RESEARCH ARTICLE

Increased frequency of fibromyalgia among patients with chronic pain presenting to internal medicine clinics of a tertiary care hospital: A cross sectional study

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Abstract

Objective: To estimate fibromyalgia frequency among patients presenting with complaints of chronic fatigue and or generalised body pain for at least six weeks.

Methods: The cross-sectional study was conducted at the Department of Internal Medicine, Indus Hospital, Karachi, between December 2016 and March 2018, and comprised patients of either gender presenting with complaints of chronic fatigue and or generalised body pain for at least six weeks. They were assessed for fibromyalgia according to the 2010 Fibromyalgia Diagnostic criteria questionnaire. The Data was analysed using SPSS 21.

Results: Of the 267 patients, 197(73.8%) were females and 70(26.2%) were males. Fibromyalgia was detected in 149(55.80%) patients. The mean age of patients with fibromyalgia was 42.3±14.6 years and it was 38.9±13.7 years in patients without fibromyalgia ($p<0.05$). No significant association was found between gender and fibromyalgia ($p>0.05$).

Conclusion: All patients with generalised pain should be evaluated for fibromyalgia and a diagnosis made to reduce the cost of further referrals and investigations, and delay in the management of this debilitating disorder.

Keywords: Fibromyalgia, Chronic fatigue, Generalised pain. (JPMA 71: 2740; 2021)

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Introduction

Fibromyalgia (FM) syndrome is characterised by chronic widespread pain[1] with similarities to neuropathic pain in clinical findings, pathophysiology and neuropharmacology. Chronic widespread pain, the cardinal symptom of fibromyalgia (FM), is common in the general population, with comparable prevalence rates of 7.3% to 12.9% across different countries.[2] It usually presents with symptoms like fatigue, sleep disorders, morning stiffness, headache, paraesthesia, hyperalgesia and allodynia. Fibromyalgia is often comorbid with psychiatric disorders,[3] such as depression, anxiety and irritable bowel syndrome (IBS),[4] that worsens the quality of life (QOL) of the affected.

The exact cause of fibromyalgia is unknown. Despite the advances that have been made in clarifying the concept of this disease , a unifying understanding of FM is still lacking, and it is expected that diverse mechanisms contribute differently to the clinical picture in several individuals.[5]

The American College of Rheumatology (ACR) defined fibromyalgia as widespread pain for at least 3 months and the presence of at least 11 of 18 specified tender points on examination.[6] A new diagnostic criteria was proposed in 2010 that included multiple symptoms and, rather than checking the tender points, it focussed on individual's self-report of symptoms.[7]

Fibromyalgia may be considered a discrete diagnosis or as a constellation of symptoms for which effective treatment is now possible.[8] Concomitant FM is a common clinical problem in rheumatologic diseases, and therefore the recognition of FM component is vital for the optimal and successful management of those medical conditions.[9]

Physician's understanding of this debilitating disorder is restricted, and it is even difficult for the experienced medical professionals to diagnose and treat this condition. Due to the nature of disease, where patients experience invalidation by medical services, their families and societies regarding the recognition and management of disease, direct, indirect and immeasurable costs are considerable.[10]

FM prevalence of 7.3-12.9% has been reported from different Western countries, including the United Kingdom, the United States, Canada, Israel and Sweden.[2] It is quite common to have FM in the patients suffering with systemic lupus erythematosus (SLE), and it was found that 65% of SLE patients were diagnosed with FM as well. Among the patients presenting to clinics in Mexico, Spain, Australia and US, FM prevalence was

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between 10.2% and 15.7%.[2]

In 2010, a survey in five European countries, France, Germany, Italy, Portugal and Spain estimated overall FM prevalence in the general population to be 4.7%.[6]

A review[11] in 2012 estimated FM prevalence in other central sensitivity syndromes (CSS) and found that patients with chronic fatigue syndrome had the highest prevalence of 55.2% (range: 15.6-80%). It also estimated FM prevalence in chronic painful diseases with structural pathology. Rheumatoid arthritis (RA), SLE, ankylosing spondylitis (AS), osteoarthritis (OA), diabetes mellitus (DM), hypothyroidism, Crohn's disease and ulcerative colitis had 15.4%, 16.2%, 30.4%, 11.0%, 17.5%, 34.0%, 26.0% and 11.4% FM prevalence respectively.[11]

In 2014 a study identified FM prevalence among connective tissue disorders and evaluated the possible relationship between the presence of FM and disease activity.[9] The FM prevalence was found to be 6.6%, 13.4%, 12.6%, 10.1%, 5.7%, 7.1%, 12%, 25%, 1.4%, 6.9% and 50% for patients with RA, SLE, AS, OA, Behcet disease (BD), familial Mediterranean fever (FMF), Sjogren's syndrome (SS), vasculitis, gout, polymyalgia rheumatica (PMR) and polymyositis (PM)[9] respectively.

