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# Occupational Musculoskeletal Health Risks among Physical Therapists in Sindh: A Cross-Sectional Study

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## ABSTRACT

**Background:** Musculoskeletal disorders (MSDs) are common occupational hazards among physical therapists, affecting their health and work performance. This study aimed to assess the prevalence and characteristics of low back, neck, and shoulder pain among physical therapists. **Methods:** A cross-sectional survey was conducted among 147 physical therapists using a structured questionnaire to collect demographic data and musculoskeletal pain characteristics. Prevalence rates for lifetime, one-year, and one-week periods were calculated along with associated factors such as job changes, activity limitation, and healthcare-seeking behavior. **Results:** The lifetime prevalence of low back pain was 81%, with 36.1% reporting pain in the last year and 66% in the past week. Neck pain lifetime prevalence was 59.2%, with 33.3% and 30.6% for one-year and one-week periods, respectively. Shoulder pain was reported by 29.9% of participants, with 12.9% experiencing right shoulder pain in the last year and 11.6% in the past week. Substantial proportions reported reduced work and leisure activities due to pain, with a notable number seeking medical care. Longer working hours and professional experience correlated with increased pain prevalence. **Conclusion:** Musculoskeletal pain, particularly low back pain, is highly prevalent among physical therapists, impacting their work and daily activities. Implementation of ergonomic strategies and preventive programs is critical to reduce MSD burden and promote occupational health in this professional group.

## INTRODUCTION

Work-related musculoskeletal disorders (WRMDs) encompass a wide range of degenerative and inflammatory conditions that result in pain and functional impairment, as defined by the World Health Organization [1]. Job-related musculoskeletal complaints among physical therapists (PTs) have been investigated extensively since the mid-1980s, highlighting occupational risks unique to this profession [2]. Historically, job-related factors contributing to musculoskeletal disorders were recognized as early as the 18th century [3].

Several factors contribute to the development of WRMDs in physical therapists. Bork et al. identified three major risk factors strongly associated with WRMDs: repetitive movements, awkward postures, and the exertion of high force levels [4-5]. These risk factors are commonly encountered in physiotherapy practice. Among the various musculoskeletal regions affected, the lower back is reported to have the highest incidence of WRMDs in PTs [6-8]. Shehab et al. documented a high lifetime prevalence of low back pain (LBP) at 70% among physical therapists, attributing this to faulty body mechanics and improper techniques during patient care activities [9].

Low back pain remains the most frequently reported WRMD among physical therapists worldwide [10]. Studies conducted in various countries have reported LBP prevalence ranging from 29% to 68% among PTs, often identifying it as the most common WRMD in this group [11,12]. Among healthcare workers, physical therapists rank second only to nurses in the prevalence of work-related lower back pain, likely due to the repetitive high spinal loads encountered in their daily tasks [13,14]. Besides the lower back, other muscles and joints are also vulnerable to WRMDs in this population [15].

Key risk factors for work-related musculoskeletal disorders and LBP include age, gender, sustained bending, repetitive movements, manual therapy, patient transfers, limited workspace, treating multiple patients' daily, awkward postures, and working while injured [16]. The consequences of WRMDs in PTs extend beyond pain, often leading to reduced leisure and daily activities, seeking medical treatment, use of assistive devices, changes in

specialty areas, or even leaving the profession [17].

Previous research has reported that WRMDs can result in significant changes in work habits and settings among physical therapists. Glover et al. found that 32% of PTs with WRMDs lost work time [8,18], while Cromie et al. reported that one in six PTs left their jobs or changed work settings due to these disorders [8,10]. Furthermore, Molumphy et al. noted that 18% of PTs with work-related LBP altered their work settings, and 12% reduced their working hours [6,19].

This study aims to evaluate the prevalence and characteristics of WRMDs among physical therapists in Sindh, Pakistan. The findings will provide essential data to inform prevention strategies and reduce the burden of musculoskeletal symptoms in this professional group.

