low levels. The relationship between FM knowledge levels and sociodemographic and professional variables is depicted in Table 5.

Age ($p<0.001$), geopolitical zones ($p<0.001$), type of health facility ($p<0.001$), cadre of respondents ($p<0.001$), years in practice ($p < 0.001$) and specialty of respondents ($p<0.001$) all had significant relationships with FM knowledge. Ordinal logistic regression was used to identify predictors of FM knowledge levels as depicted in Table 6. Age ($p<0.001$), type of health facility ($p=0.006$), and years in practice ($p=0.001$) were found to be predictors of FM knowledge.

Table 1: Sociodemographic and professional characteristics of the participants (n=520).

Characteristics	N (%)
Age range (years)	
20-29	92 (17.7)
30-39	288 (55.4)
40-49	115 (22.1)
≥50	25 (4.8)
Mean±SD	36.12±7.02
Gender	
Male	291 (56.0)
Female	229 (44.0)
Position/Cadre	
Medical Intern	47 (9.0)
Medical Officer	183 (35.2)
Resident Doctor	172 (33.1)
Consultant	118 (22.7)
Specialty	

Continued.

Characteristics	N (%)
Family medicine	90 (17.3)
Internal medicine	142 (27.3)
Obstetrics and gynaecology	15 (2.9)
Surgery	38 (7.3)
Paediatrics	34 (6.5)
General duty medical officer	169 (32.5)
Others*	32 (6.2)
Years in practice	
1-5	196 (37.7)
6-10	127 (24.4)
11-15	147 (28.3)
16-20	39 (7.5)
>20	11 (2.1)
Mean±SD	8.41±5.23
Type of health institution	
Government-owned	379 (72.9)
Private owned	122 (23.5)
NGO	6 (1.2)
PHC	13 (2.5)
Region of practice	
Rural	192 (36.9)
Urban	328 (63.1)
Geopolitical zone of practice	
South-South	194 (37.3)
South-West	113 (21.7)
South-East	66 (12.7)
North-Central	86 (16.5)
North-West	37 (7.1)
North-East	24 (4.6)

Note: *-Anaesthesiology, Pathology, Public health, Ophthalmology, Radiology; NGO- Non-Governmental Organisation; PHC- Primary Healthcare Centres; N- frequency of each variable; n- total number of respondents; all values are stated in number (percentages) unless otherwise stated.

Table 2: Responses to general opinion on FM among respondents (n=520).

Variables	N (%)
Have you heard of fibromyalgia before?	511 (98.3)
Have you ever made a diagnosis of FM?	106 (20.4)
If yes, how many in the last year? (N = 106)	
1-5	99 (93.4)
6-10	4 (3.8)
11-15	3 (2.8)
Is FM a clinical entity?	472 (90.8)
FM occurs more in:	
Females	382 (73.5)
Males	56 (10.8)
Equal sex distribution	82 (15.8)
Is FM an inflammatory joint disease?	197 (37.9)
Is FM a cause of joint deformity?	221 (42.5)
Does FM affect the quality of life of an individual?	492 (94.6)
Are you familiar with any criteria used to diagnose FM?	174 (33.5)
If yes, which criteria do you know? (N=174)	
ACR 1990	101 (58.0)
ACR 2010	49 (28.2)
ACR 2016	24 (13.8)
Which criteria have you used for diagnosis in your practice? (N=174)	
ACR 1990	82 (47.1)

Continued.

Variables	N (%)
ACR 2010	68 (39.1)
ACR 2016	24 (13.8)
Have you heard of tender points?	277 (53.3)
If yes, what is the total number of tender points present? (N = 277)	
16 -18[a]	92 (33.2)
What is the minimum number of tender points required for diagnosis? (N =277)	
10-12[b]	65 (23.5)
How is the diagnosis of FM confirmed?	
Clinical	349 (67.1)
Laboratory	40 (7.7)
Radiological	94 (18.1)
Laboratory and Radiological	5 (1.0)
None required	32 (6.2)
Are there effective treatments for FM?	350 (67.3)
Treatment's modalities include pharmacologic and non-pharmacologic means:	484 (93.1)
What is the prognosis of FM?	
Poor	82 (15.8)
Not Sure	262 (50.4)
Good	176 (33.8

ACR, American college of rheumatology; a- was accepted as correct; b- was accepted as correct; N, frequency of each variable; n, total number of respondents; FM, Fibromyalgia; all values are stated in number (percentages) unless otherwise stated.

