Journal of Health and Rehabilitation Research (2791-156X)
Volume 4, Issue 3
Double Blind Peer Reviewed.
https://jhrlmc.com/
DOI: https://doi.org/10.61919/jhrr.v4i3.1556
www.lmi.education/

Prevalence of Musculoskeletal Disorders among Waiters in Islamabad and Rawalpindi

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Keywords
Musculoskeletal disorders, waiters, Nordic Musculoskeletal Questionnaire, ergonomic interventions, prevalence of pain, hospitality sector, occupational health.

Disclaimers

Authors' Contributions	All authors contributed significantly to the conception, data collection, and writing of this study.
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

ABSTRACT

Background: Musculoskeletal disorders (MSDs) are common in occupations that involve prolonged standing, repetitive movements, and physical strain, such as waiters. These disorders can significantly affect work performance and quality of life.

Objective: To assess the prevalence of musculoskeletal disorders among male waiters and identify the most commonly affected body regions.

Methods: A descriptive cross-sectional study was conducted among 250 male waiters in restaurants, cafes, and fast-food outlets in Islamabad and Rawalpindi from March to September 2024. Participants aged 18-35 years with at least two years of work experience were included. The Nordic Musculoskeletal Questionnaire (NMQ) was used to assess MSDs. Data were analyzed using SPSS version 25, and p-values were calculated to determine statistical significance.

Results: The prevalence of MSDs was 48.4% among participants. The most affected regions in the last 7 days were the neck (66.8%), lower back (59.6%), and ankle/foot (59.6%). A significant difference was found in the prevalence of neck (p=0.042) and lower back pain (p=0.048) compared to the last 12 months.

Conclusion: Musculoskeletal disorders were prevalent among waiters, with neck and lower back pain being the most common. Ergonomic interventions are recommended to reduce strain.

INTRODUCTION

The hospitality industry, particularly the role of waiters, has consistently been associated with high physical demands, which increase the risk of musculoskeletal disorders (MSDs). Waiters, due to the nature of their work, often engage in prolonged standing, repetitive movements, and heavy lifting, all of which contribute to physical strain. Over time, these occupational demands lead to discomfort and a higher likelihood of musculoskeletal injuries. Studies have reported that workers in this sector are prone to developing pain in the neck, back, upper extremities, and lower extremities, significantly affecting their work performance and overall quality of life (1). Previous research has shown that musculoskeletal issues are not only among the most common occupational health problems worldwide but also among the most costly, given their impact on workers' productivity, absenteeism, and health care expenditures (2). For workers like waiters, who frequently have irregular work hours and face continuous physical stress, MSDs can be a considerable burden, both physically and economically (3)

In many restaurant settings, workers are exposed to prolonged hours of standing, often without sufficient breaks, and must carry out tasks such as serving customers, carrying trays, and handling heavy objects. These physical activities are frequently performed in environments where ergonomic considerations may be lacking, further exacerbating the risk of musculoskeletal pain (4). Moreover, waiters are often required to perform these tasks at a fast pace, which adds to the strain on their musculoskeletal system, contributing to higher rates of injury and discomfort. A study by Yalew et al. (2022) emphasized the significant correlation between extended standing hours and the prevalence of lower back pain in wait staff, highlighting the occupational hazards faced by individuals in this sector (2). Similarly, Miaary et al. (2023) found that neck and shoulder pain were prevalent among male Arab waiters, suggesting that the physical demands of waiting tables place excessive strain on certain body regions (3).

In many cases, musculoskeletal pain among waiters goes unaddressed, as workers may not have the resources or time to seek medical treatment or ergonomic solutions. This issue is compounded by the fact that many waiters work in environments with limited occupational health support, and awareness of ergonomic practices is often low (5). Studies have highlighted the importance of ergonomic interventions, such as providing adequate rest breaks, improving posture, and using supportive equipment, in reducing the incidence of musculoskeletal pain. These interventions can lead to significant improvements in worker health and productivity, although their implementation in the restaurant industry remains limited (6). Abdul Aziz et al. (2023) conducted a study on musculoskeletal disorders in restaurant employees and found that neck pain had the highest occurrence rate, aligning with findings from previous research and reinforcing the need for targeted interventions in this area (7).

Manuscript Submitted under JHRR ID 1556: September 19/2024 | Accepted: September 25/2024

Despite the high prevalence of MSDs among waiters, limited research has focused on identifying the specific factors that contribute to these disorders in the hospitality sector. By examining the physical demands of waiting tables and the prevalence of musculoskeletal pain, this study aimed to shed light on the occupational risks faced by waiters in the twin cities of Islamabad and Rawalpindi. The current study used a descriptive cross-sectional research design to investigate the frequency and distribution of musculoskeletal pain among male waiters working in restaurants and cafes. The findings from this study will provide valuable insights into the prevalence of MSDs in this population and suggest potential areas for ergonomic and workplace interventions that could reduce the burden of musculoskeletal pain among waiters (8). Furthermore, this research will contribute to the broader understanding of how occupational factors in the hospitality industry affect worker health and well-being, particularly in developing countries where labor protections may be less stringent (9). Given the widespread impact of MSDs on workers in physically demanding roles, this study aimed to investigate the frequency and severity of musculoskeletal pain among waiters and identify the most commonly affected body regions. The results will inform future interventions and policies aimed at improving the working conditions of waiters, with the goal of reducing the incidence of musculoskeletal disorders and promoting better occupational health outcomes in the hospitality sector (10).

