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PREVALENCE OF FIBROMYALGIA AT THE MEDICAL OUT PATIENT CLINIC, KENYATTA NATIONAL HOSPITAL

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ABSTRACT

**Background:** Fibromyalgia syndrome is a disorder that is associated with significant morbidity. Despite its existence worldwide there is hardly any epidemiological data in Africa and none in Kenya.

**Objectives:** To determine the prevalence of fibromyalgia, chronic regional pain and chronic widespread pain in patients attending the medical outpatient and rheumatology clinic at Kenyatta National Hospital and to investigate the frequency of fibromyalgia symptoms and to document the primary diagnosis and comorbid conditions in these patients.

**Design:** A Cross sectional descriptive study.

**Setting:** The medical outpatient and rheumatology clinic at The Kenyatta National Hospital.

**Subjects:** Three hundred and eighty four patients with musculoskeletal pain.

**Results:** The prevalence of fibromyalgia, chronic regional pain and chronic widespread pain amongst patients with chronic musculoskeletal pain (n = 384) in the medical outpatient clinic and rheumatology clinic of Kenyatta National Hospital was 13% (n = 50), 76% (n = 291) and 11% (n = 43) respectively. The overall three month prevalence of fibromyalgia in the general medical outpatient clinic was 1%, chronic widespread pain 1.2% and chronic regional pain 6.7%. The mean age of patients with fibromyalgia was 48.5 years SD 2.6 [95% CI 43.1-53.8]. There was a female predominance of 97.7% (n = 42). Mean duration of illness was 5.8 years SD 0.8 [95% CI 4.1 - 7.4]. Rheumatoid arthritis was the most frequent primary diagnosis at first consultation in the clinics [30.2% (n=13/43)]. Hypertension was the most common comorbid disease [53.5% (n=23/43)]. The mean total FIQR score for fibromyalgia patients was 55.94% SD (2.85) 95% CI 50.19-61.68. The most frequent symptoms were pain, fatigue, stiffness, depression, and unrefreshing sleep while balance problems, headache and increased sensitivity to the environment were the least reported symptoms.

**Conclusion:** Fibromyalgia is prevalent among patients with musculoskeletal complaints in the medical outpatient and rheumatology clinics at the Kenyatta National Hospital. These patients frequently have other comorbid illnesses and the primary diagnosis is often missed. Therefore, there is need to sensitise care givers on this condition.

INTRODUCTION

Fibromyalgia (FM) is a disorder characterised by widespread musculoskeletal pain and tenderness at specific points of the body. Patients with fibromyalgia also tend to experience other symptoms like sleep disturbances, fatigue and others, the severity of which can be measured by the revised fibromyalgia impact questionnaire (4). The diagnosis of fibromyalgia has

evolved over many years and the 1990 American college of rheumatology [ACR] criteria have been in use until recently (2010) when the ACR produced preliminary criteria (5).

Little is known about the epidemiology of fibromyalgia in Kenya and Africa at large. Its burden in the health sector is equally unknown. Studies in Canada and United States of America have shown that FM patients use about twice the health services

compared to patients with other diseases (1). In addition to that, the total healthcare cost of FM is three times higher in the patients compared with controls (2). This is probably because these patients display a higher prevalence of co-morbidities than the rest of the population, have a higher average of work days missed, and commonly report a higher use of pain-related medication (3). The burden of fibromyalgia has been found to be comparable to that of rheumatoid arthritis and the total costs are double for patients with both conditions.

In our clinical setting, the burden of this syndrome is unknown. Given the high economic burden, significant morbidity and ongoing disability that has been described in patients with FM, there was need to document the prevalence in our outpatient setting. It was also important to describe the clinical characteristics of these patients in our geographic region in order to document any variability in clinical presentation. This was a descriptive study intended to provide a baseline for other studies on the subject in this region. The study will increase awareness of this syndrome locally amongst the health practitioners and also affected patients and caregivers.

