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ORIGINAL ARTICLE

Frequency of Work-Related Musculoskeletal Disorders in Housekeepers

Azka Khan[1], Narmeen Anjum[2], Hira Gull [3]

[1] Physiotherapist, Child Development Center, Islamabad, Pakistan
[2] PGT, IIMCT-Pakistan Railway Hospital, Rawalpindi, Pakistan.
[3] Demonstrator, Islam Medical and Dental College, Sialkot, Pakistan

Author`s Contribution

[1-3]Conception and design, [1-3] Collection and assembly of data, [1-3] Analysis and interpretation of the data, [1-2] Critical revision of the article for important intellectual content, Statistical expertise [1-3] Final approval and guarantor of the article.

Article Info.

Received: October 6, 2021
Acceptance: 2022-10-12

Conflict of Interest: None
Funding Sources: None

Address of Correspondence

Azka Khan
Email Id: azkakhan.physio@gmail.com
ORCID: 0000-0002-4685-2108

Cite this article as: Khan A, Anjum N, Gull H. Frequency of Work-Related Musculoskeletal Disorders in Housekeepers. JRCRS. 2023; 11(1):08-12
DOI: 10.53389/JRCRS.2023110103

A B S T R A C T

Background: Housekeeping profession is regarded as a major workforce. Housekeepers also undertake push-pull jobs that entail biomechanical strain factors such as joint torque, compressive and shear forces, and their influencing variables such as specific muscle activity, body positioning, exertion direction, and workspace environment

Objectives: The aims of this study were to determine the frequency of work-related musculoskeletal disorders among housekeepers, its association with working hours and to determine the area of the body more prone to develop musculoskeletal disorders among housekeepers.

Methodology: A cross-sectional study using a purposive sampling technique was conducted in schools, colleges, universities and hospitals of Islamabad and Rawalpindi from February 2019 to June 2019. After obtaining consent, data was collected from 400 participants through a self-structured questionnaire which included demographics, pain-related questions, Visual Analogue Scale and Nordic musculoskeletal questionnaire. SPSS version 23.0 was used to enter data and for analysis of the data.

Results: A total of 400 participants (male=281, female=119) participated in the study, in which 59% (N=236) had work-related musculoskeletal discomfort. 17.3% of participants reported that the more prone area to pain is the lower back and the least prone areas were head, wrist/hand, upper and mid-back, with the frequency of 0.3%.31.2% participants reported moderate intensity of pain according to visual analogue scale (VAS). There was a non-significant association ($p>0.05$) between working hours per day and work related musculoskeletal pain.

Conclusion: It is concluded that housekeepers have a high frequency of work-related musculoskeletal disorders. Low back has the highest frequency of pain followed by head, wrist/hand, upper and mid-back. The visual analogue scale shows that most of the housekeepers have moderate intensity of pain. There is a non-significant association of frequency of work related musculoskeletal pain with working hours.

Keywords: Housekeepers, Musculoskeletal Disorders, Work-related musculoskeletal disorders.

Introduction

In any sector, the housekeeping profession is regarded as a major workforce. It is the second-largest occupation, accounting for 26% of total employment.[1] Making beds, buffing and vacuuming, emptying waste, tidying, dusting, and cleaning floors are all repetitive housekeeping tasks. Housekeepers also undertake push-pull jobs that entail biomechanical strain factors such as joint torque, compressive and shear forces, and their influencing variables such as specific muscle activity, body positioning, exertion direction, and workspace environment.

