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Original Article

Frequency and risk factors of fibromyalgia among physical and occupational therapists: A cross-sectional study

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Abstract

Background: Work-related stress, poor decision-making tendencies, and workplace bullying have been linked to an increased risk of fibromyalgia (FM). Occupational and Physical Therapists, due to the physically demanding nature of their roles, are particularly vulnerable to work-related musculoskeletal issues. This study aimed to assess the frequency of fibromyalgia among these professionals and identify associated risk factors.

Methodology: A total of 97 Physical Therapists and Occupational Therapists from a hospital in Karachi, Pakistan, participated in the study. Participants were assessed using the 2016 Fibromyalgia Diagnostic Criteria to determine the frequency of FM and associated clinical characteristics.

Results: Of the 97 participants, 44 were Physical Therapists (45.4%) and 53 were Occupational Therapists (54.6%), with a mean age of 32.13 ± 6.479 years. The Widespread Pain Index (WPI) showed that 66.0% had minimal pain (WPI = 0-3), 19.6% had moderate pain (WPI = 4-6), and 14.4% had severe pain (WPI ≥ 7). Regarding symptom severity, 26.8% had symptoms lasting over 3 months. Nine females (9.3%) met the criteria for FM, with a higher prevalence among Occupational Therapists (15.1%) compared to Physical Therapists (2.3%). No male participants were diagnosed with FM. Statistically significant differences were found in FM scores based on gender ($p = 0.045$) and profession ($p = 0.030$).

Conclusion: The frequency of fibromyalgia among Physical and Occupational Therapists was 9.3%, with a higher prevalence among female Occupational Therapists. Further research is needed to explore the medical and psychological risk factors for FM in this group. Additionally, workplace dynamics and awareness of FM symptoms are critical for early detection and intervention to improve well-being.

Keywords

Fibromyalgia, Occupational Therapy, Physical Therapy, Musculoskeletal Diseases, Workplace Stress

Introduction

Fibromyalgia (FM) is a complex disorder that affects an individual's physical, psychological, and social well-being, significantly impairing quality of life and daily activities¹. While some individuals meet diagnostic criteria for fibromyalgia, they may not have a formal diagnosis². FMS is characterized by chronic pain, muscle stiffness, sleep disturbances, fatigue, and symptoms like low mood and anxiety³. The exact cause of fibromyalgia remains unknown, but stress is considered a major contributing factor⁴. It is more prevalent in women, particularly those aged 40-59, and can severely impact their quality of life⁵.

Clinicians are encouraged to consider fibromyalgia in patients with symptoms such as sleep disturbances, physical injury, or headaches, especially in outpatient pain clinics⁶. The pathophysiology of fibromyalgia involves complex interactions between biological, genetic, environmental, and psychosocial factors, with abnormal pain processing and central sensitization being key mechanisms⁷⁻⁹. The biopsychosocial model, integrating biological, psychological, and social factors, has proven effective in managing chronic pain¹⁰. A cohort study by Lindell found fibromyalgia to be rare in combination with chronic widespread musculoskeletal pain¹¹.

Workplace stress, particularly among healthcare professionals, has been identified as a significant contributor to fibromyalgia¹². Job-related stress, which is linked to job designation, gender roles, and long hours, can exacerbate the risk of fibromyalgia and associated symptoms like irritability and headaches^{13,14}. Job stress is also a key risk factor for the onset of fibromyalgia, which can impair the ability to perform physically demanding tasks^{9,15}. Physical and occupational therapists are at higher risk of musculoskeletal injuries due to the nature of their work, with female therapists particularly affected^{17,18}.

Fibromyalgia also affects cognitive function, social relationships, and daily activities. It is commonly comorbid with conditions like depression, anxiety, and irritable bowel syndrome¹⁹, and psychiatric

comorbidities such as depression, anxiety, and post-traumatic stress disorder are prevalent in those with fibromyalgia^{20,21}. Gender differences exist, with female physicians more likely to experience fibromyalgia, although it is also seen in male physicians²².

Understanding the prevalence and risk factors for fibromyalgia is essential for developing strategies to prevent and manage the condition. This study aims to investigate the prevalence of fibromyalgia among physical and occupational therapists in Pakistan, where limited research exists despite their high-stress, physically demanding roles. Findings from this study could inform interventions to improve the well-being and job performance of affected professionals.