In a meta-analysis in 2015[12] 79 surveys from general adult population, general elderly population or workers of 28 low- and middle-income countries (LMICs) were reviewed. Mean FM prevalence was 4% (range: 2-9%).

In 2015, Jones et al compared the three classification criteria for diagnosing FM; ACR1990, 2010 and modified 2010. FM prevalence using the three criteria was 1.7%, 1.2% and 5.4%.[7]

A 2015 review pointed out the important but indiscernible features of FM with respect to the high influence of this disease on the patients and their careers.[10] The 'ice-berg like' feature of this disease starts from making a diagnosis to manage this disease and the costs associated with it.

To date only one prevalence study has been conducted in Pakistan, in 1998, which focussed on major rheumatic disorders, including FM in the northern parts of Pakistan.[13] The prevalence of FM was 21 per 1000, and a female-to-male ratio of 13:1 was found.

The current study was planned to estimate the frequency of FM in patients presenting with complaints of chronic fatigue and generalised body pain of at least six weeks.

Patients and Methods

The cross-sectional questionnaire survey-based study was conducted at the Department of Internal Medicine, Indus Hospital, Karachi, from December 2016 to March 2018. After approval from the institutional ethics review board, the sample size was calculated using OpenEpi software with confidence interval (CI) 95%, precision 6% and prevalence 55.2%.[11] The sample was raised using non-probability consecutive sampling technique from among adult outpatients of their gender aged 18-60 years, presenting with complaints of general malaise and chronic fatigue for at least 6 weeks that were not attributed to viral illness or other medical conditions that cause fatigue, such as hypothyroidism, hepatitis, vitamin D and B12 deficiency or anaemia. These were assessed using thyroid stimulating hormone (TSH), vitamin D levels, serum vitamin B12 levels, complete blood count (CBC) and viral markers. The other causes, like connective tissue disorders or malignancies, were ruled out by taking history and by conducting thorough examination. Additional tests were done where the history or examination so suggested. Patients requiring in-patient care, those with acute infections, those who did not agree to participate or who had difficulty in understanding the questionnaire were excluded.

Data was collected after taking informed consent from all

ANNEXURE

	Section A: Demographic Information	
	Date of interview(dd/mm/yy):	
A1	Age at presentation (years)	
A1a	If available, Date of Birth (dd/mm/yy)	
A2	Sex: 1) Female 2) Male	
A3		
A4	Education:	
A5	Duration of Symptoms:	
A6	When did you first notice that you have the symptoms :	
A7a	Are there any factors that trigger your symptoms?	
	1~Yes 2~No skip to qA8 3~Not Sure skip to qA8	
A7b	If yes, then what are these factors?	
	1~stress 2~disturbed sleep 3~	
A8	How do you control it? (in case you do)	
	1~ painkiller 2~sleep it off 3~unable to control	
	Other _____	
A9	Are you on any medication? (specially SSRI or SNRI)	
	1~Yes 2~No 3~Sometimes	
A10	Fibromyalgia 1) Yes 2) No	
	Section B: ACR 2010 criteria for fibromyalgia	
	(See next page)	
	Now I will ask you a few questions, you have to answer keeping in mind,	
	- How were you feeling in last one week, despite taking medications? I am not asking about the pain the reason of which you already know for e.g, Lupus or Rheumatoid	