## MATERIALS AND METHODS

Our research question was to study the prevalence and clinical pattern of FM in the medical outpatients at the Kenyatta National Hospital (KNH). The broad objective was to determine the prevalence and characteristics of patients with FM. Our specific objectives were; to determine the demographic characteristics of patients with FM, to assess the frequency of FM-related symptoms (for example fatigue, stiffness and others); to document the associated co-morbidities and to document the primary (initial) diagnosis of patients with FM. The secondary objectives were to determine the prevalence of chronic regional pain and chronic widespread pain.

The study design was a descriptive cross sectional study. We carried out the study at the KNH general medical outpatient clinics (MOPC) and rheumatology clinics.

The MOPC is not only a tertiary point of care for referral cases from around the country but also acts as a primary point of care for Nairobi and its environment.

The rheumatology clinic started operations in March 2010. Prior to this the rheumatology patients were being handled from the various MOPC clinics. The clinic cares for an average of 26 patients with various rheumatological conditions per week. It is run by rheumatologists, physicians and postgraduate students.

The study population included medical outpatients and rheumatology patients with

musculoskeletal pain of more than three months, aged more than 18 years, had undergone outpatient follow-up for at least three months, and had given informed consent. We excluded patients with abnormal neurological examination and documented malignancies. Consecutive sampling was done.

*Sample size:* A total of 384 patients with musculoskeletal pain were interviewed. The screening and enrollment was done over three month duration. Patient confidentiality was maintained through the process and duplication was avoided by using serial numbers on the questionnaires.

*Data collection tools and methods :* A pretested questionnaire designed for the study containing socio-demographic factors, the American College of Rheumatology (ACR), 1990 criteria for the classification of FM (50), and the Revised FM Impact Questionnaire (FIQR) (4) were administered to all patients with musculoskeletal pain included in the study. The ACR criteria were used to establish patients with chronic widespread pain. Those who did not satisfy the criteria for widespread pain on all four quadrants of the body + axial skeleton were labeled as having chronic regional pain.

A physical exam and a tender point count were performed on all patients with musculoskeletal pain. Tenderness on all the 18 points was elicited by means of digital palpation. Force was applied of approximately four kilograms (to blanch the examiners fingers). Those, who satisfied the ACR criteria 1990 of chronic widespread pain plus 11/18 tender points, were diagnosed to have FM and were referred for specialist medical care and a review by the rheumatologist both for validation purposes and for follow-up.

The Revised FM Impact questionnaire (FIQR) was used to assess the frequency of FM symptoms and their severity. The frequency of other symptoms of fibromyalgia for example, headache parasthesia and subjective joint swelling (not captured in the FIQR) for the previous one month were also recorded.

Data for questionnaires were collected during normal outpatient visits. The medical history, primary diagnosis, investigation results, and other relevant details were abstracted from the patient's medical records.

Data were entered into a computer using an Epi-info data entry programme. Analysis was done using the SPSS version 17.0 data analysis programme. The data were presented in tables and figures where applicable. Prevalence was determined as a percentage of the number of patients presenting in the medical outpatient and rheumatology clinics. Continuous data were presented as means, standard deviations, medians, proportions and frequencies, while categorical data were presented in proportions,

frequencies and percentages. P-value of less than 5% (P<0.05) was considered statistically significant.

*Study Variables* : The independent variables were: Tender point count. (0-18+); Fatigue. (0-10+); Pain. (0-10+); Morning stiffness. (0-10+); Depression. (0-10+); Anxiety, (0-10+) ; Insomnia. (0-10); Headache; Parasthaesia; Subjective joint swelling; Memory problems (0-10); Level of tenderness to touch (0-10); Balance problems (0-10); Increased sensitivity to environment. (Cold, loud noises, odours bright colours and others) (0-10); Demographic characteristics; age, gender, occupation, marital status; Primary diagnosis at first consultation; associated co-morbidities.

