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ORIGINAL ARTICLE

JMHRS JOURNAL OF MODERN HEALTH AND REHABILITATION SCIENCES

Work-Related Musculoskeletal Disorders Among Tailors in Saddar, Peshawar: A Cross-Sectional Study

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ABSTRACT

Background: Work-related musculoskeletal disorders (WMSDs) pain are common among occupations requiring repetitive manual tasks and sustained postures, particularly in informal sectors such as tailoring.

Objective: To determine the frequency and distribution of WMSDs pain among tailors in the Saddar area of Peshawar and assess associated occupational risk.

Methods: A cross-sectional study was conducted in 2023 involving 313 male tailors aged 18–40 years using non-probability convenience sampling. Data were collected through the modified Nordic Musculoskeletal Questionnaire in both English and Urdu. Inclusion criteria required a work duration of 1–10 hours daily for six days weekly. Individuals with trauma, recent surgeries, or pregnancy were excluded. Statistical analysis was performed using SPSS version 25, with chi-square tests used to assess associations ($p < 0.05$).

Results: Out of 313 participants, 267 (85.3%) reported WMSDs pain. The most affected body regions were the shoulder (14.7%), elbow (13.4%), and upper back (10.5%). Significant associations were found between WMSDs pain and working ≥8 hours/day, as well as sitting and cross-legged postures ($p < 0.05$).

Conclusion: WMSDs pain were highly common among tailors in Peshawar, emphasizing the need for ergonomic interventions, early screening, and worker health awareness to reduce occupational strain.

Keywords: Ergonomics, Informal Employment, Musculoskeletal Diseases, Occupational Health, Repetitive Strain Injury, Tailoring, Work-Related Disorders

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Disclaimers
Conflict of Interest: None declared
Data/Supplements: Available on request.
Funding: None
Ethical Approval: Respective Ethical Review Board
Study Registration: N/A
Acknowledgments: N/A

Article Info
Received: 23 February 2025, *Accepted:* 17 June 2025,
Published Online: 17 June 2025

How to Cite: Ahmad S, Aamir S, Gul F, Wahid E, Khan MS, Khan A. Work-Related Musculoskeletal Disorders Among Tailors in Saddar, Peshawar: A Cross-Sectional Study. J Mod Health Rehab Sci. 2025;2(2):104.
Available from: https://jmhrs.com/index.php/jmhrs/article/view/104

Introduction

Musculoskeletal disorders (MSDs) represent a diverse group of degenerative and inflammatory conditions affecting the muscles, joints, tendons, ligaments, and supporting structures of the body, particularly those of the limbs and trunk. Common clinical manifestations include sprains, strains, localized or diffuse musculoskeletal pain, and general discomfort often attributed to repetitive mechanical stressors (1). These disorders are typically classified into three stages: mild, marked by transient discomfort and fatigue during work without interference in night-time rest or productivity; moderate, characterized by symptoms that persist during work hours and interfere with task repetition; and severe, defined by constant pain at rest and significant impairment in daily functional capacity (2, 3). Work-related musculoskeletal disorders (WMSDs), a prevalent subset of MSDs, are multifactorial in origin and encompass a range of symptoms such as pain, stiffness, tenderness, numbness, weakness, localized swelling, and a pervasive sense of fatigue or heaviness (4, 5).

The etiological factors contributing to WMSDs are varied and encompass physical, mechanical, and psychosocial domains. Manual handling, repetitive movement, prolonged static postures, use of vibrating tools, and excessive force application are frequently implicated in the onset and progression of these disorders (6, 7). Additionally, extended working hours, occupational monotony, and poor ergonomics are recognized as exacerbating factors, with adverse implications for both physical and mental health. These include heightened risks of occupational accidents, increased fatigue, and decreased cognitive alertness (2, 8). Risk intensity is further modulated by the frequency, duration, and magnitude of exposure to biomechanical stressors (9, 10). Tailoring, a profession that entails highly repetitive and monotonous manual tasks such as cutting, stitching, and finishing garments, typically performed in a static sitting posture with a forward-leaning upper body and flexed cervical spine, represents a high-risk occupation for WMSDs (11).