DISCUSSION

The study revealed low levels of FM knowledge in the majority of the respondents. This is in line with findings from other studies in other parts of the world.[21,22,25,26] Most of these studies evaluated general practitioners (GPs)/family physicians. However, even studies that assessed physicians in specific specialties like rheumatology and neurology also recorded insufficient knowledge of FM diagnostic criteria and treatment modalities.[20,21,23,25] We discovered that respondents' specialty had a significant impact on their knowledge of FM. For example, physicians practising in specialties such as internal medicine had a greater understanding of FM than physicians practising in other specialties.

This could be because physicians practising in internal medicine subspecialties like rheumatology participated in the study and are intimately involved in the management of FM. It has been highlighted that physician with specific training in pain and musculoskeletal disorders have a greater understanding of FM.[25] The number of years in clinical practice is also crucial since, in theory, a doctor/physician with more clinical experience should have a greater understanding of a disease entity. This was corroborated in this study as the number of years in clinical practice significantly influenced the knowledge of FM. This contrasts with the findings of Kianmehr et al, Ortiz et al and Kumbhare et al where the time elapsed since graduation was not associated with greater knowledge of FM.[25-27] Additionally, the cadre of doctors who participated in this study impacted the FM knowledge level, which is understandable given that doctors in higher cadres may have had more training and experience which will typically influence their knowledge. However, only the number of years in clinical practice and the type of health facility were found to be determinants of FM knowledge in this study. The majority (90.8%) of our respondents believe that FM is a distinct clinical entity. This finding is consistent with those of Blotman et al in France, Mu et al in China, and Arshad et al in Southeast Asia.[20,21,23] Despite the ongoing controversy over whether FM is a clinical entity or not, there is a growing consensus that it is an independent clinical entity. This is as a result of increased understanding of the disease's inherent patho-physiological processes.[28] However, the challenge here is that most primary care clinicians think of FM as somatization, which should not be considered a debilitating illness in any case.[29,30]

Table 3: Respondents' knowledge of the proposed risk factors, clinical presentations, and treatment modalities of FM.

Proposed risk factors	N (%)	Clinical presentation	N (%)	Treatment	N (%)
Age	330 (63.5)	Widespread pain	366 (70.4)	opioids	341 (65.6)
Gender	369 (71.0)	Localised pain	191 (36.7)	Pregabalin	231 (44.4)
Traumatic events	273 (52.5)	Arthritis	161 (31.0)	Acetaminophen	208 (40.0)
Environmental	104 (20.0)	Morning joint stiffness	228 (43.8)	Serotonergic	177 (34.0)

Continued.

Proposed risk factors	N (%)	Clinical presentation	N (%)	Treatment	N (%)
noise				antidepressants	
Psychiatric disorders	132 (25.4)	Joint swelling	169 (32.5)	NSAIDs	332 (63.8)
Stress	272 (52.3)	Headache	125 (24.0)	Tricyclic antidepressants	238 (45.8)
Physical inactivity	180 (34.6)	Sleep disturbance	301 (57.8)	Immunosuppressive agents	119 (22.9)
Genetics	228 (43.8)	Cognitive impairment	144 (27.7)	Biologics	110 (21.2)
Poor sleep	198 (38.1)	Fatigue	334 (64.2)	Prednisolone	254 (48.8)
CTDs	315 (60.6)	Anxiety	215 (41.3)	Cyclobenzaprine	64 (12.3)
-	-	Depression	277 (53.3)	Yoga	264 (50.8)
-	-	GI symptoms	133 (25.6)	Physical exercises	412 (79.2)
-	-	Muscle weakness	294 (56.5)	CBT	265 (51.0)
-	-	Elevated ESR/CRP	237 (45.6)	Acupuncture	202 (38.8)
-	-	Weight loss	119 (22.9)	Massage	274 (52.7)
-	-	Abnormal radiology	117 (22.5)	Hydrotherapy	131 (25.2)
-	-	-	-	Homoeopathy	80 (15.4)
-	-	-	-	Hypnotherapy	68 (13.1)
-	-	-	-	Tai chi	64 (12.3)
-	-	-	-	chiropractic	91 (17.5)

CTDs, connective tissue diseases; ESR, erythrocyte sedimentation rate; CRP, c-reactive protein; FM, Fibromyalgia; CBT, cognitive behavioural therapy; GI, gastrointestinal; N, frequency of each variable; all values are stated in number (percentages) unless otherwise stated.