جواب	سیکشن اے : آبادیاتی معلومات	نمبر
	انٹرویو کی تاریخ :	
	موجودہ عمر [سال]: اگر دستیاب ہو تو تاریخ پیدائش:	A1 A1a
	جنس: 1-مرد 2-عورت	A2
		A3
	رسمی تعلیم کے سال :_____	A4
A5	آپکو یہ علامات کب سے ہیں ؟	A5
A6	آپکوسب سے پہلے یہ علامات/ شکا یت کب ہوئی تھی ؟	A6
A7a	کوئی ایسی چیز ہے جس سے یہ علامات بڑھ جاتی ہوں؟ 1~Yes (ہاں) 2~No (نہیں) →skip to qA8 3~Not Sure skip to qA8	A7a
A7b	اگر ہاں تو یہ کیا ہیں؟ 1~stress (ذہنی د با ئو) 2~disturbed sleep (نیند کا خلل) 3~	
A8	اگر ہے توآپ اس پر کیسے قابو پاتے ہیں؟ 1~ painkillersدرد ختم کرنے والی دوا 2~sleep it off سو جا نے سے 3~unable to control کنٹرول کرنے سے قاصر ہیں انکے علاوہ_____	
A9	آپ اس پر قابو پانے کے لئے کوئی دوائی لیتے ہیں؟ جیسے (SSRI/SNRI) 1~Yes (ہاں) 2~No (نہیں) 3~Sometimes (کبھی کبھی)	
A10	Fibromyalgia 1) Yes 2) No	
	Section B: ACR 2010 criteria for fibromyalgia **(See next page)** اب میں آپ سے چند سوال پوچھوں گی آپکو یہ مدنظرکھنا ہے کہ - دوائیں لینے کے باوجود ، آپ پچھلے ایک ہفتہ میں کیسا محسوس کر رہے تھے؟ میں اس درد کےبارے میں نہیں پوچھ رہی ہوں جس کی وجہ آپ پہلے ہی جانتے ہیں جیسے ، لوپس یا گٹھیا وغیرہ	

New Clinical Fibromyalgia Diagnostic Criteria–Part1.

To answer the following questions, patients should take into consideration

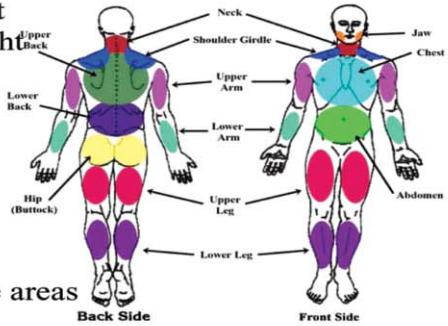
- how you felt the **past week**,
- while taking your current therapies and treatments,and
- exclude your pain or symptoms from other known illnesses such as arthritis,Lupus,Sjogren's,etc.

Determining Your Widespread Pain Index (WPI)

The WPI Index score from Part1 is between0 and 19.

Check each area you have felt pain in over the past week.

- □ Shoulder girdle,left
- □ Shoulder girdle,right
- □ Upper arm,left
- □ Upper arm, right
- □ Lower arm,left
- □ Lower arm, right
- □ Hip(buttock)left
- □ Hip(buttock) right
- □ Upper leg left
- □ Upper leg right
- □ Lower leg left
- □ Lower leg right
- □ Jaw left
- □ Jaw right
- □ Chest
- □ Abdomen
- □ Neck
- □ Upper back
- □ Lower back
- □ None of these areas



Count up the number of areas checked and enter your Widespread Pain Index or WPI score here

Symptom Severity Score (SS score)-Part2a.

Indicate your level of symptom severity over the past week using the following scale:

Fatigue

0= No problem
1= Slight or mild problems; Generally mild or intermittent
2= Moderate; considerable problems; often present and/or at a moderate level
3= Severe: pervasive, continuous, life disturbing problems

Waking un refreshed

0= No problem
1= Slight or mild problems; Generally mild or intermittent
2= Moderate; considerable problems; often present and/or at a moderate level
3= Severe: pervasive, continuous, life disturbing problems

Cognitive symptoms: Fibrofog i.e

0= No problem
1= Slight or mild problems; Generally mild or intermittent
2= Moderate; considerable problems; often present and/or at a moderate level
3= Severe: pervasive, continuous, life disturbing problems

Tally your score for Part 2a (note the number of check marks) and enter it here

NOTE: Cognitive symptoms will be labelled on the patient's self-assessment and response and not on any lab assessment

Symptom Severity Score (SS score) – Part 2b

Check each of the following OTHER SYMPTOMS that you have experienced over the <u>past week?</u>