Globally, the burden of WMSDs has escalated in parallel with industrialization and the expansion of labor-intensive occupations, particularly in low- and middle-income countries (1, 12). While technological innovation continues to advance, the occupational health of laborers often remains marginalized. It is imperative to prioritize the well-being of workers, not only to ensure sustainable productivity but also to recognize their central role in driving socioeconomic progress (13). Robust evidence underscores the association between ergonomic risk factors—such as repetitive tasks, suboptimal posture, and mechanical stress—and the development of WMSDs (14). For instance, a study conducted by Luenda E. Charles et al. (2017) highlighted that WMSDs constituted 32% of all non-fatal injuries and illnesses among daily-wage laborers in 2014 (15). Similarly, the financial impact of these disorders is substantial, with countries such as Brazil reporting annual expenditures reaching R$356 million for the management of WMSDs (16).

Despite the substantial global burden of WMSDs, there remains a paucity of localized data on their prevalence among tailors in specific regions, including Peshawar, Pakistan. Given the physical demands and ergonomic risks inherent in tailoring, there is an urgent need to investigate the frequency and severity of WMSDs within this occupational group. This study aims to address this knowledge gap by quantifying the burden of WMSDs among tailors in the Saddar area of Peshawar. The findings are expected to provide critical insights into work-related health challenges in this population, identify key ergonomic deficits, and inform targeted interventions to mitigate risk and improve occupational health outcomes.

Materials and Methods

This study was conducted in 2023 and employed a descriptive cross-sectional design to assess the work-related musculoskeletal disorders (WMSDs) among tailor workers in the Saddar area of Peshawar, located in Khyber Pakhtunkhwa, Pakistan. The target population comprised individuals working in tailoring shops across the region, with only male participants included. Tailors aged between 18 and 40 years, irrespective of literacy level, were eligible for participation provided they worked between 1 to 10 hours per day for six days per week. Individuals were excluded from the study if they worked seven days a week, had sustained trauma, were pregnant, or had undergone any surgical procedures within the preceding three months, to eliminate confounding variables affecting musculoskeletal health.

A total of 313 tailor workers were selected using a non-probability convenience sampling technique. The sample size was calculated using the Raosoft sample size calculator to ensure sufficient statistical power and representation. Prior to the main study, a pilot survey was carried out involving 1,680 tailors, from which 313 individuals met the inclusion criteria and were selected for final data collection. This pilot helped in refining the research tools and confirming the adequacy of the sample design.

Data were collected using a validated and modified version of the Nordic Musculoskeletal Questionnaire (NMQ), which is commonly used in occupational health research to evaluate musculoskeletal complaints (17). The questionnaire was designed in two sections: the first part focused on demographic and occupational characteristics, and the second part specifically addressed symptoms of WMSDs in various body regions. The instrument was made available in both simple English and Urdu, and verbal explanations were provided to ensure

comprehension by participants of varying literacy levels. Responses were obtained through in-person interviews to reduce response bias and enhance data quality.

Ethical approval was secured prior to the initiation of the study, and all research procedures were conducted in accordance with the ethical principles. Informed consent was obtained verbally and in writing from all participants after explaining the purpose, benefits, and voluntary nature of the study. Anonymity and confidentiality of participant information were rigorously maintained throughout the research process.

Data entry and statistical analysis were performed using IBM SPSS Statistics version 25. Descriptive statistics, including frequencies and percentages, were used to summarize participant characteristics and the prevalence of WMSDs. The association between WMSDs and potential occupational risk factors such as duration of daily work and prolonged sitting postures, was evaluated using chi-square tests, with the significance level set at $p < 0.05$.

