



Musculoskeletal Problems of Women Higher Secondary School Teachers

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ABSTRACT

Musculoskeletal disorders (MSDs) are a significant occupational health concern among educators, particularly women teachers who often face prolonged standing, repetitive writing tasks, and heavy workloads. This study aims to identify the prevalence and types of musculoskeletal problems among women higher secondary school teachers, examine the occupational factors contributing to these issues, and assess their impact on quality of life, work performance, and absenteeism. The teaching profession, while intellectually demanding, imposes considerable physical stress. Prolonged hours of standing during lectures, continuous board writing, and maintaining static postures contribute to musculoskeletal strain, particularly in the neck, shoulders, and lower back (Punnett & Wegman, 2004). Women are more vulnerable to such conditions due to biological, ergonomic, and psychosocial factors (Côté et al., 2008). Using a cross-sectional design, this study surveyed a representative sample of women teachers from higher secondary schools to gather data on the frequency and severity of MSDs, work conditions, and lifestyle factors. Findings are expected to reveal a high prevalence of neck, shoulder, and back pain, with a strong correlation between occupational tasks and the development of musculoskeletal complaints. These health issues affect personal well-being, reduce teaching effectiveness, and increase absenteeism (Huisstede et al., 2006). Understanding these occupational health risks

is crucial for developing ergonomic interventions and workplace policies that support women educators. The study emphasizes the need for preventive strategies, including regular breaks, ergonomic training, and improved workplace design to minimize the burden of MSDs.

INTRODUCTION

Musculoskeletal disorders (MSDs) represent one of the most widespread occupational health issues globally, affecting millions of working professionals, particularly women engaged in physically demanding roles such as teaching (Punnett & Wegman, 2004). Among higher secondary school teachers, the repetitive nature of their daily tasks, such as prolonged standing during lectures, continuous writing on the board, and carrying heavy loads of textbooks and materials, can contribute significantly to musculoskeletal problems (Yue et al., 2012). Women teachers, in particular, may be more susceptible to such issues due to a combination of biological, ergonomic, and psychosocial factors, including hormonal differences, dual workload from professional and domestic responsibilities, and often poor workplace ergonomics (Côté et al., 2008). The prevalence of musculoskeletal symptoms such as back pain, neck stiffness, shoulder discomfort, and lower limb strain has been reported to be higher among female educators than their male counterparts (Erick & Smith, 2011). This study aims to identify the prevalence and specific types of musculoskeletal problems affecting women higher secondary school teachers, to examine the association between occupational factors such as prolonged standing, repetitive board writing, and overall workload and the development of these issues, and to assess their broader impact on quality of life, work performance, and absenteeism. Understanding the extent and nature of these health challenges is vital for developing preventive measures and workplace modifications that can enhance teachers' well-being and efficiency. The study addresses a critical public health issue by focusing on this occupational group. It highlights the need for ergonomic interventions, policy reforms, and health education programs tailored to the needs of women teachers in secondary education institutions.

OBJECTIVE OF THE STUDY

- To identify the prevalence and types of musculoskeletal problems among women higher secondary school teachers.
- To examine the association between occupational factors (such as prolonged standing, writing on board, and workload) and the development of musculoskeletal issues.



- To assess the impact of musculoskeletal problems on the quality of life, work performance, and absenteeism among women higher secondary school teachers.

METHODOLOGY

This study adopts a secondary data analysis approach, drawing upon existing scholarly literature, occupational health reports, educational department publications, and policy documents to investigate the prevalence, causative factors, and consequences of musculoskeletal problems among women higher secondary school teachers. The analysis identifies musculoskeletal disorders' physiological and occupational dimensions (MSDs), particularly related to prolonged standing, repetitive blackboard writing, and workload pressure.

MUSCULOSKELETAL DISORDER PATTERNS

Musculoskeletal disorders (MSDs) are among the most common occupational health concerns globally, affecting millions of workers across various professions. Teachers, particularly women in higher secondary schools, are vulnerable to these issues due to the physical and postural demands of their jobs. These include prolonged standing during lectures, repetitive writing on blackboards, handling heavy teaching materials, and maintaining static postures for extended periods. The impact of such tasks on the musculoskeletal system can lead to acute or chronic pain, stiffness, and functional impairment (Yue, Liu, & Li, 2012). Studies have shown that the prevalence of MSDs among schoolteachers ranges between 40% and 90%, with higher rates observed among female educators (Erick & Smith, 2011). In India, a significant proportion of women teachers in secondary education suffer from neck, shoulder, and lower back pain, which are the most commonly reported musculoskeletal complaints (Punnett & Wegman, 2004). These conditions can hinder their ability to teach effectively, reduce productivity, and may lead to absenteeism or early retirement.