Work-related musculoskeletal disorders (WRMSDs) are impairments of body structures such as tendons, muscles, joints, ligaments, nerves, bones, or a localized blood circulation system.[2] WRMSDs are a substantial public health concern because of the increased demand for healthcare services, temporary and permanent disability, and reduced quality of life

that these ailments cause.[3] After the common cold, occupation-related musculoskeletal disorder (ORMD) is the second most common cause of short-term or temporary work disability. ORMD has increased fourfold in the last 20 years.[1]

Musculoskeletal diseases (MSDs) account for 30 to 40% of work-related ailments in cleaning employees around the world. Cleaning employees had a high prevalence of MSDs, ranging from 68.3 percent to 89.9 percent.[4] Musculoskeletal symptoms (MSS) are widely reported among the working population.[5] Symptoms in the upper body, such as the neck, shoulders, wrists, and hands, as well as the lower body, including the upper and lower back, as well as the feet and ankles, are common.[5] The most prevalent physical characteristics reported to be strongly associated with the development of musculoskeletal disease include awkward postures, repetitive movements, and intense exertions.[5] Furthermore, these illnesses are current occupational health issues, resulting in decreased productivity, time away from work, and rising compensation costs.[3]

A study conducted in Texas reported the prevalence of work related pain was most common in lower back. It was due to working in awkward posture. This study also suggested that work related musculoskeletal pain was higher among housekeepers which make them prone to disorders and injuries.[6]

Approximately 90% of participants in a Chinese study experienced musculoskeletal discomfort in at least one body region as a result of their work. The hand/wrist (41.7%), shoulder (41.1%), low back (37.8%), and elbow (33.3%) were the most frequently reported to be in discomfort among the nine body areas investigated.[7] Another study in 2016 was conducted to see the factors associated with musculoskeletal disorders among the workers showed that the neck region was more prone to develop WRMSD followed by lower and upper back among workers.[8] A study conducted in 2015 concluded that in older women prevalence of WRMSDs was mainly in the hands and wrist, while younger women reported that they had more pain in the neck. [9]

A study conducted in 2016 concluded that there is a high prevalence of WRMSDs among housekeepers and it is directly proportional to the working hours and years of work.[10] Chang JH conducted a study in 2012 which showed that the most common musculoskeletal disorder was carpal tunnel syndrome among cleaners because there is a repetitive wrist movement when they perform different tasks. Cleaning workers have extreme possibility of developing MSDs due to excessive use of the wrist.[7] Sintayehu Daba Wami et al. using Nordic questionnaire. It concluded that WRMSDs were highest among housekeepers and the body regions most commonly affected are neck and upper limb. The study concluded that, neck and upper limb musculoskeletal disorders were highly linked to repetitive movement and reaching/overstretching.[2]

Previous studies were mostly carried out in only one setting with small sample size, whereas this study recruited participants from different settings including hospitals, schools, colleges and universities with a larger sample size so that issues related to this population could be addressed. In Pakistan, little is known about the prevalence and area of body more prone area of WRMSDs among housekeepers. In Pakistan, both men and women work as housekeeping staff in different institutions with majority of them belonging to a lower socioeconomic backgrounds. A very few published literature was found on this population and the issues of work related musculoskeletal disorders are not highlighted. Therefore, this study determined the frequency of WRMDs in housekeepers, its association with working hours and the area of the body more prone to develop musculoskeletal disorders in house keepers were determined so that people of this socioeconomic background could be given better health facilities.

Methodology

A descriptive cross-sectional study was conducted after approval of Research Board from February 2019 to June 2019 under Approval Reference Number: RIPHAH/RCRS/Letter-00097. Data was collected from 28 different settings including schools, colleges, universities and hospitals of Rawalpindi and Islamabad. Sample size was calculated from epi-tool and data was collected from 400 participants through the Non-Probability purposive sampling technique. Both male and female participants between the age of 20-60 years with one year of working experience, working for 5 hours per day and being affiliated with an institution, were included in the study. Pregnant women, people with disabilities and musculoskeletal issues before this profession, people with a history of musculoskeletal trauma like fracture, injury in the upper limb, people with neurological or congenital defects and those who had certain surgical procedures three months back were excluded from the study. Data was collected using a self-structured questionnaire which included demographics, pain-related questions, work related questions, a Visual Analogue Scale (VAS) and Nordic Musculoskeletal Questionnaire. SPSS version 23.0 was used for the analysis of data. Descriptive statistics were applied, and categorical variables were expressed in terms of frequency and percentages. Descriptive statistics was applied to find the frequency of pain, area more prone to pain among the housekeepers and categorical variables were expressed in terms of frequency and

percentages. After checking the normality of data Shapiro-Wilk Test ($p<0.05$), non-parametric chi-square test was applied to find the association of work related musculoskeletal pain with working hours at 95% confidence interval (CI).