Methodology

Study Design

This cross-sectional study aimed to determine the frequency of fibromyalgia among occupational and physical therapists working in a reputable hospital in Karachi, Pakistan. The study design was chosen to provide a snapshot of the prevalence of fibromyalgia within this specific population at a single point in time. A self-administered survey was employed to collect data, which allowed for efficient data collection while minimizing the risk of interviewer bias.

Ethics

Ethical approval for the study was obtained from the institutional review board of the hospital. The study adhered to ethical standards concerning research involving human participants. Informed consent was obtained from all participants prior to their involvement in the study. The confidentiality of participants was strictly maintained, with identifying information securely stored and only accessible to authorized researchers.

Participants were informed of their right to withdraw from the study at any stage without any consequences, ensuring voluntary participation. The study complied with ethical principles outlined in the Declaration of Helsinki.

Setting

The study was conducted at a reputable hospital in Karachi, Pakistan, which serves a diverse population. The hospital provides a range of healthcare services, including occupational and physical therapy, making it an ideal setting for examining the prevalence of fibromyalgia among therapists.

Participants

The participants in this study consisted of occupational and physical therapists employed at the hospital. These professionals were selected based on their roles, which involve direct patient care and physical assessments, making them ideal candidates for understanding musculoskeletal pain conditions such as fibromyalgia. The inclusion criteria required participants to be currently employed as occupational or physical therapists, with no prior diagnosis of fibromyalgia before the study.

Variables

The primary variable of interest in this study was the presence of fibromyalgia, which was determined using the 2016 Fibromyalgia Diagnostic Criteria. Secondary variables included the therapists' age, gender, work experience, and health history, which could potentially influence the diagnosis or severity of fibromyalgia symptoms.

Data Sources / Measurement

Data were collected using a self-report questionnaire based on the 2016 Fibromyalgia Diagnostic Criteria, which includes the Wide Pain Index (WPI) and the Symptom Severity Scale (SSS). These criteria assess the frequency and intensity of pain, as well as the severity of other symptoms associated with fibromyalgia.

The questionnaire was administered face-to-face to minimize misinterpretation and ensure clarity in the participants' responses.

The survey included three main diagnostic criteria for fibromyalgia, which were cross-referenced with the participants' self-reported symptoms.

Bias

To minimize bias, face-to-face interviews were conducted to ensure clear communication and to reduce the risk of misinterpretation of questions. Additionally, participants were informed about the purpose of the study and reassured that their responses would be kept confidential, which aimed to reduce social desirability bias. Selection bias was minimized by including a diverse group of occupational and physical therapists from different backgrounds and work experiences within the hospital. However, recall bias could not be entirely eliminated, as participants were required to report their symptoms based on memory.

Study Size

A total of 97 occupational and physical therapists participated in the study, which was deemed sufficient to provide a reliable estimate of the prevalence of fibromyalgia in this population. The sample size was determined based on the expected prevalence rate of fibromyalgia in similar healthcare professional populations, aiming to achieve a confidence level of 95% and a margin of error of 5%.

Statistical Methods

Descriptive statistics, including mean, standard deviation, and frequency distributions, were used to summarize the demographic characteristics of the participants and the results of the Fibromyalgia Diagnostic Criteria. The prevalence of fibromyalgia was calculated based on the number of participants who met the diagnostic criteria. To explore the relationship between fibromyalgia and demographic variables (e.g., age, gender, work experience), chi-square tests and logistic regression analysis were employed. A significance level of $p < 0.05$ was considered statistically significant.

Results**Participants**

A total of 97 participants were included in the study, comprising 44 Physical Therapists (45.4%) and 53 Occupational Therapists (54.6%). The sample was predominantly female, with 69 females (71.1%) and 28 males (28.9%). The mean age of the participants was 32.13 ± 6.479 years.

Descriptive Data

The demographic and clinical characteristics of the study participants are summarized in Table 1. Participants were divided according to their Widespread Pain Index (WPI) and Symptom Severity Score (SSS). Regarding WPI, the majority of participants (66.0%) had a score between 0 and 3, indicating minimal pain, while 19.6% had a WPI score between 4 and 6, and 14.4% had a score of 7 or higher, indicating widespread pain.

The Symptom Severity Score (SSS) showed a varied distribution. A significant portion (18.6%) of participants reported no symptoms (SSS = 0), while 22.7% had a mild severity score of 1. Notably, 16.5% of participants scored 3, and 9.3% had a score of 5, indicating moderate symptoms. A smaller proportion experienced higher symptom severity, with 1.0% reporting the highest score of 9. Furthermore, 26.8% of participants reported experiencing symptoms for ≥ 3 months, while the majority (73.2%) had symptoms for less than three months.