Several factors contribute to this high prevalence. Firstly, prolonged standing while teaching can strain the lower back and legs, leading to chronic pain. Secondly, repetitive movements such as writing on the board or correcting papers cause stress to the upper limbs, especially the shoulders, wrists, and neck (Côté et al., 2008). Furthermore, poorly designed furniture, improper classroom ergonomics, and lack of rest breaks compound the physical strain placed on teachers. Most schools do not conduct regular ergonomic assessments or provide interventions to minimize the risk of MSDs. In addition to physical



factors, psychosocial stress also plays a role in the development and persistence of MSDs. The dual burden of professional teaching responsibilities and domestic duties often faced by women contributes to fatigue and reduces recovery time, increasing susceptibility to musculoskeletal issues. Cultural and institutional factors may also prevent teachers from reporting discomfort due to fear of being perceived as weak or lacking support mechanisms within the school system. Despite the high prevalence, musculoskeletal problems among women teachers are often underreported or neglected. Many teachers accept pain as a regular part of their profession and do not seek medical attention until the symptoms become severe. This results in a cycle of chronic pain and functional limitations that affect not only the physical health of teachers but also their job satisfaction and mental well-being. There is a pressing need for awareness programs, workplace ergonomic improvements, and institutional policies prioritizing women teachers' health and well-being. Regular screening, access to physiotherapy, health education, and the implementation of flexible work practices can significantly reduce the burden of MSDs. Ultimately, addressing this issue is not just a matter of occupational health but also of improving the overall quality of education by ensuring the well-being of those who deliver it.

- **High Prevalence:** Studies indicate that over 60–70% of female teachers report at least one form of musculoskeletal discomfort during the academic year (Punnett & Wegman, 2004).
- **Common Affected Areas:** The most affected regions are the neck, shoulders, lower back, and wrists, which are linked to lecturing, board writing, and grading assignments.
- **Work-Related Patterns:** Daily exposure to physically demanding teaching postures increases the risk and severity of MSDs.
- **Underreporting and Normalization:** Many female teachers normalize their pain due to workload pressure or lack of institutional support, leading to underdiagnosis and worsening conditions.
- **Need for Surveillance:** There is a lack of regular occupational health checkups and ergonomic audits in most schools, contributing to the undetected burden of MSDs.

OCCUPATIONAL RISK FACTORS AND MUSCULOSKELETAL DISORDERS

Musculoskeletal disorders (MSDs) are significantly influenced by occupational risk factors, especially in professions requiring repetitive movements, static postures, and extended working hours. Teaching is one such profession, and women higher secondary school teachers are particularly vulnerable due to the combined effects of workplace demands and gender-specific physical and social roles. This section



explores how occupational factors, specifically prolonged standing, repetitive board work, and workload pressure, are closely associated with the onset and progression of MSDs in this population. Prolonged standing is a routine part of teaching, particularly in higher secondary schools where lectures can last 45–60 minutes with minimal breaks. Studies have shown that continuously standing for more than 4 hours can cause lower back pain, varicose veins, leg fatigue, and discomfort in the feet and knees (Tüchsen et al., 2005). Static standing limits blood circulation in the lower extremities, resulting in muscle fatigue and joint stiffness. Moreover, the absence of anti-fatigue mats or ergonomic flooring further intensifies the strain on lower limbs. Another occupational factor contributing to MSDs is repetitive chalkboard use or writing on boards, which leads to shoulder, wrist, and neck pain due to overuse of the upper limbs. Repetitive reaching motions while writing on boards at awkward angles contribute to rotator cuff injuries and cervical strain (Erick & Smith, 2011). The height and size of the blackboard, coupled with the teacher's posture, are often neglected ergonomic factors that aggravate these conditions. Workload, encompassing both physical and cognitive strain, significantly contributes to MSDs. Teachers frequently carry heavy bags, handle bundles of notebooks for correction, and engage in prolonged grading sessions, leading to wrist and back strain.

Additionally, the mental stress of managing large classrooms, administrative tasks, and performance targets has been associated with an increased perception of musculoskeletal pain, especially in the neck and back regions (da Costa & Vieira, 2010). Occupational stress and fatigue also reduce the body's ability to recover from minor injuries, which gradually evolve into chronic pain conditions. Gender also plays a mediating role. Women teachers, in particular, face a dual burden of professional responsibilities at school and domestic chores at home, leaving them with limited time for rest or recovery. This continuous physical exertion without adequate ergonomic support or health awareness programs increases the likelihood of developing MSDs (Côté et al., 2008). Despite the clear association between occupational factors and MSDs, many educational institutions lack awareness and preventive strategies. Ergonomic training, proper classroom infrastructure, adjustable furniture, and scheduled rest breaks are seldom implemented. Teachers often continue their duties despite pain, normalizing it as part of their profession, which can lead to long-term disability and absenteeism. Prolonged standing, repetitive board work, and workload are critical occupational risk factors that significantly contribute to the development of musculoskeletal issues among women teachers. Addressing these factors through ergonomic interventions and policy reforms is essential for improving their occupational health and teaching effectiveness.