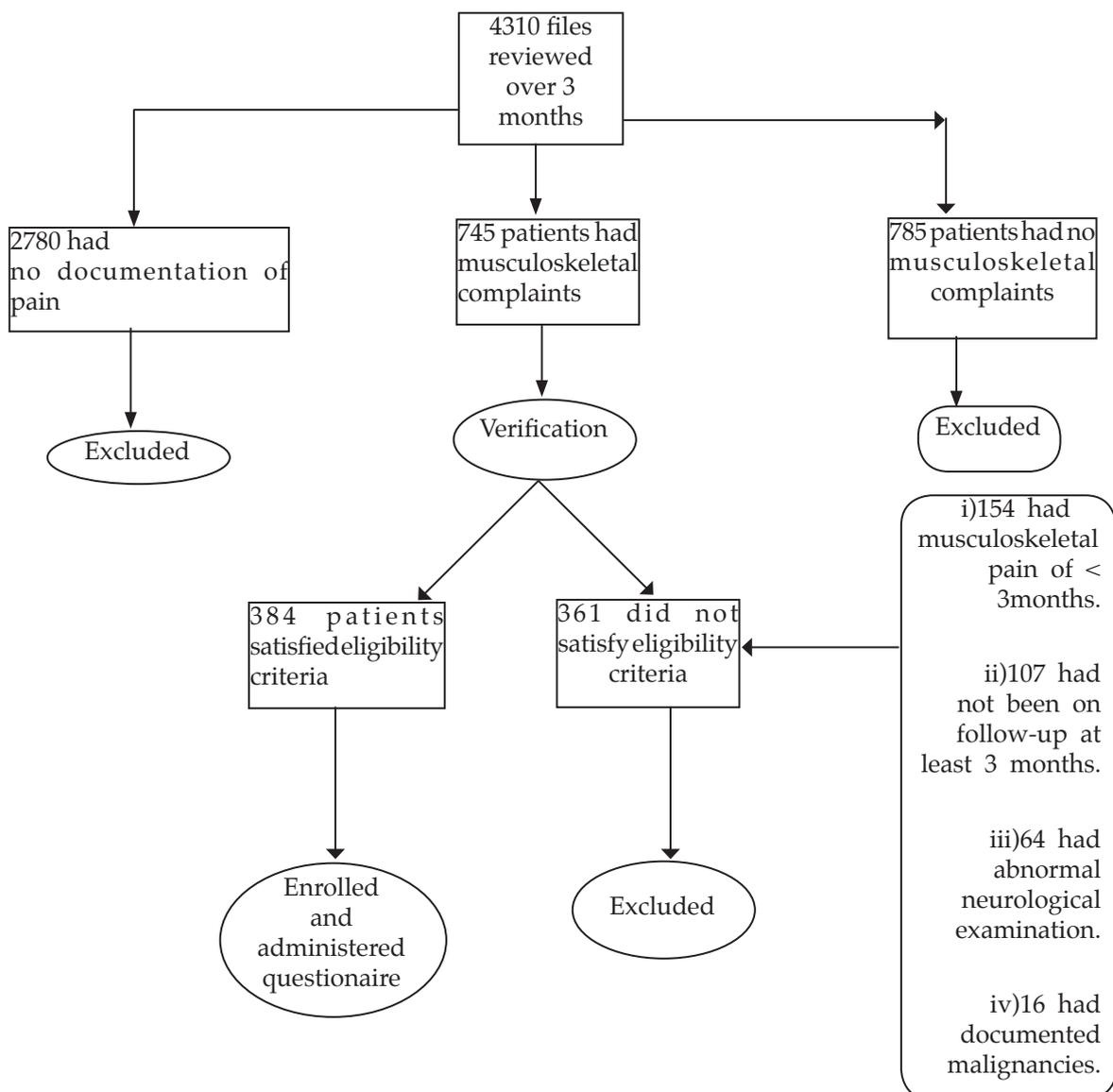
The dependent variables were; chronic widespread pain; chronic regional pain; FM, (%). The ten point scoring scales were according to the revised fibromyalgia impact questionnaire (FIQR).