Table 4: Respondents' levels of knowledge of the risk factors, clinical presentations, and treatment modalities of FM.

Levels of knowledge	Risk factors N (%)	Clinical features N (%)	Treatment N (%)	Overall knowledge N (%)
Very low	24 (4.6)	29 (5.6)	16 (3.1)	23 (4.4)
Low	182 (35.0)	174 (33.5)	221 (42.5)	215 (41.3)
Average	226 (43.5)	148 (28.5)	157 (30.2)	185 (35.6)
High	71 (13.7)	91 (17.5)	98 (18.8)	71 (13.7)
Very high	17 (3.3)	78 (15.0)	28 (5.4)	26 (5.0)

Table 5: Relationship between respondents' overall levels of knowledge of FM with sociodemographic and professional characteristics.

	Levels of knowledge					
Characteristics	**Very low N (%)**	**Low N (%)**	**Average N (%)**	**High N (%)**	**Very high N (%)**	**P value**
Age groups (years)						
20-29	6 (6.5)	52 (56.5)	26 (28.3)	8 (8.7)	0 (0.0)	$^{\alpha}p < 0.001$*
30-39	12 (4.2)	110 (38.2)	122 (42.4)	26 (9.0)	18 (6.3)	
40-49	5 (4.3)	45 (39.1)	32 (27.8)	25 (21.7)	8 (7.0)	
≥50	0 (0.0)	8 (32.0)	5 (20.0)	12 (48.0)	0 (0.0)	
Gender						
Female	10 (4.4)	95 (41.5)	79 (34.5)	39 (17.0)	6 (2.6)	$^{\beta}p = 0.085$
Male	13 (4.5)	120 (41.2)	106 (36.4)	32 (11.0)	20 (6.9)	
Geopolitical zone						
South-South	2 (1.0)	99 (51.0)	82 (42.3)	7 (3.6)	4 (2.1)	$^{\alpha}p < 0.001$*
South-West	4 (3.5)	60 (53.1)	39 (34.5)	6 (5.3)	4 (3.5)	
South-East	15 (22.7)	13 (19.7)	14 (21.2)	22 (33.3)	2 (3.0)	
North-Central	0 (0.0)	23 (26.7)	42 (48.8)	11 (12.8)	10 (11.6)	
North-West	2 (5.4)	16 (43.2)	8 (21.6)	11 (29.7)	0 (0.0)	
North-East	0 (0.0)	4 (16.7)	0 (0.0)	14 (58.3)	6 (25.0)	

Continued.

	Levels of knowledge					
Type of health institution						
Government	14 (3.7)	153 (40.4)	141 (37.2)	45 (11.9)	26 (6.9)	$^{\alpha}p < 0.001$*
Private	9 (7.4)	51 (41.8)	40 (32.4)	22 (18.0)	0 (0.0)	
NGO	0 (0.0)	6 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	
PHC	0 (0.0)	5 (38.5)	4 (30.8)	4 (30.8)	0 (0.0)	
Region of practice						
Rural	7 (3.6)	80 (41.7)	78 (40.6)	22 (11.5)	5 (2.6)	$^{\beta}p = 0.127$
Urban	16 (4.9)	135 (41.2)	107 (32.6)	49 (14.9)	21 (6.4)	
Position/cadre						
Medical intern	(8.5)	24 (51.1)	13 (27.2)	6 (12.8)	0 (0.0)	$^{\beta}p < 0.001$*
Medical officer	4 (2.2)	94 (51.4)	74 (40.4)	10 (5.5)	1 (0.5)	
Resident doctor	6 (3.5)	64 (37.2)	75 (43.6)	20 (11.6)	7 (4.1)	
Consultant	9 (7.6)	33 (28.0)	23 (19.5)	35 (29.7)	18 (15.3)	
Years in practice						
1-5	4 (2.0)	105 (53.6)	72 (36.7)	12 (6.1)	3 (1.5)	$^{\alpha}p < 0.001$*
6-10	12 (9.4)	48 (37.8)	45 (35.4)	20 (15.7)	2 (1.6)	
11-15	7 (4.8)	42 (28.6)	50 (34.0)	30 (20.4)	18 (12.2)	
16-20	0 (0.0)	16 (41.0)	11 (28.2)	9 (23.1)	3 (7.7)	
> 20	0 (0.0)	4 (36.4)	7 (63.6)	0 (0.0)	0 (0.0)	
Specialty						
Family Medicine	11 (12.2)	34 (37.8)	19 (21.1)	26 (28.9)	0 (0.0)	$^{\alpha}p < 0.001$*
InternalMedicine	0 (0.0)	32 (22.5)	47 (33.1)	40 (28.2)	23 (16.2)	
Obs and Gyn	0 (0.0)	10 (66.7)	5 (33.3)	0 (0.0)	0 (0.0)	
Surgery	8 (21.1)	15 (39.5)	15 (39.5)	0 (0.0)	0 (0.0)	
Paediatrics	0 (0.0)	15 (44.1)	16 (47.1)	3 (8.8)	0 (0.0)	
General duty MO	2 (1.2)	91 (53.8)	71 (42.0)	2 (1.2)	3 (1.8)	
Others †	2 (6.3)	18 (56.2)	12 (37.5)	0 (0.0)	0 (0.0)	