Outcome Data

The frequency of fibromyalgia (FM) cases within the sample was determined using the 2016 Fibromyalgia Diagnostic Criteria. The distribution of FM cases across various subgroups, including profession and gender, is presented in Table 2. A total of 9.3% of the sample (9 females) met the diagnostic criteria for fibromyalgia. Specifically, 1

Physical Therapist (2.3%) and 8 Occupational Therapists (15.1%) were diagnosed with FM. No male participants were diagnosed with fibromyalgia, as shown in the gender breakdown.

Main Results

The results from Table 3 show a comparison of the mean fibromyalgia scores between different gender and profession subgroups. Female participants had a slightly lower mean fibromyalgia score (1.869 ± 0.339) compared to males (2.000 ± 0.000). The difference between gender groups was statistically significant ($t = 2.028$, $p = 0.045$), with a 95% confidence interval (0.002 to 0.258).

Regarding profession, the mean fibromyalgia score for Physical Therapists was 1.977 ± 0.15 , which was higher than the mean score for Occupational Therapists (1.849 ± 0.361). The difference between these two groups was statistically significant ($t = 2.198$, $p = 0.030$), with a 95% confidence interval (0.012 to 0.244).

These results suggest that fibromyalgia is more prevalent among Occupational Therapists compared to Physical Therapists, with female participants being disproportionately affected by the condition. The findings highlight the need for further investigation into the factors contributing to this disparity and the importance of early detection and intervention for FM in this professional population.

Table 1: Demographic and clinical characteristics of the study participants (N=97).

Variables		N(%)
Age (Years); Mean $\pm$ SD		32.13 $\pm$ 6.47
Gender	Male	28(28.9)
	Female	69(71.1)
Occupation	Physical Therapist	44(45.4)
	Occupational Therapist	53(54.6)
Widespread Pain Index (WPI)	0–3	64(66.0)
	4–6	19(19.6)
	≥ 7	14(14.4)
Symptom Severity Score (SSS)	0	18(18.6)
	1	22(22.7)
	2	14(14.4)
	3	16(16.5)

	4	7(7.2)
	5	9(9.3)
	6	3(3.1)
	7	3(3.1)
	8	4(4.1)
	9	1(1.0)
Symptoms Present ≥ 3 months	Yes	26(26.8)
	No	71(73.2)

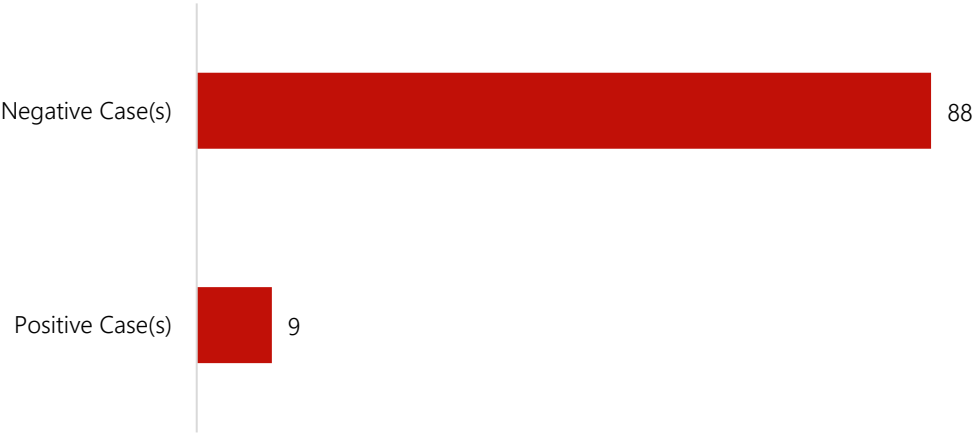


Figure 1: Frequency of Fibromyalgia Cases.

Table 2: Distribution of fibromyalgia cases by profession and gender.

Variables		Total n(%)	Positive for Fibromyalgia n(%)	Negative for Fibromyalgia n(%)
Profession	Physical Therapist	44(45.4)	1(2.3)	43(97.7)
	Occupational Therapist	53(54.6)	8(15.1)	45(84.9)
Gender	Male	28(28.9)	-	28(100)
	Female	69(71.1)	9(13.0)	60(87.0)

Table 3: Comparison of mean fibromyalgia scores between gender and profession subgroups.