## METHODOLOGY

This cross-sectional study was conducted from March 2022 to December 2022 to evaluate musculoskeletal disorders among practicing physical therapists. The study was carried out in various clinical settings across multiple cities in Pakistan, including Peoples Medical College Hospital (PMC), Isra University Hospitals (Hyderabad and Karachi), Liaquat University of Medical and Health Sciences (LUMHS), Agha Khan University Hospital (AKU), Dow University Hospital, Jinnah Postgraduate Medical Centre (JPMC), Liaquat National Hospital (LNH), Zia Uddin University Hospital, National Institute of Cardiovascular Diseases (NICVD), and Memon Medical Institute and Hospital (MMI).

A total of 147 practicing physical therapists participated in this study. A non-probability convenience sampling technique was employed to recruit participants. The inclusion criteria comprised currently practicing physical therapists with at least one year of clinical experience. Exclusion criteria included non-practicing physical therapists, those working solely in academic roles, house officer physical therapists, undergraduate Doctor of Physical Therapy students, physical therapist assistants/technicians, and individuals suffering from any current illness causing pain such as sciatica, trauma, or degenerative/inflammatory disorders.

Data collection was performed using the standardized and validated Nordic Musculoskeletal Questionnaire, for which permission was obtained from the original author via email. This questionnaire included four parts: the first part gathered demographic and professional background information, including age, gender, work history, and educational qualifications. The second part consisted of eight questions targeting low back pain. The third part assessed the presence of musculoskeletal complaints in the neck region through another set of eight questions. The final part comprised nine questions focused on shoulder pain.

Ethical approval for the study was obtained from the Institutional Review Board (IRB) at the Institute of Physiotherapy and Rehabilitation Sciences (IPRS), Peoples University of Medical & Health Sciences for Women (PUMHSW), Nawabshah. The study protocol was explained to all participants, and written informed consent was obtained prior to questionnaire distribution. Participants were informed of their right to withdraw at any point without providing a reason. The data collected were kept confidential and used solely for research purposes.

The questionnaires were distributed manually to 218 physical therapists. Out of these, 147 completed questionnaires were received, yielding a response rate of approximately 67.4%. Most participants returned the completed forms on the same day; in cases where this was not possible, collection occurred the following day. The data were initially entered into Microsoft Excel and subsequently analyzed using SPSS version 20. Descriptive statistics were generated, and the results were presented in tabular form.

## RESULTS

Table 1 shows that out of 147 participants, the majority were aged 25–30 years (63.3%) and male (53.7%). Most were Muslim (91.2%) and single (55.1%). Half of the respondents held a Doctor of Physical Therapy (DPT) degree (50.3%), and 62.6% had 1–5 years of experience. More than half (51.7%) worked over 40 hours per week.

**Table 1**

*Demographic Characteristics of Physical Therapists (N=147)*

| Variable | Category | Frequency (%) |
|---|---|---|
| Age (years) | 25–30 | 93 (63.3) |
| | 31–35 | 38 (25.9) |
| | 36–40 | 10 (6.8) |
| | 41 and above | 6 (4.1) |
| Gender | Male | 79 (53.7) |
| | Female | 68 (46.3) |
| Religion | Muslim | 134 (91.2) |
| | Hindu | 12 (8.2) |
| | Christian | 1 (0.7) |
| Marital Status | Single | 81 (55.1) |
| | Married | 66 (44.9) |
| Qualification | BS Physiotherapy | 7 (4.8) |
| | DPT | 74 (50.3) |
| | MS PT | 50 (34.0) |
| | PP-DPT | 9 (6.1) |
| | M.Phil. | 7 (4.8) |
| Professional Experience | 1–5 years | 92 (62.6) |
| | 6–10 years | 39 (26.5) |
| | >10 years | 16 (10.9) |
| Working Hours/Week | <25 hours | 27 (18.4) |
| | 26–30 hours | 11 (7.5) |
| | 30–40 hours | 33 (22.4) |
| | >40 hours | 76 (51.7) |

Table 2 summarizes findings related to low back pain (LBP). Lifetime prevalence was 81%, with 66% reporting LBP in the past week. About 47.6% reported reduced work activity and 36.7% reduced leisure activity due to LBP in the past year. Only 4.8% were hospitalized due to LBP and 20.4% had to change jobs or duties. A total of 42.2% sought medical or physiotherapy care.

