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PATTERNS OF FIBROMYALGIA SEVERITY IN VARIOUS AGE GROUPS: A STUDY FROM PAKISTAN

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Abstract

OBJECTIVES

Physicians often work under intense pressure, leading to chronic stress and sleep deprivation, which may contribute to musculoskeletal disorders such as fibromyalgia (FM) and rheumatoid arthritis (RA). This study aimed to assess the prevalence of FM and RA among physicians and evaluate their association with psychological stress, sleep deprivation, and occupational workload.

METHODOLOGY

A cross-sectional observational study was conducted among 200 licensed physicians aged 25–60 years working in high-stress hospital settings. Data were collected through validated sleep quality indices, the DASS-21 stress scale, and occupational workload questionnaires. Clinical assessments were performed based on the American College of Rheumatology (ACR) 1990 criteria for FM, and RA diagnoses were confirmed through medical records and interviews. Chi-square tests and logistic regression analyses were applied, with a significance level set at $p < 0.05$.

RESULTS

The mean age of participants was 38.5 ± 8.4 years; 60% were male and 40% female. Moderate to severe stress was reported by 65% and sleep deprivation by 72% of participants. The prevalence of FM and RA was 12% and 4.5%, respectively. FM and RA were significantly associated with stress ($p = 0.041$) and sleep deprivation ($p = 0.038$), while working more than 60 hours weekly showed a non-significant trend toward higher disorder prevalence ($p = 0.072$).

CONCLUSION

The study underscores a strong association between psychological stress, sleep deprivation, and musculoskeletal disorders among physicians. These findings highlight the need for occupational health interventions targeting stress and sleep hygiene in the medical profession.

INTRODUCTION

Therefore, the hectic routine places physicians in constant sleep deprivation and psychological stress, leading to dissatisfactory work performances [1]. Rheumatoid arthritis (RA) is a common inflammatory joint disease with a prevalence rate of 1% with women affected 3 - 5 times more than men and more common in smokers [2]. Fibromyalgia syndrome (FMS) has remained an enigma over the years. The first mention of the syndrome appeared in literature over a century ago, with the first official diagnostic guidelines being published by the American College of Rheumatology (ACR) in 1990 [3]. Fibromyalgia (FM) is a chronic musculoskeletal disorder, which is affecting approximately 3-10% of the general population. FM is characterized by symptoms of widespread chronic pain along with exaggerated tenderness in at least 11 out of 18 tender points [4]. Depression, anxiety and stress are interrelated as these are body's response to any kind of threat but if untreated and persists for longer duration leads to symptoms including palpitations, shortness of breath, increased somatic activity etc. Dysregulated psycho-physiological reactions occur in patients with musculoskeletal disorders because these conditions are usually chronic which leads patient to stress and depression [5]. Fibromyalgia (FM), is a chronic musculoskeletal disorder, which is affecting approximately 3-10% of the general population. FM is characterized by symptoms of widespread chronic pain along with exaggerated tenderness in at least 11 out of 18 tender points [6]. Stress in the medical profession stems from the emotional burden of being responsible for the wellbeing of patients, time pressure, uncertainty, and workflow difficulties due to colleagues and other professional groups as well as the physically demanding nature of some specialties [7]. The American College of Rheumatology (ACR) 1990 classification defined FM as a widespread pain affecting both sides of the body in both the upper and lower limbs combined with tenderness in at least 11 of 18 specific tender sites [8].

METHODOLOGY

Study Design

A cross-sectional observational study was conducted to assess the psychological stress, sleep deprivation, and prevalence of fibromyalgia (FM) and rheumatoid arthritis (RA) among physicians, with a particular focus on their work-related stressors and their psychological impact.

Study Population: The study targeted physicians working in high-stress environments such as hospitals or emergency care settings. Inclusion criteria involved:

- Licensed physicians aged between 25–60 years
- Working full-time for at least 1 year
- Willing to provide informed consent

Exclusion criteria included:

- Physicians with pre-diagnosed psychiatric disorders or chronic musculoskeletal disorders before starting medical practice.

Data Collection

Data was collected through a combination of:

Structured questionnaires assessing:

- Sleep patterns and deprivation (using validated sleep quality indexes)
- Psychological stress, anxiety, and depression (using scales such as DASS-21)
- Occupational workload and hours

1. Clinical assessments for FM based on the American College of Rheumatology (ACR) 1990 diagnostic criteria, which require:
   - Widespread musculoskeletal pain on both sides of the body and above and below the waist
   - Tenderness in at least 11 out of 18 specified tender points
2. Medical records and interviews to confirm any RA diagnosis, with reference to established diagnostic criteria.