Results

Total 400 subjects (male=281, female=119) were included in the study. The frequency of work-related musculoskeletal discomfort among housekeepers was 59% (N=236). The intensity of pain recorded by VAS is illustrated, which showed that 41% participants had no pain (0-4mm), 12% of participants had mild pain (5-44mm), 31.2% had moderate (45-74mm), and 15.8% participants had severe pain (75-100mm). (Figure 1).

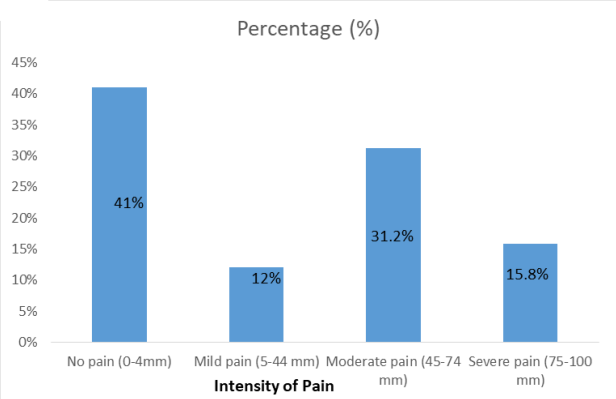

Figure 1. Intensity of pain among housekeepers according to Visual Analogue Scale

Table I shows the area of body more prone to WRMSD. Percentages of different positions causing pain were as follows: 41.8% participants had pain in standing position, 10.5% participants had pain in lying position, 6.5% participants had pain in sitting position and 0.3% participants had pain in other positions. Association of work related musculoskeletal disorder depending upon working hours/day was as follows: 60.1% participants working for ≥5 hours had work related musculoskeletal disorder and 47.1% participants working for <5 hours have work related disorder. There was a non-significant association ($p>0.05$) between working hours per day and work related musculoskeletal pain at 95% confidence interval (CI). (Figure 2)

Table II shows the results of Nordic musculoskeletal questionnaire to address musculoskeletal trouble in the last 12 months and last 7 days which had prevented normal activity were as follows.

Table I: Area of body that is more prone to develop musculoskeletal disorders among housekeepers

Area of body more prone to develop MSK disorders	N(%)
Head	1 (0.3%)
Neck	5 (1.3%)
Shoulder	68 (17%)
Upper arm	2 (0.5%)
Lower arm	3 (0.8%)
Wrist/hands	1 (0.3%)
Upper back	1 (0.3%)
Mid-back	1 (0.3%)
Lower back	69 (17.3%)
Upper legs	4 (1%)
Knees	20 (5%)
Lower legs	54 (13.5%)
Foot	5 (1.3%)
Heel	2 (0.5%)

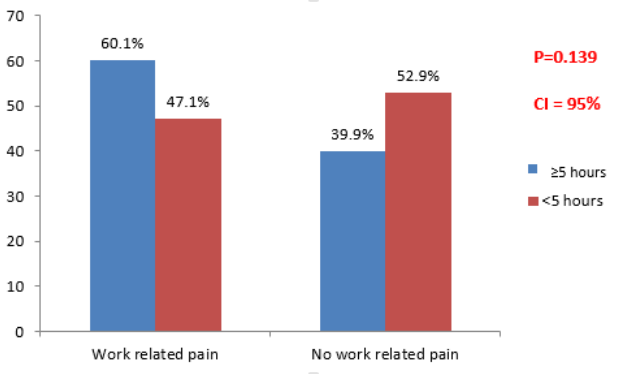

Figure 2. Illustrates non-significant association (p=0.139) between working hours per day and work related musculoskeletal pain