**Table 2**
*Characteristics of Low Back Pain (LBP) among Physical Therapists (n = 147)*

| LBP History | n (%) | LBP in Past 12 Months | n (%) |
|---|---|---|---|
| Ever had LBP | 119 (81.0) | 0 days | 44 (29.9) |
| Hospitalized due to LBP | 7 (4.8) | 1–7 days | 53 (36.1) |
| Changed jobs / duties due to LBP | 30 (20.4) | 8–30 days | 17 (11.6) |
| Sought care for LBP | 62 (42.2) | >30 days (not daily) | 23 (15.6) |
| LBP during past 7 days | 97 (66.0) | Every day | 10 (6.8) |
| Impact of LBP | n (%) | LBP Prevented Normal Work (Days) | n (%) |
| Reduced work activity | 70 (47.6) | 0 days | 67 (45.6) |
| Reduced leisure activity | 54 (36.7) | 1–7 days | 54 (36.7) |
| | | 8–30 days | 18 (12.2) |
| | | >30 days | 8 (5.4) |

Table 3 shows that 59.2% of participants reported lifetime neck pain, with 30.6% reporting it in the past week. A smaller proportion (10.2%) reported injury from accidents, and only 8.2% had to change duties due to neck pain. 29.3% sought professional care. 26.5% reduced work activity and 25.2% leisure activity due to neck pain.

**Table 3**
*Characteristics of Neck Pain among Physical Therapists (n=147)*

| Neck Pain History | n (%) | Neck Pain in Past 12 Months | n (%) |
|---|---|---|---|
| Ever had neck pain | 87 (59.2) | 0 days | 72 (49.0) |
| Hurt neck in an accident | 15 (10.2) | 1–7 days | 49 (33.3) |
| Changed jobs/duties due to neck pain | 12 (8.2) | 8–30 days | 12 (8.2) |
| Sought care for neck pain | 43 (29.3) | >30 days (not daily) | 12 (8.2) |
| Neck pain during past 7 days | 45 (30.6) | Every day | 2 (1.4) |
| Impact of Neck Pain | n (%) | Neck Pain Prevented Normal Work (Days) | n (%) |
| Reduced work activity | 39 (26.5) | 0 days | 98 (66.7) |
| Reduced leisure activity | 37 (25.2) | 1–7 days | 40 (27.2) |
| | | 8–30 days | 6 (4.1) |
| | | >30 days | 3 (2.0) |

Table 4 reports that 29.9% of participants had lifetime shoulder pain, with 11.6% reporting pain in the right shoulder during the last week. 8.8% changed jobs or duties due to shoulder trouble and 15.0% sought care. Shoulder trouble led to reduced work activity (18.4%) and leisure activity (15.6%) in some cases.

**Table 4**
*Characteristics of Shoulder Pain among Physical Therapists (n = 147)*

| Shoulder Pain History | n (%) | Shoulder Pain in Past 12 Months | n (%) |
|---|---|---|---|
| Ever had shoulder trouble | 44 (29.9) | Right shoulder only | 19 (12.9) |
| Hurt shoulder in accident (Right only) | 11 (7.5) | Left shoulder only | 7 (4.8) |
| Hurt shoulder in accident (Left only) | 1 (0.7) | Both shoulders | 9 (6.1) |
| Hurt both shoulders in accident | 9 (6.1) | | |
| Changed jobs/duties due to shoulder pain | 13 (8.8) | Shoulder pain in past 7 days (Right) | 17 (11.6) |
| Sought care for shoulder pain | 22 (15.0) | Shoulder pain in past 7 days (Left) | 6 (4.1) |
| | | Shoulder pain in past 7 days (Both) | 6 (4.1) |
| Duration of Shoulder Pain (Past 12 Months) | n (%) | Impact of Shoulder Pain on Activities | n (%) |
| 0 days | 112 (76.2) | Reduced work activity | 27 (18.4) |
| 1–7 days | 25 (17.0) | Reduced leisure activity | 23 (15.6) |
| 8–30 days | 4 (2.7) | | |
| >30 days, not daily | 5 (3.4) | Work prevented due to shoulder pain (days) | |
| Every day | 1 (0.7) | 0 days | 119 (81.0) |
| | | 1–7 days | 23 (15.6) |
| | | 8–30 days | 3 (2.0) |
| | | >30 days | 2 (1.4) |

