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Survey To Determine the Prevalence of Musculoskeletal Disorders Among Housekeeping Population.

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KEYWORDS

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ABSTRACT:

Introduction: Housekeeping workers often perform physically tiring jobs that include tasks like sweeping, mopping, lifting, bending, and other repetitive actions throughout the day. These continuous physical efforts put stress on various parts of the body such as the neck, back, shoulders, knees, and feet, increasing the chances of developing musculoskeletal problems. Over time, such strain can reduce strength and flexibility, affect overall work output, and lower quality of life. Knowing how common these problems are and how they affect housekeeping staff is important for planning ways to prevent pain, improve posture, and maintain their long-term health.

Objectives: The primary objective of this study was to determine the prevalence and severity of musculoskeletal problems among housekeeping employees. Standard tools were used to assess different body regions and understand how pain and stiffness interfere with their daily work and physical activities.

Methods: A descriptive cross-sectional survey was carried out among housekeeping staff working in different institutions. Six well-known assessment scales were used to collect information from participants. These included: the **Neck Pain and Disability Index** (n = 14), **Oswestry Low Back Pain Disability Scale** (n = 19), **Shoulder Pain and Disability Index (SPADI)** (n = 17), **Foot Function Index** (n = 18), **WOMAC Scale** (n = 15) for knee and lower-limb function, and the **SF-36 Health Survey** (n = 13) to measure general health and quality of life. The collected responses were analysed using descriptive statistics to determine average scores and identify the level of functional difficulty among the workers.

Results: The analysis showed that many participants experienced pain or restriction in movement affecting several parts of the body. The **Oswestry Disability Index** (mean = 35.36) and the **Neck Pain Index** (mean = 33.28) recorded the highest values, suggesting a moderate level of disability, particularly in the back and neck regions. The **SF-36** mean score of **30.53** reflected a noticeable reduction in overall health and daily functioning. Lower-limb evaluations showed that both the **WOMAC** (mean = 6.37) and the **Foot Function Index** (mean = 6.38) indicated mild to moderate discomfort in the knees and feet. The **SPADI** score (mean = 8.51) pointed to shoulder-related strain, especially during lifting or overhead activities. Altogether, the results revealed that musculoskeletal pain among housekeeping staff often affects more than one body area, demonstrating the widespread physical impact of their work

Conclusions: This study confirms that musculoskeletal disorders are quite common among housekeeping workers, particularly in the neck, lower back, and shoulder regions. Continuous

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physical effort, awkward postures, and repetitive actions are likely contributors to these problems. To reduce pain and disability, it is important to introduce regular ergonomic awareness sessions, adjust workloads, and provide access to simple physiotherapy-based exercises. Encouraging stretching, posture correction, and strengthening routines can help improve physical comfort, prevent long-term injury, and promote better health and productivity among housekeeping staff.

1. Introduction

Musculoskeletal disorders (MSDs) represent a broad spectrum of health problems that affect muscles, bones, joints, tendons, ligaments, and associated structures of the body. These conditions are a leading cause of pain and physical disability and are particularly common among the working population across multiple occupational sectors.[1] According to the World Health Organization, MSDs impact approximately 1.7 billion people globally, positioning them among the foremost causes of disease burden and long-term disability worldwide.[2] A significant proportion of these cases are work-related musculoskeletal disorders (WMSDs), referring to injuries or dysfunctions of the musculoskeletal system that are either initiated or aggravated by occupational activities and environmental factors.[3] Beyond their health consequences, WMSDs generate considerable economic costs through loss of productivity, absenteeism, compensation claims, and elevated healthcare expenditures, thereby influencing both businesses and national economies.[4]

The occurrence of WMSDs arises from a complex interaction between multiple contributing factors. Physically demanding tasks such as frequent repetition of movements, prolonged awkward postures, application of excessive force, and manual handling of heavy loads have long been recognized as key physical risk factors.[5] Over time, these stresses can result in cumulative tissue damage, leading to pain, inflammation, and restricted movement.[6] In addition, psychosocial stressors in the workplace—such as heavy workloads, limited decision-making control, monotonous routines, and inadequate social or managerial support—can heighten pain perception and increase the likelihood of chronic MSDs.[7] The combined effect of biomechanical and psychosocial stress thus creates occupational environments with elevated risk for the development of MSDs.[8]

