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Pattern of Musculoskeletal Disorders among Patients Attending a Physical Medicine and Rehabilitation Department

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ABSTRACT

Background: Musculoskeletal disorders (MSDs) are a major cause of pain and disability worldwide, contributing significantly to reduced quality of life and healthcare burden. Understanding their pattern in clinical settings is essential for effective management and rehabilitation planning. **Methods & Materials:** This cross-sectional study was conducted in the Department of Physical Medicine and Rehabilitation of Bangladesh Medical University from January 2024 to December 2024. A total of 121 patients with musculoskeletal complaints were included using purposive sampling. Data were collected through structured interviews and clinical evaluation. Descriptive statistics were analyzed using SPSS version 25. **Results:** The most affected age group was 41–50 years (28.1%) and females were slightly predominant (56.2%). Urban residents constituted 60.3% of participants. Low back pain was the most common disorder (30.6%), followed by cervical spondylosis (19.8%) and osteoarthritis of the knee (17.4%). Most patients reported symptom duration of 1–6 months (40.5%), while moderate pain was most frequent (47.1%). Common risk factors included obesity/overweight (29.8%), prolonged sitting (23.1%) and heavy physical work (15.7%). Hypertension (27.3%) and diabetes mellitus (21.5%) were the leading comorbidities. **Conclusion:** Musculoskeletal disorders were highly prevalent among middle-aged patients, with low back pain being the most common condition. Most patients presented with moderate to severe pain and identifiable lifestyle-related risk factors. Early intervention, ergonomic modification and structured rehabilitation strategies are essential to reduce the burden of MSDs.

Keywords: *Musculoskeletal disorders, Physical Medicine and Rehabilitation, low back pain, cross-sectional study, Bangladesh, risk factors.*

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INTRODUCTION

Musculoskeletal disorders (MSDs) constitute a major proportion of global morbidity and are recognized as one of the leading causes of pain, functional limitation and long-term disability [1]. These conditions encompass a wide range of disorders affecting bones, joints, muscles, ligaments, tendons and associated soft tissues [2]. Common musculoskeletal conditions include low back pain, cervical spondylosis, osteoarthritis, rheumatoid arthritis, frozen shoulder and various entrapment neuropathies [3]. Although many of these conditions are non-fatal, they significantly impair physical function, reduce quality of life and impose a substantial socioeconomic burden on individuals, families and healthcare systems [4].

Globally, MSDs are among the top causes of years lived with disability (YLDs), affecting people across all age groups, particularly the working-age population [5]. The burden is increasing due to population aging, sedentary lifestyles, occupational hazards, obesity and lack of physical activity. In low- and middle-income countries, the impact is more pronounced due to limited access to early diagnosis, rehabilitation services and awareness regarding preventive measures [5,6]. Patients often present late to healthcare facilities, leading to chronicity of symptoms and increased disability [7].

In clinical practice, the Department of Physical Medicine and Rehabilitation (PMR) plays a vital role in the management of musculoskeletal conditions through non-surgical interventions such as pharmacotherapy, physiotherapy, exercise therapy and rehabilitation programs [8]. Understanding the pattern of musculoskeletal disorders in PMR settings is essential for effective service planning, resource allocation and development of targeted rehabilitation strategies [9]. It also helps clinicians identify the most prevalent conditions and associated risk factors within a specific population [10].

In Bangladesh, there is still a lack of sufficient hospital-based data describing the pattern of musculoskeletal disorders among patients attending rehabilitation services. Most available studies are limited in scope or focus on specific conditions rather than providing an overall pattern of MSDs in PMR departments. Therefore, comprehensive institutional data are necessary to better understand the local burden and clinical spectrum of these disorders.

In this context, the present study was conducted in the Department of Physical Medicine and Rehabilitation of Bangladesh Medical University from January 2024 to December 2024. The aim was to assess the pattern of musculoskeletal disorders among patients attending the department and to identify the most common conditions affecting this population. The findings of this study are expected to contribute valuable insights for improving clinical management and rehabilitation services for patients with musculoskeletal disorders in Bangladesh.

METHODS & MATERIALS

This cross-sectional study was conducted in the Department of Physical Medicine and Rehabilitation of Bangladesh Medical

University from January 2024 to December 2024 to determine the pattern of musculoskeletal disorders among patients attending the department. A total of 121 patients were included in the study using purposive sampling technique. Adult patients of both sexes presenting with musculoskeletal complaints and willing to participate in the study were enrolled as study participants. Patients with severe psychiatric illness, critically ill conditions, malignancy-related musculoskeletal disorders and those unwilling to provide informed consent were excluded from the study. Information regarding socio-demographic characteristics, clinical presentation, duration of symptoms, associated risk factors and comorbidities was recorded systematically. Diagnosis of musculoskeletal disorders was made on the basis of clinical history, physical examination and relevant investigations where necessary. All collected data were checked, cleaned and entered into the Statistical Package for the Social Sciences (SPSS) version 25.0 for analysis. Descriptive statistics such as frequency, percentage, mean and standard deviation were used to summarize the data.