*Statistically significant; †anaesthesiology, public health, radiology, ophthalmology, pathology; FM, fibromyalgia; Obs, Obstetrics; Gyn, Gynaecology; MO- Medical Officer; N, frequency of each variable; $^{\alpha}p$, p-value determined by fisher's exact test unless otherwise stated; $^{\beta}p$, p-value determined by chi-square unless otherwise stated; All values are stated in number (percentages) unless otherwise stated.

Table 6: Ordinal logistic regression of respondents' overall levels of knowledge of FM with sociodemographic and professional characteristics.

Variables	Coefficient	Std error	df	95% confidence interval		
				Significance	Lower	Upper
Age	-0.085	0.022	1	< 0.001*	-0.128	-0.042
Geopolitical zone	-0.119	0.065	1	0.065	-0.246	0.008
Region of practice	-0.096	0.191	1	0.614	-0.472	0.279
Type of health institution	-0.387	0.141	1	0.006*	-0.664	-0.111
Position/cadre	-0.070	0.129	1	0.558	-0.323	0.183
Years in practice	0.451	0.138	1	0.001*	0.181	0.721
Specialty	-0.023	0.027	1	0.395	-0.077	0.030

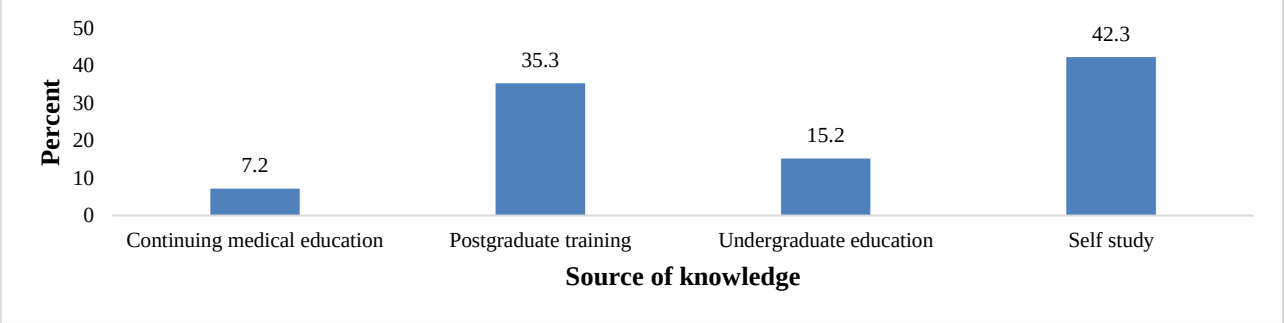

Figure 1: Source of knowledge about fibromyalgia.