Among occupations with high exposure to these risks, housekeeping personnel stand out as particularly vulnerable. These workers perform essential tasks that sustain hygiene and order within facilities such as hotels, hospitals, corporate offices, and educational institutions.[9] The physical nature of their job involves repetitive activities such as sweeping, mopping, vacuuming, dusting, and lifting or carrying items like linens, waste, and cleaning supplies.[10] These tasks often require sustained or awkward body postures—such as bending, twisting, reaching overhead, kneeling, and prolonged standing—that place mechanical strain on the back, shoulders, neck, and lower limbs.[11] Long shifts with limited opportunities for rest further exacerbate the potential for chronic pain and musculoskeletal injury in this workforce.[12]

Many international investigations have highlighted that cleaning and housekeeping occupations carry a particularly high risk of musculoskeletal problems. Reviews of global evidence show that discomfort and pain in areas such as the back, shoulders, and neck are reported by a very large share of workers in this field.[13] Data gathered from European settings describe widespread low-back and shoulder complaints linked to repetitive actions and material handling.[14] In Middle Eastern workplaces, women and employees who spend long hours on cleaning tasks report musculoskeletal pain most frequently. [15] Studies from African universities also describe similar experiences, with many workers mentioning persistent discomfort in the back and upper limbs. Altogether, these findings indicate that across regions and work settings, cleaning personnel face consistent exposure to tasks that place substantial physical stress on the body.[16].

In the Indian context, the challenges experienced by housekeeping staff are further compounded by socioeconomic and organizational factors. Many workers belong to the informal sector, where employment tends to be insecure and lacks formal

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contracts, social protection, or occupational health services.[17] This situation often results in insufficient ergonomic training, limited awareness of safe working practices, and a lack of suitable tools or protective equipment.[18] Although Indian research has traditionally focused on manufacturing or construction industries, fewer studies have examined musculoskeletal issues among housekeeping personnel in institutional environments.[19] Nonetheless, available evidence suggests that domestic and institutional cleaning workers experience substantial physical strain. A South Indian study found that 77 % of domestic workers reported pain in regions such as the neck, shoulders, and lower back.[20]

Research in Tamil Nadu linked the development of MSDs to poor ergonomics, inadequate equipment, and prolonged working hours,[21] while a study in Bengaluru identified insufficient ergonomic awareness and absence of job rotation as major contributors to musculoskeletal complaints.[22] Together, these findings highlight the urgent need for targeted investigations and preventive interventions within this occupation.

In Karnataka, particularly in Bengaluru—one of the state's major urban and institutional hubs—housekeeping employees are exposed to multiple physical risk factors during their daily routines. Their work typically requires maintaining large indoor spaces, transporting waste or laundry trolleys, and repeating similar motions for extended periods. Movements such as constant bending, lifting, and stretching the arms above shoulder level contribute to fatigue and physical strain. The continued use of non-ergonomic cleaning equipment, including tools with fixed or short handles and containers that are heavy when filled, adds to this stress. [23–25] The use of poorly designed tools, such as short-handled mops and heavy buckets, further increases biomechanical strain. When these physically intensive tasks are performed for long hours without adequate rest or rotation between duties, the chances of pain and musculoskeletal injury rise considerably. Moreover, many workers in formal settings still have limited inclusion in organized workplace safety or health-protection programs.[26].

The consequences of MSDs are wide-ranging. For individual workers, persistent pain reduces physical capability, interferes with sleep, contributes to psychological distress, and diminishes quality of life.[27] For employers, the result is increased absenteeism, presenteeism, higher employee turnover, and escalating costs related to healthcare and compensation.[28] On a broader scale, MSDs place a heavy load on healthcare systems and contribute to national productivity losses.[29] Thus, safeguarding the musculoskeletal health of housekeeping workers represents not only a matter of worker welfare but also a public-health and economic priority.