Results

Out of a total of 313 participants, majority of tailors (85.3%) reported experiencing work-related musculoskeletal disorders (WMSDs). All were male, with a mean age of 39.9 ± 18.1 years. A significant proportion (68.7%) worked less than 8 hours per day, while 31.3% reported working more than 8 hours daily. Most of the workers (77.2%) were employed for 6 days per week. Regarding working posture, 93.3% of participants performed their tasks in a sitting position, and 69.0% frequently worked in a cross-legged position.

Table 1: Demographic and Occupational Characteristics of Tailor Workers

Variable	Category	Frequency (%)
Mean Age (years)	Mean ± S.D	39.9 ± 18.1
Working Posture	Sitting	292 (93.3%)
	Cross-legged	216 (69.0%)
Working Hours per Day	< 8 hours	215 (68.7%)
	≥ 8 hours	98 (31.3%)
Working Days per Week	6 Days	242 (77.2%)

Statistical analysis showed significant associations ($p < 0.05$) between longer working hours (≥8 hours/day) and higher prevalence of discomfort in the shoulder, elbow, and upper back regions. Sitting in a cross-legged position was also significantly correlated with pain in the shoulder and elbow regions ($p < 0.05$). In contrast, complaints involving the lower back, hip, and ankle/foot showed no significant association with working hours or posture. Furthermore, there was no statistically significant correlation between the participants' age and either the number of hours worked per day or the specific body regions affected by WMSDs ($p > 0.05$).

Table 2: Frequency of WMSDs Pain in Different Body Regions and by Working Duration (n = 313)

Body Region	Total Affected (%)	Affected in 6 Days Working (%)	Affected with ≥8 Hours Work/Day (%)
Neck	27 (8.6%)	27 (8.6%)	7 (2.2%)
Shoulder	46 (14.7%)	46 (14.7%)	16 (5.1%)
Elbow	42 (13.3%)	42 (13.3%)	12 (3.8%)
Wrist & Hand	33 (10.5%)	33 (10.5%)	11 (3.5%)
Upper Back	33 (10.5%)	33 (10.5%)	12 (3.8%)
Lower Back	19 (6.1%)	19 (6.1%)	5 (1.6%)
Hip	23 (7.3%)	23 (7.3%)	7 (2.2%)
Knee	26 (8.3%)	26 (8.3%)	10 (3.2%)
Ankle & Foot	18 (5.8%)	18 (5.8%)	6 (1.9%)
No Complaint	46 (14.7%)	46 (14.7%)	12 (3.8%)

Discussion

The current study demonstrated a high prevalence of work-related musculoskeletal disorders (WMSDs) among tailors in Saddar, Peshawar, with 85.3% of the 313 participants reporting symptoms in at least one body region. This prevalence aligns closely with the findings of Nurhayati Mohd Nur et al., who reported a 76.9% prevalence of WMSDs among 400 textile workers, indicating that tailoring, like other repetitive manual

occupations, poses substantial ergonomic risks (18). The age group most affected in the present study was between 19 and 26 years (30.3%), reflecting early onset of occupational stress among younger workers. This pattern is consistent with data from a study conducted by Silva et al. in Brazil, which revealed the highest prevalence of WMSDs among individuals aged 21–30 years, suggesting that the physical demands of tailoring may affect musculoskeletal health early in a worker's career (19).

Notably, all participants in this study were male, due to a lack of female representation in the tailoring workforce in Saddar or potentially limited willingness among women to participate in the survey. This gender exclusivity may have skewed the overall prevalence data, though it mirrors findings from Banerjee et al., who documented a greater vulnerability to WMSDs among male textile workers in slum areas of India (11). However, contrasting evidence from Young-Mee Kim et al. in South Korea indicated a higher frequency of WMSDs among females (64.5%) compared to males (54.7%) in labor-intensive jobs, highlighting the need for gender-inclusive occupational studies to capture a more holistic view of musculoskeletal risks across diverse labor demographics (20).