RESULTS

Table I presents the socio-demographic characteristics of the study participants. A total of 121 patients were included in the study. The largest proportion of participants belonged to the 41–50 years age group, accounting for 34 (28.1%) cases, followed by 31–40 years 27 (22.3%) and 51–60 years 26 (21.5%). The lowest proportion was observed in the >60 years age group with 15 (12.4%) participants. Regarding gender distribution, females were slightly predominant, comprising 68 (56.2%) of the participants, while males accounted for 53 (43.8%). In terms of residence, most of the patients were from urban areas 73 (60.3%), whereas 48 (39.7%) were from rural settings. Occupational distribution showed that homemakers constituted the highest proportion 38 (31.4%), followed by service holders 31 (25.6%) and business persons 17 (14.0%). Farmers 11 (9.1%) and students 9 (7.4%) represented smaller proportions, while 15 (12.4%) participants were categorized as others.

Table I
Socio-demographic Characteristics of the Study Participants (*n*=121).

Variables	Frequency (n)	Percentage (%)
Age group (years)		
18–30	19	15.7
31–40	27	22.3
41–50	34	28.1
51–60	26	21.5
>60	15	12.4
Gender		
Male	53	43.8
Female	68	56.2
Residence		
Urban	73	60.3
Rural	48	39.7
Occupation		
Service holder	31	25.6
Homemaker	38	31.4
Farmer	11	9.1
Business	17	14.0
Student	9	7.4
Others	15	12.4

Table II illustrates the pattern of musculoskeletal disorders among the study participants. A total of 121 patients were included in this analysis. The most common musculoskeletal disorder was low back pain, affecting 37 (30.6%) patients, which constituted nearly one-third of the study population. This was followed by cervical spondylosis or neck pain in 24 (19.8%) cases and osteoarthritis of the knee in 21 (17.4%) patients, indicating that degenerative and spinal conditions were highly prevalent among the respondents. Frozen shoulder was observed in 11 (9.1%) participants, while rheumatoid arthritis accounted for 8 (6.6%) cases. Lumbar spondylosis was found in 7 (5.8%) patients. Less common conditions included tennis elbow in 4 (3.3%) cases and ankylosing spondylitis, plantar fasciitis and other miscellaneous conditions, each contributing 3 (2.5%) patients.

Table II
Pattern of Musculoskeletal Disorders Among the Study Participants (*n*=121).

Musculoskeletal Disorders	Frequency (n)	Percentage (%)
Low back pain	37	30.6
Cervical spondylosis/neck pain	24	19.8
Osteoarthritis of knee	21	17.4
Frozen shoulder	11	9.1
Rheumatoid arthritis	8	6.6
Lumbar spondylosis	7	5.8
Tennis elbow	4	3.3
Ankylosing spondylitis	3	2.5
Plantar fasciitis	3	2.5
Others	3	2.5

Table III shows the distribution of patients according to duration and severity of musculoskeletal symptoms among the study participants. Out of 121 patients, the highest proportion reported symptom duration of 1–6 months, accounting for 49

(40.5%) cases, followed by 7–12 months in 31 (25.6%) patients. A total of 23 (19.0%) participants had symptoms for more than 12 months, indicating a considerable burden of chronic conditions, while 18 (14.9%) patients presented within less than one month of symptom onset. Regarding pain severity assessed by VAS score, the majority of patients experienced moderate pain, comprising 57 (47.1%) cases, followed by severe pain in 48 (39.7%) patients. Only 16 (13.2%) participants reported mild pain.

Table III
Distribution of Patients According to Duration and Severity of Symptoms (*n*=121).

Variables	Frequency (n)	Percentage (%)
Duration of symptoms		
<1 month	18	14.9
1–6 months	49	40.5
7–12 months	31	25.6
>12 months	23	19.0
Pain severity (VAS score)		
Mild (1–3)	16	13.2
Moderate (4–6)	57	47.1
Severe (7–10)	48	39.7

Table IV presents the distribution of associated risk factors and comorbid conditions among the study participants. Among the identified risk factors, obesity or overweight was the most common, affecting 36 (29.8%) patients, followed by prolonged sitting in 28 (23.1%) cases and heavy physical work in 19 (15.7%) participants. Sedentary lifestyle was reported by 17 (14.0%) patients, while previous trauma and smoking were noted in 12 (9.9%) and 9 (7.4%) cases, respectively, indicating a mixed pattern of occupational and lifestyle-related contributors to musculoskeletal disorders. Regarding comorbid conditions, hypertension was the most frequent, present in 33 (27.3%) patients, followed by diabetes mellitus in 26 (21.5%) cases. Bronchial asthma and ischemic heart disease were less common, observed in 7 (5.8%) and 5 (4.1%) participants, respectively. Notably, 50 (41.3%) patients had no associated comorbidity.