Despite the existence of international and regional evidence, detailed data on MSDs among institutional housekeeping staff in Karnataka remain limited. Many Indian studies combine diverse informal occupations, providing little occupation-specific insight. There is therefore a pressing need for systematic research focused on this workforce to identify affected body regions, evaluate pain and disability, and determine work-related risk factors. Such findings would offer an empirical foundation for policy development, ergonomic training programs, and targeted workplace interventions.

This study was carried out to find out how common body pain and movement problems are among housekeeping workers employed in different organizations across Karnataka, mainly in the city of Bengaluru. The work focused on understanding which parts of the body are most affected and how these problems influence their ability to do daily cleaning tasks. It also looked at the type of work situations and physical activities that might increase the chances of developing pain or injury. The information collected from this study can be used to plan awareness sessions, improve workplace design, and introduce preventive steps that help protect workers from strain while improving their comfort and performance at work.

2. Objectives

The main aim of this study is to assess the prevalence of how common musculoskeletal problems are among housekeeping workers and to identify the work-related factors that might be responsible for causing or worsening these conditions.

3. Methods

Study Design: An observational cross-sectional study was conducted among housekeeping staff working in

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various institutions and companies to determine the prevalence of musculoskeletal disorders and identify the commonly affected body regions.

Study Setting and Duration: The study was conducted online in Bengaluru, Karnataka, during the month of April to December (2025). Bengaluru was chosen as the study setting due to the availability of different locations.

SAMPLE SIZE

Inclusion Criteria:

1. AGE: 20-60.
2. Housekeeping staff with musculoskeletal disorders.
3. Both male and female staff.
4. Individuals currently working in housekeeping duties for ≥6 months.
5. Individuals who were working 7 am- 4 pm or 9 am -6 pm per day.
6. Individuals who are willing to participate in the survey.

Exclusion Criteria:

The study eliminated participants

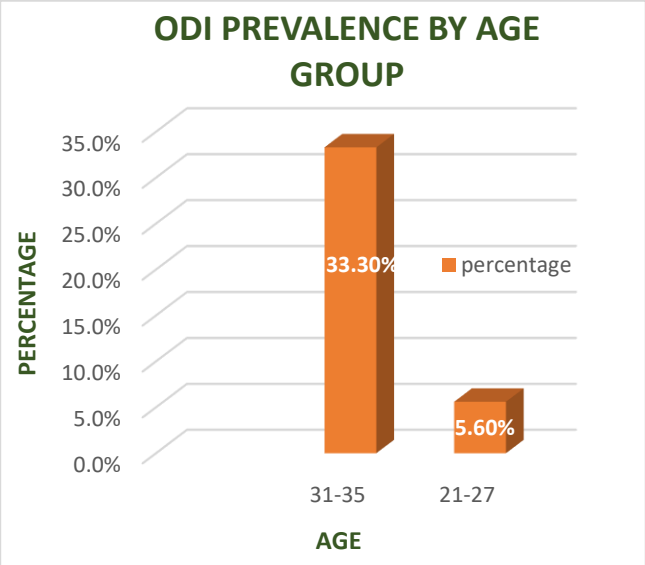
1. Workers with recent fractures, surgeries, or acute trauma (<3 months).
2. Age below 20years and beyond 60years.
3. Known neurological, rheumatological, or systemic illness influencing musculoskeletal function.
4. Pregnant females (due to postural and hormonal influences on MSD symptoms).
5. Incomplete or invalid responses in submitted questionnaires.
6. Those who were unwilling to participate.

DATA COLLECTION: The study followed a cross-sectional design, and data were collected using a questionnaire created in Google Forms. The form link was shared with participants through WhatsApp to make it easy for them to respond. To maintain privacy, no personal identifiers were requested, and all responses remained anonymous. The questionnaire included different sections, one of which gathered basic demographic details such as age and gender of the participants.