**RESULTS**

A total of 4310 files were reviewed from January 15<sup>th</sup> to April 15<sup>th</sup> 2011. Seven hundred and forty five patients had documentation of musculoskeletal complaints in the files. Upon verification only 384 patients satisfied the eligibility criteria as shown on Figure 1 and were enrolled. Of the 384 patients with chronic musculoskeletal complaints, 232 (60.4%) patients were derived from the rheumatology clinic and 152 (39.5%) patients were from the medical outpatient clinics. The results presented were a combined analysis of data from the two clinics.

Amongst the 384 patients with chronic musculoskeletal complaints, 43 patients satisfied the criteria for fibromyalgia, 50 patients satisfied the criteria for chronic widespread pain and 291 patients had chronic regional pain.

**Figure1**  
*Patients Flow Diagram*



The overall three month prevalence of FM in the general medical outpatient and rheumatology clinics was 1% n = (43/4310). Chronic widespread pain and chronic regional pain had prevalences of 1.2 and 6.7% respectively.

Prevalence rates of FM, chronic widespread pain and chronic regional pain in patients with chronic musculoskeletal complaints were 11.2, 13 and 75.5% respectively.

Table1 depicts the demographic characteristics of patients with FM. The sub-group of patients that satisfied the criteria for FM was younger compared to

the rest of the study patients who had musculoskeletal complaints. However, this was not significant, p= 0.09 . Their mean age was 48.46 years and majority belonged to the 40-49 year age groups (95% CI 26.5-57.2). Only one male patient satisfied the criteria for FM while the rest were females. Even though many of the patients were married, [19 (44.2%) 95% CI 28.7-59.7] an equally large proportion of these patients were widowed [15 (34.9%) 95% CI 20.-49.7]. More than half of the FM patients were unemployed [22 (51.2%) 95% CI 35.6-66.3] and a large number 20 (46.5 %) 95% CI 30.9-62 were involved in daily manual activities.

**Table1**  
*Demographic characteristics of fibromyalgia patients (n=43)*

Characteristic	Factor Level	N (%)	95% CI
Age (in years)	< 30	7 (16.3)	4.8-27.8
	30-39	1 (2.3)	2.4-7.1
	40-49	18 (41.8)	26.5-57.2
	50-59	6 (13.9)	3.2-24.7
	60-69	6 (13.9)	3.2-24.7
	70+	5 (11.6)	1.6-21.6
Sex	Female	42 (97.7)	-
	male	1 (2.3)	-
Marital Status	Single	9 (20.9)	8.3-33.6
	Married	19 (44.2)	28.7-59.7
	Widowed	15 (34.9)	20.0-49.7
	divorced	0	0
Daily activity type	Manual	20 (46.5)	30.9-62.0
	Office	5 (11.6)	1.6-21.6
	neither	18 (41.9)	26.5-57.2
Type of Employment	employed	1 (2.3)	2.4-7.0
	Self-employed	17 (39.5)	24.3-54.8
	Unemployed	22 (51.2)	35.6-66.3
	Retired	3 (7.0)	0.9-14.9

**Table 2**  
*Baseline clinical characteristics of patients with fibromyalgia (n=43)*

Demographic factor	Fibromyalgia
Mean Age Years (SD)95%CI	48.5(2.6), 43.1-53.8
Median Age Years (25%-75%)	48.0(40.0-65.0)
Mean duration of illness Years (SD) 95%CI	5.8(0.81), 4.1-7.4
Median duration of illness Years ( 25% - 75% )	4.0(2.0-10.0)
Mean tender point count	11
Median tender point 25%-75%	11(11-14)

*Documented primary (initial) diagnosis:* Approximately thirty percent [30.2 % (n=13)] of the patients who satisfied the criteria for FM had a primary diagnosis of rheumatoid arthritis documented. Fourteen percent

(n=6) had no initial diagnosis and 14 % (n=6) had osteoarthritis. Only 9.3% (n=4) patients with FM had an initial exclusive diagnosis of FM documented .