Variables		n	Mean	SD	t	P-value	95% CI	
							LL	UL
Gender	Male	28	2.000	0.000	2.028	0.045*	0.002	0.258
	Female	69	1.869	0.339				
Profession	Physiotherapists	44	1.977	0.15	2.198	0.030*	0.012	0.244
	Occupational Therapists	53	1.849	0.361				

Discussion

The primary objective of this study was to explore the prevalence of Fibromyalgia (FM) among physical therapists (PTs) and occupational therapists (OTs) at a public sector hospital in Karachi, Pakistan. According to the 2016 Fibromyalgia Diagnostic Criteria, 9.3% (9/97) of the physical and occupational therapists were diagnosed with FM. The prevalence of FM among Lebanese nurses was found to be 9.6%, with salary dissatisfaction being identified as a contributing factor²³. A study conducted in Korea revealed a prevalence of 13.38% among patients visiting outpatient pain clinics, further supporting the link between FM and stressful occupational environments⁶. Furthermore, a general population study across five European countries found a prevalence of 4.7%, indicating that fibromyalgia is less common among the general population compared to individuals working in high-stress environments²⁴.

These findings suggest that fibromyalgia is less prevalent in the general population but more common among individuals in high-stress occupations. When comparing the clinical practices of PTs and OTs, both professions involve high physical workloads, but sustaining an injury is perceived as unlikely among PTs due to their expertise and fitness levels¹⁷. However, a qualitative study on OTs indicated that they face a high risk of musculoskeletal injuries, and often experience psychological distress, including anger, depression, and occupational limitations as a result of these injuries²⁵. In line with previous research, a higher prevalence of FM has been reported among healthcare professionals, including nursing staff, who are exposed to work-related stress and traumatic events²⁶.

In this study, all the positive cases of fibromyalgia were identified in females, which aligns with the findings of other studies that have indicated a higher prevalence of FM in females. For instance, a study found that 3.48% of females exhibited more FM symptoms and associated psychiatric disorders such as anxiety and depression²⁰. Moreover, factors like job-related stress, long commute times,

repetitive tasks, lack of recognition, and unfavorable work conditions have been linked to an increased risk of FM in females²⁷. It is also well-established that individuals with FM are more prone to psychological issues, including anxiety and depression, which can exacerbate the condition^{20,21}.

Among the participants, 15.09% (8 participants) of OTs met the criteria for FM, while only 2.3% (1 participant) of PTs met the criteria. This difference may be attributed to the higher physical and mental demands placed on OTs, who often have to deal with stressful work environments and repetitive physical tasks. Previous studies have identified a relationship between fibromyalgia and various stressors, including negative life events and occupational stressors, which could explain the higher prevalence observed in OTs in this study²⁸.

The Widespread Pain Index (WPI) revealed that 19.6% (19 participants) scored in the 4–6 range, and 14.4% (14 participants) scored ≥ 7 , suggesting widespread pain, but they did not meet the full criteria for fibromyalgia. Additionally, the Symptoms Severity Score (SSS) indicated that 20.6% (20 participants) experienced a score ≥ 5 , reflecting a significant level of symptom severity. These findings highlight the importance of early recognition and awareness regarding fibromyalgia. Awareness sessions and psychoeducation can be pivotal in promoting better health management and allowing for early interventions tailored to improve the well-being of individuals at risk for fibromyalgia.

This study focused exclusively on PTs and OTs, and future research should expand to include other healthcare professionals who may also be at risk for fibromyalgia. It is essential to explore the roles of work and workplace dynamics, along with other psychosocial factors, in the development of fibromyalgia. Modifying the workplace environment through ergonomic improvements could help reduce the risk factors for fibromyalgia, particularly among OTs who are more prone to musculoskeletal injuries. Further, awareness programs and training initiatives that encourage

physical activity and lifestyle changes may help prevent musculoskeletal injuries and improve overall health. Incorporating psychological interventions alongside pharmacological treatments could significantly enhance clinical outcomes and mitigate the negative impact of fibromyalgia on the health-related quality of life of affected individuals.

Conclusion

The frequency of fibromyalgia was found to be 9.3% among the study population. Gender differences were found in the reported cases of fibromyalgia; it was more prevalent among females. A significant difference was found in the profession as well. Future studies are recommended to cater to psychological issues along with early evaluation of the fibromyalgia among healthcare professionals.

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