Statistical Analysis:

Statistical analysis helps in organizing and understanding data so that meaningful conclusions can be drawn. It allows researchers to simplify large sets of information and observe patterns or trends within the results. In this study, the collected responses were examined to see how participants were distributed by age, gender, and other related factors. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarize the data. These methods helped to give a clear picture of the group's overall characteristics and to determine how common and how severe musculoskeletal or functional problems were among the housekeeping staff.

1. Oswestry Low Back Pain Disability Scale



Graph 1: A bar chart showing the ODI PREVALENCE BY AGE GROUP. According to age, the prevalence of low back pain disability is highest in the 31–35 years group (33.3%) and lowest in the 22 years group (5.6%).

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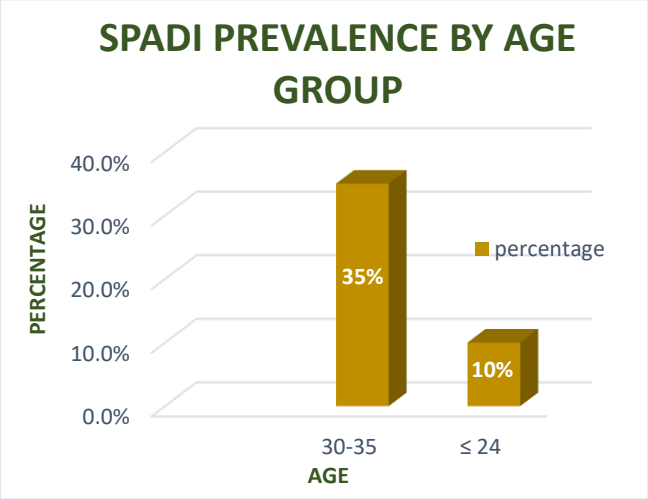
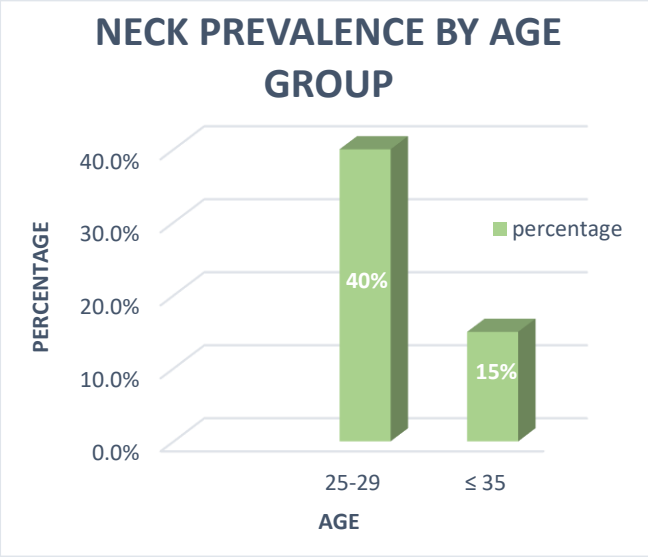
2. Shoulder Pain and Disability Index (SPADI)



Graph 2: A bar chart displaying the SHOULDER PAIN AND DISABILITY INDEX (SPADI).
According to age, the prevalence of shoulder pain and disability is highest in the 30–34 years group (35%) and lowest in the ≤24 years group (10%).

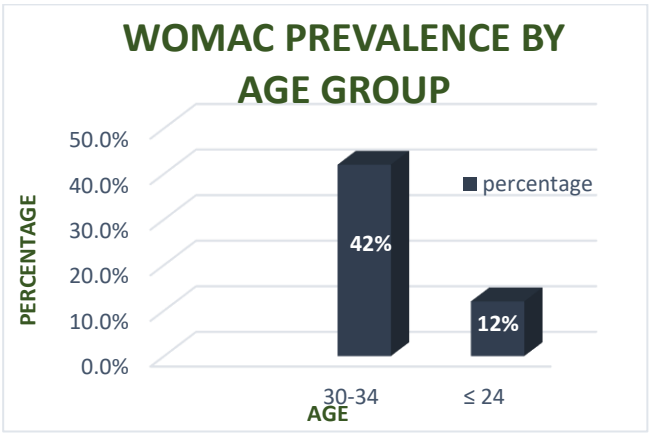
3. Neck Pain And Disability Index Scale



Graph 3: A bar chart showing the NECK PAIN AND DISABILITY INDEX (NDI) PREVALENCE BY AGE GROUP.