**Table 3**  
*Documented primary (initial) diagnosis in patients with fibromyalgia (n=43)*

Primary Diagnosis	Frequency	Percent
Rheumatoid arthritis	13	30.2
None	6	14.0
Osteoarthritis	6	14.0
Fibromyalgia	4	9.3
Polyarthrits	5	11.7
Arthritis	2	4.7
Hypothyroidism	2	4.7
LBP	2	4.7
Lumbar spondylosis	2	4.7
Systemic-lupus		
Erythematosis	1	2.3
Total	43	100

*Documented co-mobidities:* Hypertension was the most common documented co-mobidity at 53.5% [n=23/43]. Nineteen patients with FM 44.2% had no co-mobidity and one patient had a psychosomatic disorder.

*Frequency of fibromyalgia symptoms:* The frequency of FM symptoms as assessed by the revised FM impact questionnaire (FIQR) are outlined in Table 4. Table 5 outlines the frequency of other FM symptoms currently not assessed by the FIQR. Pain, fatigue, stiffness and depression were the most frequent symptoms while the least reported symptoms were balance problems, headache and increased sensitivity to environmental stimuli.

**Table 4**  
*Frequency of fibromyalgia Symptoms assessed by the fibromyalgia impact questionnaire (FIQR)*

Symptom	Percentage of patients
Pain	100
Fatigue	90.7
Stiffness	95.3
Sleep	90.7
Depression	93.0
Memory	81.4
Anxiety	74.4
Tenderness to touch	81.4
Balance problems	53.8
Increased sensitivity to environmental stimuli	65.1

**Table 5**  
*Frequency of other symptoms*

symptom	N(%)
Headache	27 (62.8)
Paresthaesia	30 (69.8)
Subjective joint swelling	32 (74.4)

*Frequency of FM symptoms based on severity:* Table 6 outlines the frequency of FM symptoms according to the severity scores on the FM impact questionnaire. All patients with FM (100%) reported having had pain in the previous seven days. Seventy two percent of fibromyalgia patients (n = 31) had pain scores of above seven on the FIQR symptom domain while none of them were found to have pain scores of less than four, almost a half (48.8 %) n= 21 of the patients with FM scored more than seven on the fatigue score and 62.8 % (n = 27) reported high unrefreshing sleep scores of more than seven. There were equally high depression scores in FM patients. Seventy five percent (n = 22) scored more than four on the visual analogue scale and 32.6% (n = 14) scored more than seven. Severe memory deficits and anxiety scores of more than seven were reported in 41.8 % (n=18) and 37.2 % (n= 17) of patients respectively.

**Table 6**  
Frequency of fibromyalgia symptoms according to the FIQR symptom severity scores (1-10)

Symptom category	None	1-3	4-6	7plus
	N (%)	N (%)	N (%)	N (%)
pain	0	0	12 (27.9)	31 (72.1)
fatigue	4 (9.3)	3 (6.9)	15 (34.9)	21 (48.8)
stiffness	2 (4.7)	12 (27.9)	16 (37.2)	13 (30.2)
Unrefreshing sleep	4 (9.3)	-	8 (18.6)	27 (62.8)
depression	3 (6.9)	8 (18.6)	18 (41.9)	14 (32.6)
memory	8 (18.6)	5 (11.6)	12 (27.9)	18 (41.8)
anxiety	11 (25.6)	2 (4.7)	14 (32.6)	16 (37.2)
Tenderness to touch	8 (18.6)	7 (16.3)	14 (32.6)	14 (32.6)
Balance problems	19 (44.2)	4 (9.3)	12 (27.9)	8 (18.6)
Increased sensitivity to touch	15 (34.9)	5 (11.6)	10 (23.3)	13 (30.2)

FIQR scores: Table 7 shows the total revised FM impact questionnaire scores and the sub total scores for the function, impact and symptom domains.

The mean scores for FM were; function score of 15.9, impact score of 13.74 and symptom score of 26.29. The mean total FIQR score was 55.9 SD (18.6) Table 7.