Table IV
Associated Risk Factors and Comorbid Conditions of the Study Participants (*n*=121).

Variables	Frequency (n)	Percentage (%)
Risk factors		
Obesity/overweight	36	29.8
Prolonged sitting	28	23.1
Heavy physical work	19	15.7
Sedentary lifestyle	17	14
Previous trauma	12	9.9
Smoking	9	7.4
Comorbidities		
Hypertension	33	27.3
Diabetes mellitus	26	21.5
Bronchial asthma	7	5.8
Ischemic heart disease	5	4.1
No comorbidity	50	41.3

DISCUSSION

The present cross-sectional study evaluated the pattern of musculoskeletal disorders among 121 patients attending the Department of Physical Medicine and Rehabilitation of Bangladesh Medical University during January 2024 to December 2024. In this study, the most affected age group was 41–50 years (28.1%), followed by 31–40 years (22.3%), indicating that musculoskeletal disorders predominantly affected middle-aged individuals, which is consistent with the findings of Banik et al., who reported higher prevalence of MSDs in economically active age groups attending PMR outpatient departments in Bangladesh [11]. The female predominance (56.2%) observed in the present study is also supported by Chowdhury et al., and Jahan et al., who reported a higher burden of musculoskeletal and rheumatic conditions among females, possibly due to hormonal factors, household workload and healthcare-seeking behavior differences [12,13].

In the current study, urban residents constituted 60.3% of the participants, which may reflect higher healthcare accessibility and sedentary lifestyle patterns in urban populations. Similar observations were noted by Kha et al., who identified urban lifestyle and reduced physical activity as significant contributors to musculoskeletal disorders in Bangladeshi patients [14]. Occupational distribution in the present study showed that homemakers (31.4%) and service holders (25.6%) were the most affected groups, suggesting that both domestic repetitive tasks and prolonged sitting occupations contribute significantly to MSD development, which aligns with findings from Hossain et al. and Mitra, who emphasized occupational strain as a key determinant among working populations in Bangladesh [15,16].

Regarding disease pattern, low back pain was the most common condition (30.6%), followed by cervical spondylosis (19.8%) and osteoarthritis of the knee (17.4%). This pattern is comparable with studies by Banik et al. and Chowdhury et al., where low back pain and degenerative spinal conditions were similarly identified as leading causes of PMR attendance [11,12]. These findings are also supported by O'Young et al., who described low back pain as one of the most frequent disabling musculoskeletal conditions globally [17]. The high prevalence of degenerative conditions in the present study may be associated with aging, poor posture and occupational strain.

In terms of symptom duration, the majority of patients (40.5%) presented with symptoms lasting 1–6 months, while 19.0% had chronic symptoms of more than 12 months. This indicates delayed healthcare-seeking behavior and chronic progression of musculoskeletal conditions,

which is consistent with findings reported by Jahan et al., where delayed presentation was common among Bangladeshi patients with musculoskeletal disorders [13]. Pain severity assessment revealed that 47.1% of patients experienced moderate pain and 39.7% had severe pain, reflecting significant functional impairment. Similar pain burden patterns were also described by Cheng et al., who highlighted the impact of chronic musculoskeletal pain on quality of life and disability [18].

The present study also identified obesity/overweight (29.8%), prolonged sitting (23.1%) and heavy physical work (15.7%) as major risk factors. These findings are in agreement with Fan et al., who emphasized ergonomic and occupational risk factors as major contributors to work-related musculoskeletal disorders [19]. Sedentary lifestyle and previous trauma further highlight the multifactorial etiology of MSDs, as also noted by Swank et al., in occupational populations [20]. Among comorbidities, hypertension (27.3%) and diabetes mellitus (21.5%) were most common, which is consistent with Jahan et al., who reported a significant association between chronic musculoskeletal disorders and metabolic comorbidities in older adults [13].

LIMITATIONS

This study was conducted in a single tertiary care center, which may limit the generalizability of the findings to the wider population of Bangladesh. The sample size was relatively small and the purposive sampling technique may introduce selection bias. Additionally, the study relied mainly on clinical diagnosis and patient-reported information, which may be subject to recall bias and variation in symptom reporting.

CONCLUSION

Musculoskeletal disorders are highly prevalent among patients attending the Physical Medicine and Rehabilitation department, with low back pain, cervical spondylosis and osteoarthritis of the knee being the most common conditions. The study also highlights a significant burden of moderate to severe pain, prolonged symptom duration and identifiable lifestyle and occupational risk factors. These findings emphasize the need for early diagnosis, preventive strategies and strengthened rehabilitation services to reduce the overall burden of musculoskeletal disorders in Bangladesh.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

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