

Occurrence of Musculoskeletal Disorders in Sweepers of Ahmadabad

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Abstract-Background: Sweepers' job involves a lot of hard work using musculoskeletal functions in various sustained positions, carrying weight and repetitive movements.[1] This leads to chances of Musculoskeletal disorders (MSDs). Sweepers are a vulnerable segment of the society and limited studies have been carried out in India to study their health issues.[1] This study aims to assess occurrence of musculoskeletal disorders in sweepers of Ahmedabad.

Methodology: An observational study was conducted on sweepers, both males and females, working since more than 1 year using convenience sampling. Modified standardized Nordic scale was used to find the presence of MSDs. Descriptive analysis was done.

Result: 115 sweepers completed the study. 76% females and 24% males were having MSDs. Pain was common in lower back (57%), knee (64%). Because of the trouble, 43% of sweepers have avoided their work in last 12 months. 61% had trouble in last 7 days. 48% have seen a doctor because of their trouble in last 12 months.

Conclusion: The prevalence of the MSDs was high among the sweepers especially in lower back and knee. They can be educated about ergonomics to see if that prevents repetition or aggravation of pain.

Keywords: Sweeper, musculoskeletal disorder.

INTRODUCTION

Musculoskeletal disorders (MSDs) are one of the most common work-related ailments. MSDs comprise diverse conditions affecting bones, joint, muscles, and connective tissues. MSDs are a group of painful disorders of muscles, tendons, and nerves. These disorders may result in pain and loss of function and are among the most disabling and costly conditions. [2]

There is usually no single cause of MSDs; various risk factors often work in combination, including physical and bio-mechanical factors, organizational and psycho-social factors, and individual factors.[3] Physical and bio mechanical risk factors may include

handling loads, especially when bending and twisting, repetitive or forceful movements, awkward and static postures, vibration, poor lighting or working environments, prolonged sitting or standing in the same position, overuse of muscles.[3] Organizational and psycho-social risk factors may include high work demands and low autonomy, lack of breaks or opportunities to change working postures, working at high speed, including because of introducing new technologies, working long hours or on shifts, bullying, harassment and discrimination in the workplace, low job satisfaction. Individual risk factors may include prior medical history, physical capacity, lifestyle and habits (e.g. smoking).[3] Common symptoms of MSDs include aching and stiffness, burning sensations in the muscles, fatigue, muscle twitches, muscle spasm, tenderness, swelling, pain that worsens with movement, sleep disturbances.[3]

Sweepers are important in our lives to keep our cities and towns clean and to maintain health and hygiene.[2] They are exposed to road dust and other contaminants while cleaning streets.[2] Sweepers are involved in solid waste management which includes the collection, transport, deposition, treatment, and recycling of waste produced by individual households, public institutions, and workplaces.[2] Street cleaning is an integral part of the solid waste management system and an important duty to ensure a clean environment.[4]

This study aimed to assess occurrence of musculoskeletal disorders in sweepers of Ahmedabad.

METHODOLOGY

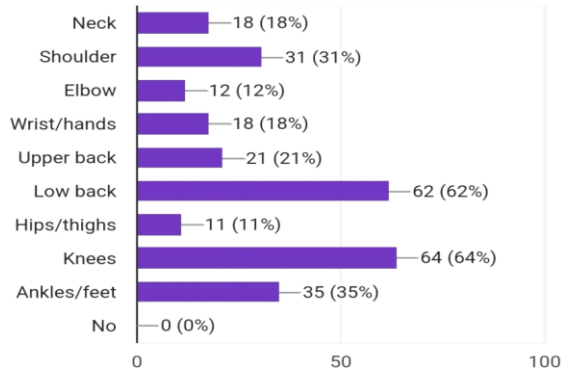
An observational study was conducted on sweepers, males, and females, aged between 20 to 67 years old, working since more than 1 year using convenience sampling. Study was explained and written consent was obtained. Modified standardized Nordic scale was used to find the presence of MSDs.[5]

The Nordic general questionnaire is a standardized instrument used to analyse musculoskeletal symptoms in an ergonomic or occupational health context. The Nordic Musculoskeletal Questionnaire (NMQ) can be used for the screening of musculoskeletal problems.[6] The NMQ allows comparison of musculoskeletal problems in different body regions in epidemiological studies with large numbers of participants. This is a subjective questionnaire with questions about work organization and behaviour, work stress, and musculoskeletal disorders.[6]

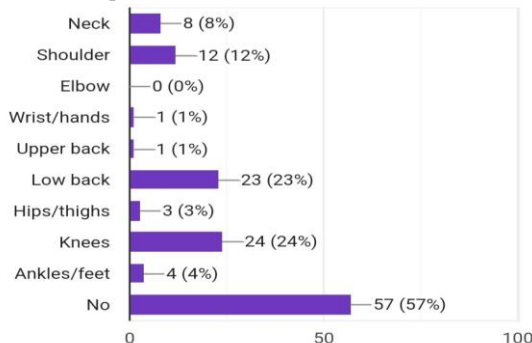
Descriptive analysis was done.