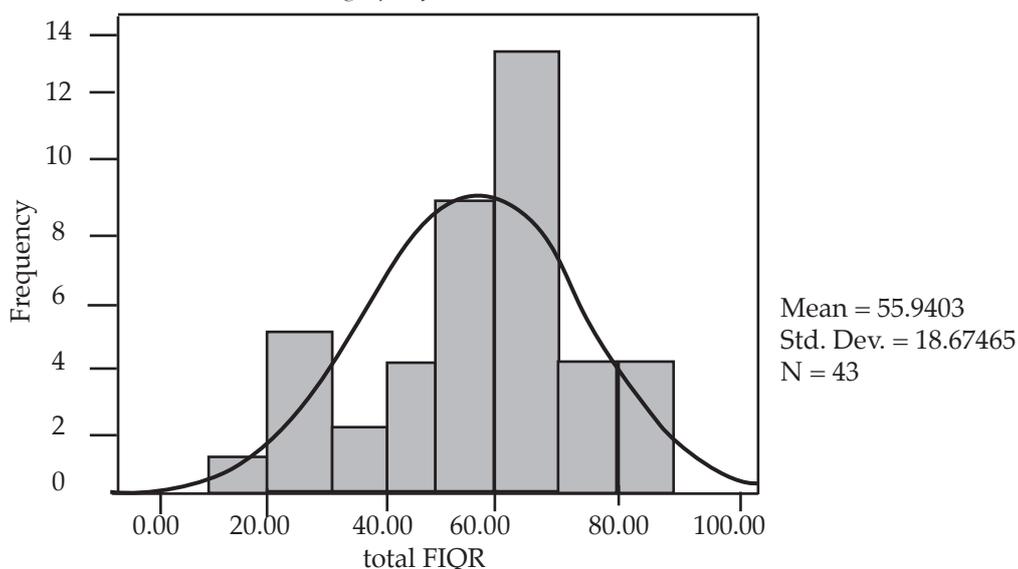
**Table 7**  
Total FIQR scores

scores	mean	Std. Err.	95% confidence interval
Function score			
Total = 30	15.90	1.19	13.49 -18.32
Impact score			
Total = 20	13.74	.601	12.53 - 14.96
Symptom subtotal			
Total = 50	26.29	1.33	23.62 - 28.89
Total scores			
Total =100	55.94	2.85	50.19 - 61.68

The median FIQR score in fibromyalgia patients was 60.5 (52 - 69.2)

Figure 2 is a histogram showing a gradual peak of the total FIQR scores at 58 / 100 with 31 out of the 43 FM patients having scores of above 50 out of the total 100 scores.

**Figure 2**  
Histogram of the total FIQR Scores



## DISCUSSION

Comparative studies carried out in the general medical outpatient clinics are lacking. In addition to this, we do not have comparative data from sub-Saharan African countries. We chose to carry out this study from the general medical outpatient clinics because our rheumatology clinic had just started operating and prior to its inception all the rheumatology patients were being followed up from the various medical outpatient clinics. Furthermore FM is known to co-exist with other disorders seen commonly in the medical outpatient clinic. We also expected to find patients with FM in the rheumatology clinic because FM may co-exist with some rheumatology conditions. The overall three month prevalence of FM in MOPC and rheumatology clinic was 1%. Amongst patients with chronic musculoskeletal complaints, (n=384) the prevalence of FM (n=43) was 11.2%. This prevalence is much lower when compared with studies that have been done in rheumatology clinics. Our FM patients were younger than what has been observed in other studies by Wolfe *et al* in Wichita Kansas USA (6) and Branco *et al* in a study done in five European countries (7). None of these studies have been done in the sub-Saharan Africa therefore, we need community studies to ascertain the true age affected by FM in our set up.

The female predominance has been a consistent finding seen in studies done in the community, the clinic setting and also in hospitalised patients (8, 9). More than half of the FM patients were unemployed [22 (51.2%) 95% CI 35.6-66.2] and many of them 20 (46.5%) 95% CI 30.9-62 engaged in manual activities. Unemployment is a psychological stressor and frequent manual activities are possible risk factors that could have predisposed these patients to FM. However our study was descriptive in nature and we did not look for possible risk associations of FM.

One of our limitations was that the primary (initial) diagnosis and the co-morbid conditions were dependent on the documentation of the same in the patient's files. No laboratory tests were done to confirm the different diagnoses. This was due to financial constraints. However, it is not routinely recommended to perform various laboratory or radiological tests for the diagnosis of FM.