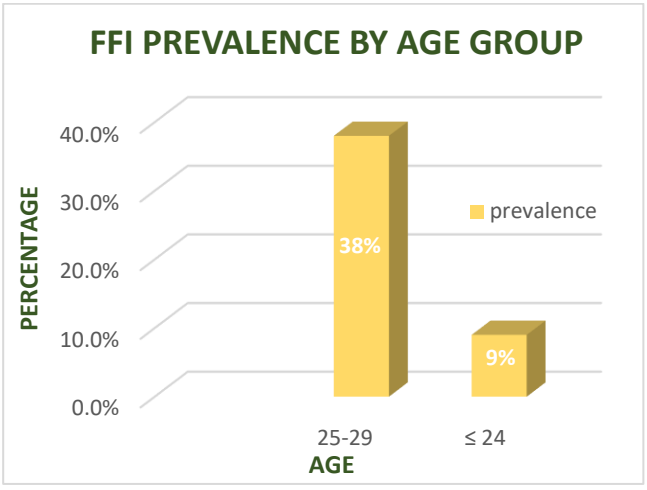
According to age, the prevalence of neck pain disability is highest in the 25–29 years group (40%) and lowest in the ≥35 years group (15%).

4. Western Ontario and McMaster Universities Osteoarthritis Index Scale



Graph 4: A bar chart showing the WOMAC SCALE PREVALENCE BY AGE GROUP.
According to age, the prevalence of knee-related musculoskeletal problems is highest in the 30–34 years group (42%) and lowest in the ≤24 years group (12%).

5. FOOT FUNCTION INDEX



Graph 5: A bar chart showing the distribution of FOOT FUNCTION INDEX (FFI) PREVALENCE BY AGE GROUP.
According to age, foot pain and functional disability are

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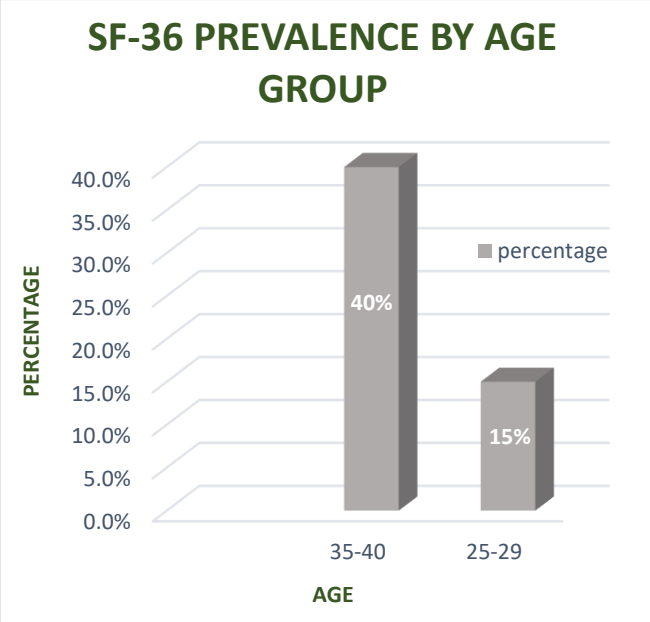
highest among individuals aged 25–29 years (38%) and least among those aged ≤24 years (9%).

6. SF-36 QUESTIONNAIRE



Graph 6: A bar chart showing the SF-36 QUESTIONNAIRE PREVALENCE BY AGE GROUP.