## DISCUSSION

This study investigated the prevalence and characteristics of musculoskeletal disorders (MSDs), specifically low back pain (LBP), neck pain, and shoulder pain, among practicing physical therapists. The findings indicate a substantial burden of these conditions, reflecting both occupational risks inherent to the profession and the need for targeted preventive strategies.

The lifetime prevalence of low back pain among the participants was notably high at 81%, with 36.1% reporting LBP in the past year and 66% in the past week. These findings align with prior global data, which report that 60–80% of the adult population will experience LBP at some point during their lives. Landry et al. (2008) [20] similarly observed a lifetime prevalence ranging from 60–90%, while Roupa et al. (2008) [21] described LBP as a leading cause of temporary disability in adults under 45 years in the United States. In the healthcare workforce, LBP prevalence can reach 50%, with repetitive lifting, awkward postures, and prolonged standing identified as contributing occupational factors. Our study confirms that physical therapists are not exempt from these risks, despite their expertise in managing musculoskeletal conditions.

Regarding neck pain, the lifetime prevalence was 59.2%, with 33.3% of therapists reporting symptoms in the past 12 months and 30.6% in the past week. This burden is consistent with prior reports, where chronic neck pain affects up to 30% of the general population. Contributing factors, as highlighted by Winkel et al., include repetitive tasks, poor posture, and psychosocial work stressors [22]. Rossignol et al. also found a significant correlation between neck and shoulder pain and prolonged use of visual display units. Given that physical therapists frequently engage in tasks requiring sustained neck positions and repetitive upper limb movement, these findings reinforce the profession's susceptibility to work-related neck disorders [23].

Shoulder pain was the third most commonly reported musculoskeletal condition, with a lifetime prevalence of 29.9%. In the past year, 12.9% reported right-sided shoulder pain, and 11.6% experienced it within the past week. The right shoulder, often the dominant side in

manual labor, was the most frequently affected. These findings align with existing literature indicating that shoulder pain is prevalent among working-age adults, with rates ranging from 6% to 11% for those under 50, and up to 25% in older individuals. The functional implications of shoulder pain are significant, impacting both professional and personal activities. Additionally, evidence shows that over half of patients diagnosed with shoulder disorders receive physical therapy, highlighting the irony that those who provide such care are themselves at high risk of shoulder dysfunction [17].

Collectively, the findings indicate that physical therapists experience a high prevalence of MSDs, likely due to the physical demands of the profession, including manual therapy, patient transfers, and prolonged standing or stooping. The fact that a significant proportion of therapists reported reduced work and leisure activity due to these conditions underscores the impact of MSDs on quality of life and job performance. These data are consistent with a study conducted in Delhi, India, where 92% of physiotherapists reported experiencing MSDs after joining the profession [6].

The substantial burden of LBP, neck, and shoulder pain among physical therapists necessitates strategic interventions at both individual and organizational levels. Workplace ergonomics, periodic musculoskeletal screening, early intervention, and customized exercise programs can help reduce these risks. Furthermore, attention at the policy level is required to address workload management and encourage musculoskeletal health in rehabilitation professionals.

## CONCLUSION

The study reveals a high prevalence of musculoskeletal pain, especially low back pain, among physical therapists. These findings emphasize the need for targeted ergonomic interventions and preventive measures to reduce work-related disorders. Improving workplace conditions is essential to safeguard the health and productivity of physical therapists.

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