MATERIAL AND METHODS

The study was designed as a descriptive cross-sectional survey conducted among waiters working in various restaurants and cafes in the twin cities of Islamabad and Rawalpindi. The research spanned from March 2024 to September 2024 and employed a convenience sampling technique. The sample size was determined using the Raosoft program, yielding 250 participants with a 5% margin of error and a 90% confidence level. The target population included male waiters aged 18-35 years who had a minimum of two years of work experience and were employed in shifts lasting 8 to 9 hours daily. Participants were selected based on their ability to provide consent and their willingness to report musculoskeletal pain. Waiters who had a recent history of musculoskeletal injuries, fractures, or traumatic disorders, those with less than two years of work experience, and individuals with cognitive or physical limitations that impaired their ability to report joint pain were excluded.

Data collection involved the administration of the Nordic Musculoskeletal Questionnaire (NMQ), a widely validated tool for assessing musculoskeletal symptoms in different body regions. The NMQ was used to gather information about the participants' musculoskeletal pain and discomfort experienced over the past 12 months and the previous 7 days. The questionnaire covered various body parts, including the neck, shoulders, elbows, wrists/hands, upper and lower back, hips/thighs, knees, and ankles/feet. Additionally, demographic and work-related information, such as age, working hours per week, and years of experience, was recorded to provide insight into the characteristics of the surveyed population.

The study adhered to ethical principles outlined in the Declaration of Helsinki. Ethical approval for the research was obtained from the Institutional Review Board (IRB) of the relevant academic institution. All participants provided written informed consent before their inclusion in the study. Confidentiality of the participants' data was ensured throughout the study, and they were informed of their right to withdraw at any stage without consequence.

Data analysis was conducted using IBM SPSS version 25. Descriptive statistics, including mean and standard deviation, were calculated for continuous variables such as age, working hours, and years of experience. Frequencies and percentages were computed for categorical variables, including the prevalence of musculoskeletal pain in different body regions. The Kruskal-Wallis test and the Friedman test were employed to compare differences in pain distribution across various body parts, with statistical significance set at $p < 0.05$.

In summary, the methodology followed standard protocols for cross-sectional studies, ensuring a thorough and ethical approach to data collection and analysis. The findings of this study are expected to contribute to a better understanding of the prevalence and distribution of musculoskeletal pain among waiters in the hospitality industry (1).

RESULTS

The study analyzed 250 male waiters working in different types of establishments across Islamabad and Rawalpindi. The results are summarized below in tabulated formats with corresponding values and descriptive analysis.

The table demonstrates the comparative prevalence of musculoskeletal pain in different body regions over the last 12 months and last 7 days. Neck pain was reported by 60.00% of participants over the last 12 months, increasing to 66.80% over the last 7 days ($p = 0.042$), indicating a statistically significant increase in pain over a shorter period. Shoulder pain decreased slightly from 61.60% over the last 12 months to 52.00% over the last 7 days ($p = 0.038$), suggesting a reduction in reported pain. Lower back pain increased from 54.00% over the last 12 months to 59.60% over the last 7 days ($p = 0.048$), which was also statistically significant.

Table 1: Demographic Characteristics of the Participants

Variable	N	Mean ± SD
Age (years)	250	26.04 ± 3.91
Working hours per week	250	42.54 ± 7.21
Work experience (years)	250	4.25 ± 1.82

The mean age of participants was 26.04 years, with an average of 42.54 hours worked per week and 4.25 years of work experience. These statistics provide an overview of the population's general characteristics.

Table 2: Distribution of Participants by Type of Establishment

Type of Establishment	N	%
Restaurant	102	40.8%
Cafe	110	44.0%
Fast Food	38	15.2%

Among the participants, 44% worked in cafes, 40.8% worked in restaurants, and 15.2% worked in fast-food outlets. Most of the participants were employed in cafes. About standing during work shifts, the majority of participants (63.2%) stood continuously sometimes, while 22.0% reported always standing, and 14.8% reported rarely standing during their shifts

Table 3: Prevalence of Musculoskeletal Disorders (MSDs)

MSDs Status	N	%
Suffered from MSDs	121	48.4%
Did not suffer MSDs	129	51.6%

A total of 121 participants (48.4%) reported suffering from musculoskeletal disorders, while 129 participants (51.6%) did not report any MSDs. This highlights that nearly half of the waiters experienced MSDs.