According to age, the lowest quality of life scores were found in the ≥35 years group (40%), while the highest were among the 25–29 years group (15%).

4. Results

This study looked at musculoskeletal issues among housekeeping employees using six different assessment scales. The findings showed that many participants experienced pain or difficulty moving in more than one part of the body. Women made up a slightly higher portion of the sample and generally reported more pain and physical limitations than men**.**

1. Oswestry Low Back Pain Disability Scale

The average Oswestry score was **35.36**, which indicates a moderate level of disability in the lower back. About **65%** of participants said they had mild to moderate back pain, and around **15%** reported severe discomfort that made everyday tasks difficult. Sitting, standing, and walking were the activities most affected. Back problems were more common among **female workers (70%)** than **male workers (57%)**, possibly because women often work longer hours and manage both job and home responsibilities, adding to their physical strain.

2. Neck Pain and Disability Index

The mean neck disability score was **33.28**, suggesting a moderate level of neck strain. Around **58%** of the workers had neck pain that ranged from mild stiffness to severe discomfort. More women (**62%**) than men (**52%**) reported neck issues. Many participants mentioned that tasks involving lifting, looking upward for long periods, or cleaning higher surfaces caused neck pain, showing that awkward postures during work contribute to cervical stress.

3. Shoulder Pain and Disability Index (SPADI)

The average SPADI score was **8.51**, reflecting mild shoulder difficulty. About **44%** of participants reported shoulder pain, especially while wiping or cleaning overhead areas. The condition was slightly more common among **women (47%)** compared to **men (40%)**, which may be due to frequent upper-arm use and repetitive reaching movements that strain the shoulder muscles.

4. Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)

The mean WOMAC score for knee function was **6.37**, showing mild to moderate impairment. Around **39%** of participants had knee discomfort or stiffness. The rate was higher in **female workers (43%)** than in **male workers (35%)**. Tasks such as standing for long periods, climbing stairs, and squatting while cleaning were the main reasons given for knee pain.

5. Foot Function Index

The mean score on the Foot Function Index was **6.38**, which also pointed to mild to moderate foot problems. About **42%** of participants experienced pain while standing or walking for long hours. Morning foot pain and soreness after extended shifts were common, particularly among **female workers (45%)**, likely due to long hours of standing and lack of supportive footwear.

6. SF-36 Quality of Life Questionnaire

The average SF-36 score was **30.53**, reflecting lower overall health and physical performance. Around **60%** of participants said that body pain and tiredness affected their work efficiency, while **55%** mentioned that it

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limited their social activities. Female staff again reported slightly lower quality-of-life scores than males.

Overall, the results show that musculoskeletal problems are widespread among housekeeping employees and often affect more than one body region. The most reported issues were pain in the lower back and neck, followed by discomfort in the shoulders, knees, and feet. Women experienced more pain and functional limitation than men, possibly because of greater workload and household responsibilities. Continuous physical effort, repetitive motions, and lack of adequate rest appear to be the main causes of these problems. Providing ergonomic training, proper cleaning tools, and short stretching breaks during work could help reduce pain and improve comfort, safety, and productivity for housekeeping staff.

5. Discussion

This study was conducted to determine the prevalence of musculoskeletal problems among housekeeping works employed in various institutions and companies across Karnataka. The findings clearly show that such problems are very frequent in this occupation. The lower back was the area most often affected, followed by the shoulders, neck, knees, and feet. This pattern reflects the heavy physical effort involved in daily cleaning work, which often includes repetitive and forceful activities. Tasks like sweeping, mopping, lifting, and pushing cleaning equipment require continuous movement and awkward postures, putting repeated strain on the muscles and joints over time.

Low back pain was the most reported complaint and can be linked to frequent bending, twisting, and lifting that are part of cleaning duties. These actions place constant pressure on the spine and nearby muscles, leading to stiffness and chronic discomfort. Shoulder and neck pain may arise from cleaning tasks performed at or above shoulder level, such as wiping walls and shelves, while knee and foot pain are often caused by prolonged standing, walking, or squatting. These results suggest that the physical nature of housekeeping work exposes employees to continuous strain throughout the day, leaving little opportunity for rest and recovery.