The most commonly affected anatomical region in the present cohort was the shoulder (14.7%), followed by the elbow (13.4%), wrists and hands (10.5%), and upper back (10.5%). These findings were consistent with the occupational biomechanics of tailoring, which involves prolonged sitting, repetitive hand movements, and sustained static postures. Comparable results were seen in the study by Paula K. Hembecker et al. among Brazilian garment workers, where high rates of shoulder (24.8%), elbow (15.5%), and wrist/hand (19.0%) complaints were reported (11). Furthermore, our data identified significantly higher rates of shoulder and upper back symptoms in individuals who worked more than eight hours per day or worked in a cross-legged position for prolonged periods. This correlates with findings from Baek et al., who reported the back (31.1%) and shoulders (19.4%) as the most impacted regions among South Korean tailors (13).

Despite the strengths of this study including a well-powered sample size, use of a validated Nordic questionnaire, and consideration of posture and duration of work as risk variables, it faced several limitations. The exclusion of female participants limited the generalizability of findings across genders. The use of non-probability convenience sampling may have introduced selection bias, and self-reported data are inherently vulnerable to recall bias or misreporting. Additionally, the cross-sectional nature of the study precluded any conclusions about causality between work exposure and WMSDs.

Future studies should consider a longitudinal design to assess progression and causation of WMSDs over time. Inclusion of biomechanical assessments and ergonomic evaluations may further clarify the occupational determinants of MSDs in tailors. Interventions such as posture correction training, ergonomic workstation designs, and enforced rest breaks should be implemented and evaluated for efficacy. Raising awareness regarding occupational health, especially in informal sectors like tailoring, remains a critical step in minimizing the burden of musculoskeletal disorders and preserving the physical well-being of the workforce.

Conclusion

This study revealed a notably high prevalence of work-related musculoskeletal disorders (WMSDs) pain among tailors in Saddar, Peshawar, with 85.3% of participants reporting symptoms, predominantly in the shoulder and elbow regions. The findings highlight the urgent need for targeted occupational health interventions, particularly in informal labor sectors where ergonomic risks are overlooked.

Authors' Contributions

ICMJE authorship criteria	Detailed contributions	Authors
Substantial Contributions	Conception or Design of the work	1,2,3,5
	Data acquisition	2,3,4,6
	Data analysis or interpretation	1,3,5
Drafting or Reviewing	Draft the work	4
	Review critically	1,2,3,4
Final approval	Final approval of the version to be published.	1,2,3,4,5,6
Accountable	Agreement to be accountable for all aspects of the work.	1,2,3,4,5,6

References

1. Draghi F, Cocco G, Richelmi FM, Schiavone C. Abdominal Wall Sonography: A Pictorial Review. J Ultrasound. 2020;23(3):265-278. doi:10.1007/s40477-020-00435-0.
2. Li G, Li Y, Crag B, editors. A Systematic Review of Musculoskeletal Disorders (MSDs) Among Port Workers. Adv Soc Occup Ergon. 2019;9:Proceedings of the AHFE 2018 Int Conf on Social and Occupational Ergonomics; July 21–25, 2018; Orlando, Florida, USA.
3. Dembe AE, Erickson JB, Delbos RG, Banks SM. The Impact of Overtime and Long Work Hours on Occupational Injuries and Illnesses: New Evidence from the United States. Occup Environ Med. 2005;62(9):588-97.
4. Ortiz-Hernández L, Tamez-González S, Martínez-Alcántara S, Méndez-Ramírez I. Computer Use Increases the Risk of Musculoskeletal Disorders Among Newspaper Office Workers. Arch Med Res. 2003;34(4):331-42.
5. Kahraman T, Genç A, Göz E. The Nordic Musculoskeletal Questionnaire: Cross-Cultural Adaptation into Turkish Assessing Its Psychometric Properties. Disabil Rehabil. 2016;38(21):2153-60.
6. Moom RK, Sing LP, Moom N. Prevalence of Musculoskeletal Disorder Among Computer Bank Office Employees in Punjab (India): A Case Study. Procedia Manuf. 2015;3:6624-31.