Table 4: Frequency of Continuous Standing During Work Shifts

Standing Frequency	N	%
Rarely	37	14.8%
Sometimes	158	63.2%
Always	55	22.0%

The study included 250 male waiters working in various restaurants, cafes, and fast-food outlets in the twin cities of Islamabad and Rawalpindi. Participants' age, working hours, work experience, and prevalence of musculoskeletal disorders (MSDs) were analyzed. The following table summarizes the prevalence of musculoskeletal pain across different body regions over the last 12 months and the last 7 days, with associated p-values for comparison.

Table 5: Prevalence of Musculoskeletal Pain in Different Body Regions Over the Last 12 Months and 7 Days

Body Region	Last 12 Months (%)	Last 7 Days (%)	p-value
Neck	60.00%	66.80%	0.042
Shoulders	61.60%	52.00%	0.038
Elbow	50.40%	56.00%	0.072
Wrist/Hand	47.20%	55.20%	0.055
Upper Back	40.00%	44.00%	0.065
Lower Back	54.00%	59.60%	0.048
Hip	42.00%	54.80%	0.030
Knee	49.60%	44.80%	0.071
Ankle/Foot	48.40%	59.60%	0.036

Statistically significant differences were found in the hip pain ($p = 0.030$) and ankle/foot pain ($p = 0.036$) between the two periods, showing increased pain in the last 7 days. The comparative analysis indicates a significant increase in neck, lower back, hip, and ankle/foot pain in the last 7 days compared to the last 12 months. Shoulder pain showed a significant decrease, while other regions like the elbow, wrist/hand, upper back, and knee did not show statistically significant differences between the two periods. These findings highlight the dynamic nature of musculoskeletal pain experienced by waiters, with certain regions being more prone to increased discomfort over shorter periods.

DISCUSSION

The findings of this study demonstrated a high prevalence of musculoskeletal disorders (MSDs) among male waiters working in restaurants, cafes, and fast-food outlets. Almost half of the participants reported experiencing MSDs, with the neck, lower back, shoulders, and ankle/foot being the most commonly affected regions. These findings are consistent with previous research, which has highlighted those occupations requiring prolonged standing, repetitive movements, and physical strain, such as waiting staff, are associated with an increased risk of musculoskeletal issues (1). Similar studies have found that waiters, due to the physical demands of their job, experience significant

discomfort, particularly in the neck, shoulders, and lower back, which aligns with the results of this research (2).

The significant increase in neck and lower back pain over the last 7 days compared to the last 12 months may be attributed to the continuous physical strain experienced during recent work shifts. Previous literature has consistently shown that continuous standing and repetitive motions, particularly in occupations like food service, exacerbate musculoskeletal symptoms over time (3). The present study also indicated a reduction in shoulder pain over time, which might reflect adaptations made by the participants or a temporary relief due to short-term workload changes, but this requires further investigation. The findings related to hip and ankle/foot pain align with other studies that emphasize the importance of ergonomic interventions in reducing pain associated with prolonged standing and inadequate footwear in physically demanding jobs (4).

One of the strengths of this study was the use of the Nordic Musculoskeletal Questionnaire (NMQ), a well-validated tool for assessing musculoskeletal pain, which allowed for comprehensive and systematic data collection. Furthermore, the sample size of 250 participants was adequate to provide a representative view of the prevalence of MSDs among waiters in the twin cities of Islamabad and Rawalpindi. However, the study had several limitations. The cross-sectional design limited the ability to assess causality or the progression of musculoskeletal pain over time. Additionally, the reliance on self-reported data may have introduced recall bias, as participants might not accurately remember or report the severity or frequency of their pain. The study also did not take into account potential confounding factors such as participants' physical fitness, previous injuries, or ergonomic interventions that could have influenced the prevalence of MSDs.

Despite these limitations, the study provides important insights into the prevalence and distribution of MSDs among waiters. The findings highlight the need for targeted interventions to reduce the physical strain associated with waiting jobs. Ergonomic modifications, such as providing supportive footwear, introducing more frequent rest breaks, and redesigning workspaces to reduce repetitive strain, could help alleviate musculoskeletal pain. Implementing these changes could not only improve the well-being of workers but also enhance productivity and reduce absenteeism in the hospitality sector (5).

Future research should consider longitudinal designs to assess the progression of musculoskeletal pain over time and the impact of ergonomic interventions. Additionally, incorporating objective measures, such as observational assessments of posture and physical activity during shifts, would provide a more detailed understanding of the risk factors associated with MSDs in waiters. Given the high prevalence of musculoskeletal pain identified in this study, there is an urgent need for workplace health initiatives aimed at reducing the burden of MSDs among workers in physically demanding occupations. These efforts should focus on both prevention and early intervention to address the pain and discomfort experienced by workers and to promote long-term occupational health.

CONCLUSION

In conclusion, the study underscores the significant burden of musculoskeletal disorders among waiters, with neck, lower back, and shoulder pain being particularly prevalent. The results highlight the need for ergonomic and policy interventions to reduce the physical strain associated with waiting jobs and improve workers' health and productivity.

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