Another observation from this study was that female workers reported more pain and disability compared to male workers. This difference could be due to variations in physical strength, differences in work roles, or additional household responsibilities after work. Many women continue to perform domestic chores once they return home, which increases total daily workload and reduces recovery time. This double burden of professional and domestic work likely contributes to greater fatigue and a higher risk of developing long-term pain.

Age-wise comparison showed that workers in the 30–34-year age group experienced the highest level of discomfort. This could mean that musculoskeletal problems tend to appear or worsen with several years of continuous physical labor. People in this age range are often at their most active employment period, and repeated strain without proper ergonomic care can lead to chronic problems or even disability in later years.

The study also revealed that most participants had not received any formal ergonomic training. Many workers were unaware of correct posture, safe lifting techniques, or the importance of taking short breaks. In addition, they often used tools that were not ergonomically designed, such as short-handled mops or heavy buckets. These factors together increase the risk of strain injuries and long-term musculoskeletal disorders. Extended working hours and limited job rotation further worsen the situation.

The results highlight the urgent need to introduce preventive steps at the workplace. Regular ergonomic training sessions should be conducted to teach safe working postures, lifting methods, and stretching exercises. Employers should also provide equipment that is designed to reduce physical effort and ensure that cleaning schedules allow enough time for rest. Routine health checks can help detect early signs of pain or strain so that treatment or workplace adjustments can be made before the problems become severe. Encouraging light exercises to build flexibility and strength may also improve endurance and reduce injury risk.

While this study offers valuable insight into the physical health challenges faced by housekeeping staff, it does have some limitations. The information was collected through self-reported questionnaires and a cross-sectional design, which means that cause-and-effect relationships cannot be confirmed. Even so, the findings present clear evidence that musculoskeletal problems are very common among housekeeping workers. Promoting ergonomic awareness, providing suitable cleaning tools, and emphasizing preventive strategies can help reduce pain, protect health, and improve both safety and productivity within this important workforce.

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6. LIMITATIONS AND SUGGESTIONS

This study has a few limitations that need to be acknowledged. It was carried out only among housekeeping workers employed in certain institutions and companies within Karnataka, India. Because of this, the findings may not fully represent housekeeping staff in other states or different work settings. The information was collected through self-reported questionnaires, which means some participants might have forgotten or underestimated their symptoms. In addition, individual factors such as workload, years of experience, and overall physical fitness were not included in the analysis, and these could have influenced the results.

Even with these limitations, the study provides meaningful insight into the musculoskeletal health of housekeeping workers. Based on the observations, it is recommended that regular ergonomic training programs be conducted to educate workers about correct posture, safe lifting techniques, and body mechanics. Institutions should also make sure that housekeeping staff are given ergonomically designed cleaning tools and equipment to reduce strain and prevent injuries. Regular physiotherapy check-ups and simple exercise programs at the workplace can help identify early signs of pain and manage them before they become severe. Introducing stretching and strengthening routines during short breaks, along with proper rest schedules, can also help minimize fatigue and improve overall work performance. Future research involving a larger group of participants and a more detailed ergonomic evaluation is suggested to develop stronger and more effective prevention plans.

7. CONCLUSION

The present study shows that musculoskeletal disorders are very common among housekeeping employees working in different institutions and companies across Karnataka. The most frequently affected areas were the lower back, shoulders, and neck. These issues appear to result mainly from repetitive physical activities, awkward postures, and continuous work without sufficient rest. The findings emphasize how important it is to spread awareness about ergonomic safety and to train workers in proper body mechanics while performing daily cleaning tasks. Applying preventive strategies such as regular screening, ergonomic improvements, and scheduled exercise or rest breaks can help reduce the risk of injury and improve the health, comfort, and productivity of housekeeping staff.

CONFLICT OF INTEREST: There is no conflict of interest.

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