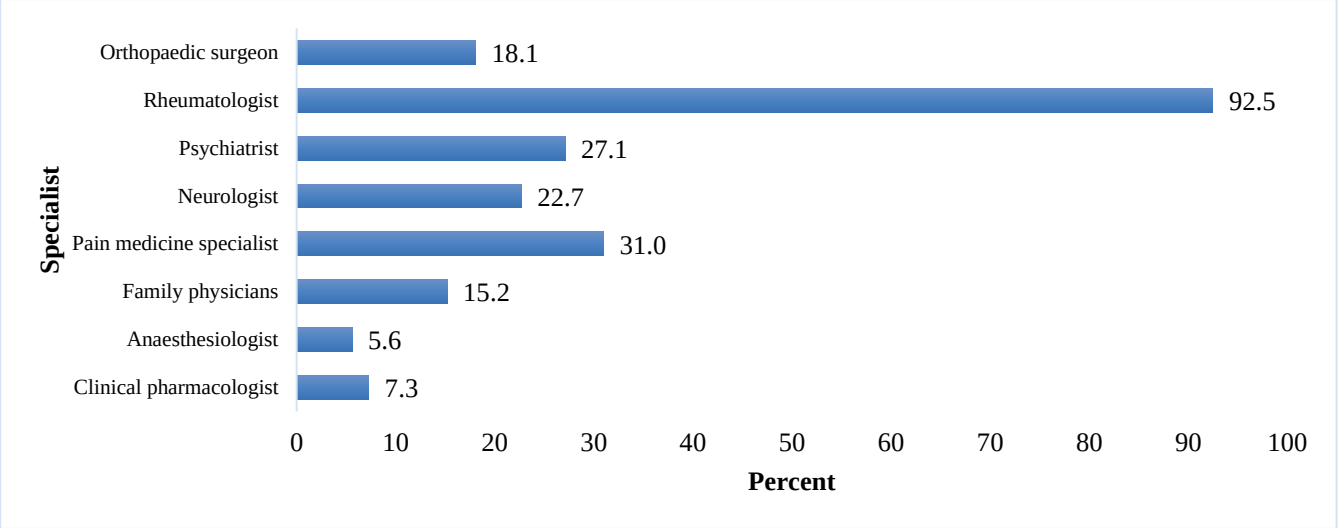

Figure 2: Specialists that treat fibromyalgia.

Although respondents recognized the symptoms of FM, it was discouraging to see that up to 30% were unaware that widespread musculoskeletal pain is a crucial factor in the diagnosis of FM. Some unexpected replies were also found in this survey, as a considerable proportion of respondents stated that FM is manifested by high ESR/CRP levels and abnormal radiology. This study's level of recognition of FM symptoms and treatment is similar tothat of previous research.[14,23,26]

Even after making the diagnosis of FM, physicians are at a crossroads with the choice of treatment options. The use of NSAIDs and steroids has wrongly been prescribed for the management of FM.[22,26] A study done among Iranian GPs on the knowledge of FM and its treatment showed that 52.1% and 23.7% of the respondents wrongly considered NSAIDs and corticosteroids as forms of treatment for FM.[26] Similarly, 63.8% and 48.8% of our respondents, respectively, considered NSAIDs and prednisolone as treatment modalities for FM. Furthermore, 65.5% and 40% of the respondents, respectively selected opioids and acetaminophen as treatment options for FM. These show inadequacies in the knowledge of FM treatment amongst Nigeria physicians, and hence the urgent need to upgrade curricula and improve training and retraining of physicians.

Understanding how FM presents is crucial for early discovery and diagnosis, as well as relieving patients' worries and frustrations. This study discovered that less than a third of physicians have diagnosed at least one case of FM. The diagnosis of FM is connected to an understanding of the disease entity; thus, a lack of knowledge will result in a reduced diagnosis. Though about one-third of respondents were familiar with at least one of the FM diagnostic criteria, the majority were more familiar with the ACR 1990 criteria. Responses to questions about tender points indicated that fewer than a third correctly identified the total number of tender points and the number required for diagnosis. Kaki et al found that less than half of their respondents knew the ACR 1990 criteria and that only 37.1% correctly identified the number of tender points required for diagnosis.[22] Blotman et al reported that one-quarter of the physicians knew the total number of tender points, whereas in Peru in a study that assessed GPs' knowledge of FM, only 4 (2.8%) correctly positioned at least 11 of the tender points required for diagnosis.[21,27] This study, however, did not assess the knowledge of tender points' location.