- □ Muscle pain
- □ Irritable bowel syndrome
- □ Fatigue/tiredness
- □ Thinking or remembering problem
- □ Muscle Weakness
- □ Headache
- □ Pain/cramps in abdomen
- □ Numbness/tingling
- □ Dizziness
- □ Insomnia
- □ Depression (low mood &/or inability to feel happiness)
- □ Constipation
- □ Pain in upper abdomen
- □ Nausea
- □ Nervousnes
- □ Chest pain
- □ Blurred vision
- □ Fever>38.3 F
- □ Diarrhea >3 episodes / day
- □ Dry mouth
- □ Itching
- □ Wheezing
- □ Raynauld's
- □ Hives/welt
- □ Ringing in ears
- □ Vomiting >3 episodes/day
- □ Heartburn
- □ Oral ulcers
- □ loss/change in taste
- □ Seizures
- □ Dry eyes
- □ Shortness of breath >22 breaths/minute
- □ Loss of appetite
- □ Rash
- □ Sun sensitivity
- □ Hearing difficulties
- □ Easy bruising
- □ Hair loss
- □ Frequent urination
- □ Painful urination
- □ Bladder spasms

Count up the number of symptoms checked above.

*If you tallied:

0symptoms	Give yourself a score of 0
1to10	Give yourself a score of 1
11to24	Give yourself a score of 2
25 or more	Give yourself a score of 3

Enter your score for Part2b here.

Now add Part 2a <u>AND</u> 2b scores, and enter _____.

This is your Symptom Severity Score (SS score), which can range from0 to 12.

Note: Symptoms given in Symptom Severity Score (SS score)-Part 2b will be labelled on the basis of patient's self-assessment and response and/or history given by the patient and/or physical examination but not on any lab assessment.

Note:

Fatigue: A state of discomfort and decreased efficiency (affecting the daily life activities) as follows;

0 = Asymptomatic (Fully active, able to carry on all pre-disease activities without restriction)

1 = Symptomatic but completely ambulatory (Restricted in physically stress on activity but ambulatory and able to carry out work of a light or sedentary nature. For example light household work, office work etc.

2 = Ambulatory and capable of all self-care but unable to carry out any work activity. Up and about more than 50% of waking hours

3 = Capable of only limited self-care, confined to bed or chair, 50% or more of waking hours

4 = Bedbound (Completely disabled, cannot carry on any self-care. Totally confined to bed or chair).

the subjects. The data-collection tool was the new 2010 Fibromyalgia Diagnostic criteria questionnaire by ACR.[14] This questionnaire consists of two components: the widespread pain index (WPI) and the symptom severity (SS) scale (Annexure). A person is considered to have FM if either of the two criteria is met: Criteria 1: WPI $\geq$7 and SS $\geq$5; Criteria 2: WPI 3-6 and SS $\geq$9. The WPI ranged 0-19, and SS ranges 0-12.

Besides, patients' demographic data and reason for visit were also noted. The patients were interviewed in the Urdu, the national language Urdu, and the interview was conducted by the researcher in the Internal Medicine clinics.

Data was analysed using SPSS 21. Mean ± standard deviation (SD) and median with interquartile range (IQR) were computed, as applicable, for age, duration of symptoms, WPI and SS scores. Frequencies and percentages of FM were calculated for gender and monthly income. Effect modifiers for age, gender, duration of symptoms, and monthly income were stratified. Post-stratification chi-square test was applied to see the effect of these outcomes. P$\leq$0.05 was considered significant.

Results

Of the 267 patients, 197(73.8%) were females and 70(26.2%) were males. Fibromyalgia was detected in 149(55.80%) patients. The mean age of patients with fibromyalgia was 42.3±14.6 years and it was 38.9±13.7 years in patients without fibromyalgia (p<0.05). No significant association was found between gender and fibromyalgia (p>0.05).

Table-1: Education level of the subjects.

Fibromyalgia	No	Yes	Total	P-value
Illiterate	17(14)	41(27)	58 (22)	
Primary	28 (24)	19 (13)	47 (17)	
Secondary	35 (30)	34 (23)	69 (26)	0.005
Intermediate	24 (20)	24 (16)	48 (18)	
Graduate	14 (12)	31(21)	45 (17)	
Total	118(100)	149(100)	267(100)	

p<0.05 is considered significant.

Median duration of symptoms in for FM patients was 36 months (IQR: 12-60 months) compared to 24 months (IQR: 12-48 months) in those who did not have FM (p>0.05). Mean WPI score in FM patients was 7.9±3.42 and mean SS score in FM patients was 6.1±2.34 (p>0.05).

FM prevalence was significantly associated with level of education (Table-1). Stress was the most common triggering factor for FM symptoms 75 (56%), followed by disturbed sleep 44 (33%), physical exertion 7 (5%) and other reasons 6 (4.5%).