RESULT

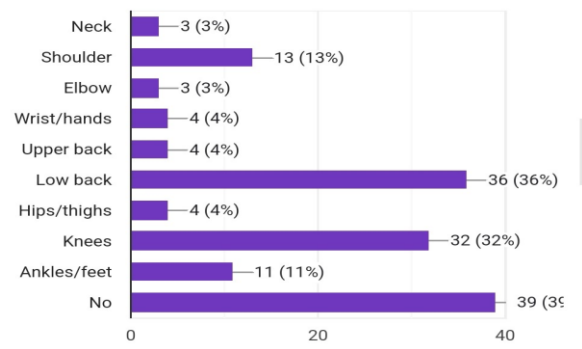
115 sweepers aged between 20 to 67 years old, completed the study. 76% females and 24% males were having MSDs. 15 people had no pain. Females were more affected than males. Among the people who had pain, pain was seen in knee (64%), low back (62%), ankles (35%), shoulder (31%), upper back (21%), wrist (18%), neck (18%), elbow (12%), hip (11%); as shown in graph (1). Because of the trouble 43% of sweepers have avoided their work in last 12 months as shown in graph (2). As shown in graph (3) 61% had trouble in last 7 days. As shown in graph (4) 48% have seen a doctor because of their trouble in last 12 months.



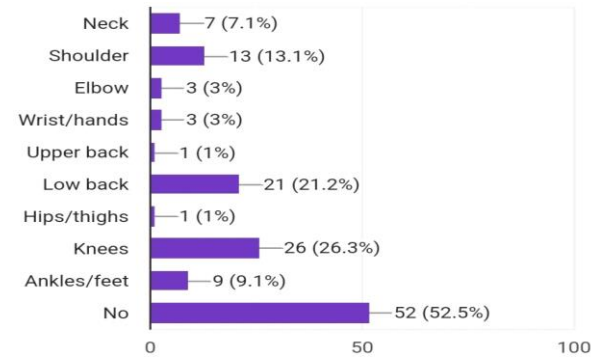
Graph 1: Had trouble in last 12 month



Graph 2: Because of the trouble they avoided work in last 12 months



Graph 3: Had trouble in last 7 days



Graph 4: Saw doctor because of trouble

DISCUSSION

Females are more affected than males. Pain was common in knee (64%), low back (62%), ankles (35%), shoulder (31%), upper back (21%), wrist (18%), neck (18%), elbow (12%), hip (11%). In countries like India and Nigeria, street sweepers often use only short-handled brooms. [7] A cross-sectional study from central India was published comprising 20 street sweepers (10 female) doing their job 8–9 h/day for >10 years. Reported health impairments were musculoskeletal disorders (MSDs) (100%), respiratory problems (95%), dermatological problems (90%), headaches (75%) and gastrointestinal problems (15%). [1] A literature review reported nine studies with a higher prevalence of back pain in street sweepers compared to control subjects.[5] Four studies focused on MSDs in street sweepers, [8-9] and even some appropriate intervention programs were performed [10].

Because of the trouble 43% of sweepers have avoided their work in last 12 months. 61% had trouble in last 7 days. 48% have seen a doctor because of their trouble in last 12 months. In another study, the clinical

examination, spinal percussion and/or palpation were painful in 11.5% of the subjects. According to the authors, there was a higher prevalence of back complaints among waste collectors compared to the general German population.[11] The evaluation of MSDs was also a main topic in the VerEne project and its follow-up (VerEne II). In both VerEne-based studies, the prevalence values of self-reported MSDs were quite similar for back pain (45.3%; follow-up 44.2%), leg/foot pain (27.9%; 28.7%), neck and shoulder pain (27.0%; 29.1%), and muscular cramps (26.0%; 25.7%). [12] This is similar to the present study.

Musculoskeletal problem was the major reported morbidity among the MSW workers (76.6%) in a study in Hyderabad. Injuries were reported more among the MSW workers in Hyderabad (39.7%). [13] Management of all waste is vital globally but the handling of the waste is associated with physical, chemical, and psychosocial hazards, which involves dominance of manual-handling tasks. [14]The Municipal Solid Waste (MSW) workers in the developing countries are at more risk than those in the developed countries where direct handling of the waste is limited to enhance process efficiency and ensure worker protection.[15] In developing countries like India, waste is picked from households and industries and dumped at landfill sites for which the city municipalities employ many MSW workers. [16] These MSW workers experience occupational risks and morbidities throughout the process of waste collection, management, and disposal depending on the equipment they use and the waste material they handle. This diverse group of occupational morbidities though preventable might not be properly addressed and treated adequately due to limited attention and healthcare access.[15]

The sweepers were also exposed to dust, but in this study respiratory hazards were not assessed as also skin infections and injuries at work were not assessed. The study was interview based and no physical examination was done.

CONCLUSION

The prevalence of the MSDs was high among the sweepers especially in lower back and knee. They can be educated about ergonomics to see if that prevents repetition or aggravation of pain.

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