Thirty and fourteen percent of our patients had a primary (initial) diagnosis of rheumatoid arthritis and osteoarthritis documented respectively. It is possible for FM to co-exist with other rheumatology diseases as findings by Naranjo *et al* (10).

Patients with FM usually present with multiple symptoms. This may cause difficulty in making a primary (initial) diagnosis and that could explain why 14% of our patients with FM had no initial diagnosis of the 43 FM patients, only 9.3% (4) had a primary diagnosis of FM documented in the files.

This is because FM is poorly understood. A study done in Tunisia assessing the level of knowledge, attitudes and practices of Tunisian physicians, and general practitioners concerning FM found that it was recognised as a clinical entity by only 26.7% of their physicians (11). It would be of interest to study the knowledge of physicians about this disorder in this region.

Hypertension was the most common documented co-morbidity at 53% [n=23/43]. There are no comparative studies done in the general medical outpatient clinic, therefore, we refer to a study done in the internal medicine wards at Soroka Medical Centre in Israel by Buskila *et al* (9). In this study, ischaemic heart disease was the most common cause of hospitalisation in FM patients, and only 9% was attributed to hypertension. With the high prevalence of hypertension in our patients with FM in the medical outpatient clinic, it would be prudent to look for other cardiovascular risk factors in these patients bearing in mind that Loevinger *et al* (12) found that women with chronic pain from fibromyalgia were at an increased risk for metabolic syndrome, which may be associated with relatively elevated norepinephrine levels in conjunction with relatively reduced epinephrine and cortisol secretion.

Majority of these patients also had severe symptoms as reported on the visual analogue scale. The high pain scores in FM are an expected finding because these patients have an increased central pain processing and a depressed endogenous pain inhibition. High depression rates are equally expected and this has been a persistent finding from both hospital and community based studies reporting depression prevalence rates that are up to five times higher in FM patients compared to other patients and three times higher than normal populations (14).

Lack of refreshing sleep is common in FM and this usually leads to increased day time fatigue. Belt *et al* studying sleep problems in FM and rheumatoid arthritis (RA) compared with the general population and found that patients with FM and RA slept fewer hours a day than the general population. The FM patients reported more insomnia, less contentment with sleep and lack of deep and restful sleep in comparison with the RA patients and the participants of the population study. The FM patients also reported significantly more depression and pain than the RA patients. It was still shown in a logistic regression analysis that insomnia was almost five times more frequent in FM patients than in RA patients, even when adjustments were made for depression and pain (15). In addition to sleep problems, Naranjo *et al* found higher disability scores in patients who had both FM and RA and FM alone (10).

There are several limitations we encountered while using the FIQR. The symptom scoring of the Revised Fibromyalgia Impact questionnaire does not

indicate (on a scale of 0 -10) the level of a symptom score that is significant for that particular symptom. However, the overall total FIQR scores have been used in the interpretation of our data. Secondly the reporting of the frequency and severity of the FM symptoms by the patients could have been subjective and a recall bias cannot be ruled out. Despite these limitations, our mean total FIQR scores of 55.94 [SD 2.85 95% CI 50.19 - 61.68] almost compares to findings by Bennet *et al* who found a mean (Fibromyalgia Impact Questionnaire) FIQR score of  $56.6 \pm 19.9$  in a validation study of the FIQR (4).

In conclusion, FM is most common among patients with musculoskeletal complaints in the medical outpatient and rheumatology clinic at KNH. It is associated with multiple co-morbid illnesses and patients often present with severe FM symptoms. This severity of symptoms could result in a high burden of disease and reduced quality of life, yet diagnosis is often not sought for. We, therefore, recommend increased awareness of medical personnel on the diagnosis and management of FM in order to improve diagnosis. There is also a need to actively assess for fibromyalgia in patients with chronic musculoskeletal complaints in the medical outpatient clinics. Finally the management of depression, fatigue and unrefreshing sleep should be emphasised in patients who have FM because these are the most common severe symptoms.

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