Discussion

Various studies have been conducted until now in different countries on WRMSDs among housekeepers.[10-12] A study by Joseph B et al. determined the prevalence of WRMSDs among housekeepers of a hospital in Bangalore. The prevalence of WRMSDs among housekeepers was 68.3%. The prevalence of pain was high for low back and the lowest for ankles.[10] Swapnila Parmar et al. showed that 25% of participants had WRMSDs.[11] Vijayalakshmi N. et al. showed that WRMSDs are responsible for 51% of work-related disorders among housekeepers.[12] In the present study the frequency of WRMSDs was 59%.

A study conducted in 2016 determined the area of body more prone to develop WRMSDs was lower back, followed by the neck, and the body region with the least common pain site was the elbow.[13] A study by Suman Mukhopadhay et al. showed that more prone area to develop work related musculoskeletal disorders was lower back pain with least WRMSDs in thighs.[9] The present study showed that

Table II: Results of Nordic musculoskeletal questionnaire to address musculoskeletal trouble in the last 12 months and last 7 days which had prevented normal activity

Regions	Have you at any time during the last 12 months had trouble? (such as ache, pain, discomfort, numbness)	During the last 12 months have you been prevented from carrying out normal activities(e.g. job, household, hobbies) because of this trouble in:	During the last 12 months have you seen a physician for this condition	During the last 7 days have you had trouble in
	Percentage (%)			
Neck	5.8	1.5	1.3	3.3
Shoulders	33.8	7.8	14.5	24
Upper back	1.8	0.8	0.3	13
Elbows	3.3	1	1	2.5
Wrist/Hands	2.8	0.8	0.8	2
Lower Back	25.8	6.5	12.5	20
Hips/Thighs	8.3	1	1.8	6.8
Knees	8.5	1.8	3.3	6.8
Ankles/Feet	5.5	1.8	1	3.8

the more prone area to develop musculoskeletal disorders was lower back and the area least prone area was wrist

In the study of Jin Woo Lee, significant association ($p<0.083$) was found between working hours and WRMSD.[14] According to the results of present study non-significant association ($p=0.139$) exists between working hours per day and WRMSD. A cross sectional study conducted in 2018 showed that hip pain was reported by participants who do prolonged standing and lift heavy loads.[12] Results of our study showed that more housekeepers reported pain in standing position. There is difference in working conditions, socioeconomic status and psychological factors in different countries. Nutritional and climate changes also affect differently on housekeeper's work and WRMSDs in Pakistan as compared to housekeepers in other countries which might result in a non-significant association.

According to a study of Salwe et al., Standard Nordic Musculoskeletal Questionnaire was used which showed that housekeepers had more trouble in low back 52.9%, followed by wrist 39% and ankle 6%.[6] Sintayehu Daba Wami et al. determined the frequency of neck and upper limb MSDs. Neck and upper limb musculoskeletal pain reported in last 12 months was 62.8%. By using Nordic Musculoskeletal Questionnaire the following body regions were involved in pain: shoulder 54%, neck 50.7%, elbow/forearm 47.2% and hand/wrist 45.5%.[2] Another study published in 2013 showed that 41% participants reported lower back pain, 29.3% reported leg pain out of which 2.5% had pain in thighs and 18% had pain in knees, 12.2% reported pain at the wrist/hand and neck, ankle/feet 9.7%, shoulder pain and wrist pain 4.9%. Nordic Musculoskeletal Questionnaire was used in this study.[9] While in the present study according to Nordic Musculoskeletal Questionnaire 33.8% housekeepers had trouble in shoulders in the last 12 months followed by lower back 25.8%, neck 5.8%, ankle 5.5%, elbows 3.3% and wrist/hands 2.8%.