7. Devi K, Kiran U. Work Related Musculoskeletal Disorders Among Workers in Unorganized Sector. Int J Tech Res Appl. 2015;3(3):225-9.
8. Tubagus AP, Doda DV, Wungouw HI. Hubungan Tingkat Risiko Musculoskeletal Disorders (MSDs) Menggunakan Rapid Entire Body Assessment (REBA) dengan Keluhan MSDs pada Residen Ilmu Bedah. J Biomed JBM. 2018;10(3):168-73.
9. Fischer D, Lombardi DA, Folkard S, Willetts J, Christiani DC. Updating the "Risk Index": A Systematic Review and Meta-Analysis of Occupational Injuries and Work Schedule Characteristics. Chronobiol Int. 2017;34(10):1423-38.
10. Gebreyesus T, Nigussie K, Getnet MG, Janakiraman B. The Prevalence and Risk Factors of Work-Related Musculoskeletal Disorders Among Adults in Ethiopia: A Study Protocol for Extending a Systematic Review with Meta-Analysis of Observational Studies. 2020.
11. Hembecker PK, Reis DC, Konrath AC, Gontijo LA, Merino EA. Investigation of Musculoskeletal Symptoms in a Manufacturing Company in Brazil: A Cross-Sectional Study. Braz J Phys Ther. 2017;21(3):175-83.
12. Banerjee S, Bandyopadhyay L, Dasgupta A, Paul B, Chattopadhyay O. Work Related Musculoskeletal Morbidity Among Tailors: A Cross-Sectional Study in a Slum of Kolkata. Kathmandu Univ Med J. 2016;14(56):305-10.
13. Baek H, Song S, Lee D, Pyo S, Shin D, Lee G. Musculoskeletal Diseases of Heavy Industrial Workers. Phys Ther Rehabil Sci. 2017;6(2):71-6.
14. Laal F, Mirzaei R, Behdani MS, Mohammadi M, Khodami K. Evaluation of the Influence of Ergonomic Intervention on the Musculoskeletal Disorders of Zahedan Tailors. Int J Occup Saf Ergon. 2017;23(3):380-5.
15. Mehrparvar AH, Heydari M, Mirmohammadi SJ, Mostaghaci M, Davari MH, Taheri M. Ergonomic Intervention, Workplace Exercises and Musculoskeletal Complaints: A Comparative Study. Med J Islam Repub Iran. 2014;28:69.
16. Charles LE, Ma CC, Burchfiel CM, Dong RG. Vibration and Ergonomic Exposures Associated with Musculoskeletal Disorders of the Shoulder and Neck. Saf Health Work. 2018;9(2):125-32.
17. Merisalu E, Männaste M, Hiir K, Traumann A. Predictors and Prevalence of Musculoskeletal Disorders Among Sewing Machine Operators. Agron Res. 2016;14(4):1341-9.
18. Kuorinka I, Jonsson B, Kilbom A, Vinterberg H, Biering-Sørensen F, Andersson G, et al. Standardised Nordic Questionnaires for the Analysis of Musculoskeletal Symptoms. Appl Ergon. 1987;18(3):233-7.
19. Nurhayati MN, Dawal SZM, Dahari M, editors. The Prevalence of Work-Related Musculoskeletal Disorders Among Workers Performing Industrial Repetitive Tasks in the Automotive Manufacturing Companies. Int Conf Ind Eng Oper Manag. 2014.
20. Silva JMN, Silva LBD, Gontijo LA. Relationship Between Psychosocial Factors and Musculoskeletal Disorders in Footwear Industry Workers. Prod. 2017;27:e20162315. doi:10.1590/0103-6513.231516.
21. Kim YM, Cho SH, Kim DS. Gender Differences in the Prevalence of Musculoskeletal Symptoms and Associated Factors Among Korean Workers. Ind Health. 2017;55(3):229-37.