In a survey of physicians' knowledge of FM in eight countries, Perrot et al found that more than half of them had difficulty diagnosing FM, and less than half were knowledgeable about diagnostic criteria for FM.[31] The use of tender points in the diagnosis of FM has some drawbacks. It did not account for the somatic symptoms associated with FM. There are limitations to the objectivity and utility of this criterion and untrained evaluators are unlikely to apply the criterion consistently. Recent revisions to the FM classification criteria attempt to simplify the diagnostic process. Tender point examinations were eliminated from the new ACR criteria in favour of self-reported pain in various body regions.[1,18] This makes it easier for non-rheumatologists to make an accurate diagnosis.

However, the presence of different versions of diagnostic criteria can be perplexing for physicians. About two-thirds of GPs and specialists have diagnostic challenges as regards FM.[21,31] A study in Canada looked at the knowledge and application of FM diagnostic criteria. It found that about half of the physicians did not comply with the diagnostic guidelines.[25] Diagnostic delays can be compounded by a lack of understanding of FM diagnostic criteria, there by delaying treatment and increasing the

burden of the disease. Our findings back up this data even more because only a third of the doctors used diagnostic criteria for FM.

Inadequate knowledge of FM also indicates deficiencies in physician education about FM. The majority (42.3%) of participants in this study learned about FM through self-study. This is comparable to the study by Zeid et al in Egypt.[14] Undergraduate education accounted for less than a third of the total, and PG education accounted for 35.3%. The disparity in knowledge and diagnostic abilities among physicians may be due to differences in medical education and depth of training in pain and musculoskeletal medicine.[25] According to studies, the majority of FM knowledge is acquired during residency.[25] It is highlighted that the amount of time spent on musculoskeletal medicine education throughout the undergraduate medical years varies significantly, usually not more than seven weeks.[25]

According to Watson et al musculoskeletal and pain medicine make up less than 2% of the undergraduate medical curriculum at Canadian universities.[32] The situation may be more precarious in our setting, as less than half of medical schools have qualified physicians to teach pain and musculoskeletal medicine, let alone have a curriculum dedicated to musculoskeletal medicine.[33] This may lead to students starting residency training with little knowledge of musculoskeletal medicine. Non-rheumatologists, particularly family physicians, are given less time (zero to six weeks) in musculoskeletal rotations and internal medicine clinics during PG training. However, this may not entail FM instructions.[25]

This points to major flaws in training programs. In a multi-centre assessment comparing knowledge of FM among physicians of various disciplines, psychiatrists and GPs received the lowest grades for training and understanding of FM.[31] Other studies have shown similar reports of insufficient training in FM education.[21,27] Indeed, the observed training deficiencies among physicians in many studies are a source of concern**.** It is critical that they have received proper training and have a thorough understanding of FM. As a result, FM education at medical schools and physicians' PG training should be prioritized. Finally, we discovered that continuing medical education (CME) programs had the least influence in increasing physicians' understanding of FM. Kaki et al reported similar findings, as a few of the participants had attended FM instructional programs.[22] As a result, FM education should be better integrated into CME programs.

The rheumatologist's role in the management of FM has been well established. According to our findings, 92.5% of respondents agree that FM patients should be managed by a rheumatologist. Other physicians selected include pain medicine specialists (31%), psychiatrists (27.1%), and neurologists (22.7%). This finding is consistent with those of other studies.[21,22,27] The majority of FM patients are currently being cared for by rheumatologists. However, GPs who have the necessary training and experience are the best fit to manage FM.[34] Ideally FM patients should be managed by a multidisciplinary healthcare team.[34]

Regrettably, such settings entail a significant cost and a high level of competence. Most patients first go to their family physicians, and it usually takes two to three years before they get referred to a rheumatologist, resulting in a delay in diagnosis.[15,35] Early diagnosis is therefore critical to avoid unnecessary investigations and numerous visits to different specialties.

Limitations

This study has some limitations. It is an online self-reported survey with no means of verifying data. It also has the potential for recall bias among respondents. The scoring system used in this study was not validated. This lack of external validation has a negligible effect on the study's conclusion. Some published studies on FM awareness and knowledge developed measuring tools that were also not validated.[21,31,35]

CONCLUSION

The result of this survey revealed inadequate knowledge of FM among Nigerian physicians, with knowledge levels varying across specialties. The survey emphasizes the importance of improving Nigerian physicians' training modules for the diagnosis and treatment of FM, especially among general duty medical officers and family medicine practitioners.

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