Our sample size for this survey might not have been a true reflection of the population under study because we had only taken data from affiliated housekeepers. The sample size could have been increased if we had taken data from housekeepers who were not affiliated with any institute. A study could be conducted in different cities of Pakistan so that significant results could be obtained and WRMSDs among this population could be seen at a national level.

Conclusion

This study concludes that WRMSDs are common among housekeepers affecting different body regions. The frequency of work related musculoskeletal discomfort is high among housekeepers. The body region more prone to develop musculoskeletal disorders is the lower back, with most housekeepers reporting pain in standing position. There is a non-significant association between work-related musculoskeletal pain frequencies with working hours.

References

1. Chheda P, Sreeraj SR. Prevalence of musculoskeletal symptoms and quality of life in housekeeping workers of a tertiary care hospital in Navi Mumbai, India: A descriptive study. MGM Journal of Medical Sciences. 2020;7(3):133.
2. Wami SD, Dessie A, Chercos DH. The impact of work-related risk factors on the development of neck and upper limb pain among low wage hotel housekeepers in Gondar town, Northwest Ethiopia: institution-based cross-sectional study. Environmental health and preventive medicine. 2019;24(1):1-10.
3. Mekonnen TH, Abere G, Olkeba SW. Risk factors associated with upper extremity musculoskeletal disorders among barbers in Gondar town, Northwest Ethiopia, 2018: a Cross-sectional study. Pain Research and Management. 2019;2019.
4. Laithaisong T, Aekplakorn W, Suriyawongpaisal P, Tupthai C, Wongrathanandha C. The prevalence and risk factors of musculoskeletal disorders among subcontracted hospital cleaners in Thailand. Journal of Health Research. 2021.

5. Raji ARA, Abidin EZ. Distribution of musculoskeletal symptoms and ergonomic risk assessment among housekeepers at budget hotels in Sepang, Selangor. Malaysian Journal of Medicine and Health Sciences. 2020;16(111).
6. Salwe K, Kumar S, Hood J. Nonfatal occupational injury rates and musculoskeletal symptoms among housekeeping employees of a hospital in Texas. Journal of environmental and public health. 2011;2011.
7. Chang JH, Wu JD, Liu CY, Hsu DJ. Prevalence of musculoskeletal disorders and ergonomic assessments of cleaners. American journal of industrial medicine. 2012;55(7):593-604.
8. 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 University Medical Journal. 2016;56(4):305-10.
9. Mukhopadhyay S, Das SK, Jathan M. Incidences of work-related musculoskeletal disorders among housemaids: the urban poor dwelling in slums of Mumbai. 2015.
10. Joseph B, Naveen R, Suguna A, Surekha A. Prevalence, pattern and factors associated with work-related musculoskeletal disorders (WRMD) among housekeeping workers in a private tertiary care hospital in Bangalore. Journal of Health Management. 2016;18(4):545-54.
11. Parmar S, Dalal P. A study of musculoskeletal disorder among housekeeping staff in hotel industry. Int J Home Sci. 2017;3(3):83-5.
12. Arun Balasuburamaniam V. PREVALENCE OF OCCUPATION RELATED MUSCULOSKELETAL INJURIES IN HOUSEKEEPING PERSONNEL'S. International Journal of Scientific Research. 2018;7(9):11-3.
13. Ayanniyi O, Nudamajo OS, Mbada CE. Pattern of work-related musculoskeletal disorders among Nigerian Hospital workers. Journal of Environmental and Occupational Science. 2016;5(1):18-24.
14. Lee JW, Lee JJ, Mun HJ, Lee K-J, Kim JJ. The relationship between musculoskeletal symptoms and work-related risk factors in hotel workers. Annals of occupational and environmental medicine. 2013;25(1):1-10.