Statistical Analysis

Descriptive statistics were used to summarize demographic and clinical characteristics. Chi-square tests and logistic regression models were applied to explore associations between stress levels, sleep deprivation, and incidence of FM or RA. Statistical significance was set at $p < 0.05$.

RESULTS

A total of 200 physicians participated in the study, with a mean age of 38.5 ± 8.4 years. The sample consisted of 60% males and 40% females. Among the participants, 65% reported moderate to severe psychological stress, and 72% had clinically significant sleep deprivation. The prevalence of Fibromyalgia (FM) and Rheumatoid Arthritis (RA) in the sample was 12% and 4.5%, respectively.

Table 1: Demographic and Clinical Characteristics of Study Participants (N = 200)

Variable	n (%) / Mean ± SD
Age (years)	38.5 ± 8.4
Gender (Male/Female)	120 (60%) / 80 (40%)
Work Hours per Week (>60 hours)	150 (75%)
Sleep Deprivation (per sleep index)	144 (72%)
Moderate to Severe Stress (DASS-21)	130 (65%)
Diagnosed Fibromyalgia (ACR 1990)	24 (12%)
Diagnosed Rheumatoid Arthritis	9 (4.5%)

Table 2: Association between Stress, Sleep Deprivation, and Musculoskeletal Disorders

Factor	Fibromyalgia (%)	Rheumatoid Arthritis (%)	p-value
Stress (Moderate/Severe)	20/130 (15.4%)	6/130 (4.6%)	0.041*
Sleep Deprivation (Yes)	22/144 (15.3%)	8/144 (5.6%)	0.038*
Work Hours > 60 per week	19/150 (12.7%)	7/150 (4.7%)	0.072

*Statistically significant at $p < 0.05$

Key Findings:

- Physicians experiencing moderate to severe stress had a significantly higher prevalence of fibromyalgia and RA ($p < 0.05$).
- Sleep deprivation was significantly associated with the incidence of fibromyalgia and RA.
- Working more than 60 hours per week showed a trend toward higher musculoskeletal disorders but did not reach statistical significance.

DISCUSSION

A total of 200 physicians participated in the study, with a mean age of 38.5 ± 8.4 years. A previous study conducted in 2022 reported a high prevalence of fibromyalgia among doctors working in stressful hospital environments, particularly among younger individuals [9]. In the current study, the sample consisted of 60% males and 40% females. Among the participants, 65% reported moderate to severe psychological stress, while 72% exhibited clinically significant sleep deprivation. Similarly, research from 2021 found that the hospital-based prevalence of fibromyalgia was notably higher among female physicians [10]. In this study, the prevalence of Fibromyalgia (FM) and Rheumatoid Arthritis (RA) was found to be 12% and 4.5%, respectively. A related study in 2024 identified a significant prevalence of fibromyalgia symptoms among patients with ischemic heart disease (IHD), with a notable severity of symptoms and additional somatic complaints. The findings emphasized the importance of screening for fibromyalgia in IHD patients to improve diagnosis and treatment outcomes [11]. Physicians experiencing moderate to severe stress had a significantly higher prevalence of both FM and RA ($p < 0.05$). In support of this, a study from 2022 observed that the severity of fibromyalgia demonstrated significant variability across age categories, with a lower disease burden reported in patients aged 60–70 years. Physical functioning was found to be the most significantly affected health

domain among these groups [12]. Furthermore, sleep deprivation was significantly associated with the incidence of both fibromyalgia and RA in this study. This aligns with findings from a 2014 study, which reported significantly higher DAS-28 scores in RA-FM patients, likely due to heightened pain perception [13]. While working more than 60 hours per week showed a trend toward increased musculoskeletal disorders, the association did not reach statistical significance. This observation is consistent with previous research from 2021, which found a high prevalence of fibromyalgia in hospital-based settings, particularly among females [14].

CONCLUSION

This study highlights the significant impact of psychological stress and sleep deprivation on the prevalence of fibromyalgia and rheumatoid arthritis among physicians. A considerable number of participants reported high stress levels and insufficient sleep, both of which were strongly associated with musculoskeletal disorders. These findings emphasize the urgent need for improved occupational health measures and stress management interventions within the medical profession to enhance physician well-being and performance.

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