Eighty-one (65%) of FM patients said they could control their symptoms by using pain-killers, 27 (21.7%) of the patients sad by taking rest they felt better, and 22 (17.6%) reported that their symptoms were uncontrollable. Also, FM patients did not use any medications (Table-2). Association between monthly income and FM was non-significant (p<0.05).

Discussion

FM is a distressing medical condition that affects QOL in functional, social and economic terms and its impact on people's lives is considerable.[15] In this study FM prevalence was 56%.

In our study FM patients were older (40 years and above) compared to those not having FM and the results were statistically significant up to 10% level of significance. These results are supported by a systemic review and meta-analysis published in 2016 which concluded that the prevalence was found twice as high in women as in men and with those aged more than 40 having a higher prevalence.[16] In a study, symptom duration significantly increased with age.[16]

FM syndrome is not only more frequent among females, but also presents with a greater variety of signs and symptoms in females compared to males.[17] FM prevalence was more in females than males in the current study although the result was statistically non-significant. The female-to-male ratio for FM in the current study was 3.3:1. Lily and Buskila estimated that in terms of gender, more women (3.4%) were affected than men (0.5%).[2] Jones et al. in 2015 found a female-to-male ratio of 13.7:1 meeting the ACR 1990 criteria, a ratio of female-to-male of

Table-2: On Medications (SSRI or SNRI); n (%).

		Medications						
		Escitalopram	Fluoxetine	Sertaline	Duloxetine	None	Total	p-Value
Fibromyalgia	No	9	5	3	3	73	93	
	Yes	31	10	5	2	76	124	0.036
Total		40	15	8	5	149	217	

SSRI: Selective serotonin reuptake inhibitors, SNRI: Serotonin and norepinephrine reuptake inhibitors; p <0.05 is considered significant.

4.8:1 meeting the ACR 2010, and a ratio of female-to-male of 2.3:1 meeting the modified ACR 2010 criteria for FM diagnosis.[7]

In the current study, the mean duration of symptoms FM patients was 36 months, which, although statistically not significant, is important as these patients suffer chronic pain and are undiagnosed. In the first prospective study by Felson and Goldenberg in 1986 the mean duration of symptoms was 4.3±4.7 years, demonstrating that FM is a chronic disease with symptoms that usually persist for at least 3 years after diagnosis and medical management.[18] In 1990 Goldenberg et al. estimated a high FM frequency in patients with chronic fatigue syndrome (CFS) with a mean duration of 84±27.8 months which was statistically non-significant.[19] In 1996, 29 FM patients were first interviewed and then re-interviewed after a period of 10 years;[20] 11 of them reported they were doing well at the re-interview. Mean duration of symptoms was 18.1 months at the time of diagnosis compared to 75 months for patients not doing well (p=0.003). Duration of symptoms has adverse effects on sufferings, as a recent study in Spain showed that FM patients who had a longer duration of symptoms may have a higher impact on brain-aging than the actual age of the patients.[21]

The findings of the present study that stress and depression are strong triggering factors and predictors of worse health status support previous research.[22] Interventions that directly target stress and mood are effective as adjunct treatments for FM patients.

The monthly income of the individual was also compared with FM prevalence, which in our study was non-significant. However, a study in Israel revealed that FM patients belong to lower socioeconomic levels.[23]

There are no investigations or biomarkers available for FM diagnosis currently, and the finding is made to a great extent by clinical decision. In a study comprising family physicians, it was found that even though they were unaware of the diagnostic criteria for FM and could not make a definitive diagnosis, they were able to recognise some of the FM symptoms.[24] The new modified ACR criteria 2010 relies on the self-reported symptoms by patients and has eliminated the need of physician's evaluation of the somatic symptoms.[23]

The high FM prevalence in Pakistani population that generally goes unrecognised needs awareness of disease among medical professionals. Awareness will increase the chances of early diagnosis and treatment of patients at a much less cost.[25] Effective treatment is possible utilising a multidisciplinary approach combining no pharmacological and pharmacological treatments rooted in a bio-psychosocial model.[26]

Conclusion

There was a high FM frequency in patients with chronic pain that should not be underestimated. All patients with generalised pain should be evaluated for FM using ACR criteria and a diagnosis must be made to reduce the cost of further referrals and investigations and unavoidable delay in FM management.

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