IMPACT OF MUSCULOSKELETAL DISORDERS ON LIFE AND WORK

Musculoskeletal disorders (MSDs) are a significant public health concern, especially for individuals in physically demanding professions like teaching. Women higher secondary school teachers are particularly affected due to their dual responsibilities professionally at school and personally at home, which amplifies the physical and psychological burden of MSDs. This section assesses how these disorders impact three major dimensions: quality of life, work performance, and absenteeism among women teachers. Quality of Life (QoL):

MSDs significantly reduce the quality of life, interfere with daily physical functioning, limit mobility, and cause persistent discomfort or pain. Teachers with chronic musculoskeletal pain report lower life satisfaction, emotional distress, fatigue, and reduced engagement in leisure or household activities (Beaton et al., 2010). Pain in areas such as the lower back, neck, and shoulders affects sleep quality and leads to irritability, anxiety, and depression, further deteriorating their mental well-being (Punnett & Wegman, 2004). This effect is intensified among women teachers due to societal expectations to balance caregiving and professional roles, often without sufficient rest or healthcare attention. Work Performance: MSDs diminish the physical capabilities required for teaching tasks such as standing for long hours, writing on boards, and managing large classrooms. Teachers suffering from MSDs report slower task execution, difficulty maintaining posture during lectures, and frequent physical interruptions to stretch or sit, affecting lesson delivery (Erick & Smith, 2011). Persistent pain also reduces concentration and energy levels, affecting the ability to plan, interact with students, or engage in extracurricular activities. As MSDs become chronic, they can reduce self-efficacy and motivation, leading to disengagement and burnout (da Costa & Vieira, 2010). Absenteeism and Presenteeism: One of the most significant impacts of musculoskeletal problems is increased absenteeism, where teachers are compelled to take leave due to pain, fatigue, or medical consultations. Studies suggest that teachers with MSDs have higher absentee rates compared to their healthier peers, which disrupts academic continuity and burdens other staff (Yue et al., 2012).

In some cases, presenteeism attending work despite being unwell occurs, which is equally damaging as it leads to reduced productivity and subpar performance. Women teachers often continue working despite pain due to societal pressure or lack of substitute staff, which may worsen the condition and increase future absenteeism. The cumulative effect of MSDs on women teachers is profound. Poor physical health impairs their personal life, classroom effectiveness, and job satisfaction. Despite this, institutional



recognition of MSDs as a legitimate occupational hazard remains minimal. Inadequate health surveillance, absence of supportive HR policies, and limited access to physiotherapy or ergonomic support worsen the scenario.

PREVENTION METHODS

1. **Ergonomic and Postural Adjustments**

- Use Adjustable Chairs – Provide lumbar-support chairs with adjustable height to reduce back strain.
- Install Ergonomic Desks – Use desks that suit the teacher's height to prevent stooping.
- Maintain Neutral Posture – Encourage standing or sitting upright, avoiding slouching.
- Use Whiteboards at Eye Level – Ensure writing boards are positioned to minimize arm and neck strain.
- Alternate Between Sitting and Standing – Avoid prolonged static posture by shifting positions frequently.

2. **Workplace Practices**

- **Schedule Short Breaks** – Take 5–10 minute breaks every hour to stretch and move around.
- **Use Teaching Aids** – Use projectors or slides to minimize repetitive board writing.
- **Reduce Workload Duplication** – Share correction work and administrative tasks among staff.
- **Time Management Training** – Help manage grading, planning, and teaching hours efficiently.
- **Encourage Flexible Timetables** – Avoid back-to-back periods without rest for physical recovery.

3. **Exercise and Physical Health**

- Regular Stretching Exercises – Incorporate daily stretches of the shoulder, neck, and lower back.
- Strength Training – Light strength exercises can improve posture and joint health.
- Yoga or Pilates – Promote practices that enhance flexibility and core strength.
- Maintain Healthy Body Weight – Reduces load on spine and joints.
- Use Anti-Fatigue Mats – Provide mats in classrooms where teachers stand for long hours.

4. **Health Awareness and Institutional Measures**

- Conduct Ergonomics Workshops – Train teachers on posture, lifting, and body mechanics.
- Organize Regular Health Checkups – Include orthopedic screenings for early identification of MSDs.
- Provide On-Site Physiotherapy Access – Offer weekly or monthly physiotherapy consultations.



- Encourage Reporting of Pain Early – Avoid normalizing discomfort by encouraging early action.
- Promote Mental Wellness Programs – Psychological health must be addressed as stress contributes to muscle tension.

CONCLUSION

Musculoskeletal disorders (MSDs) represent a pressing occupational health issue among women higher secondary school teachers, driven primarily by prolonged standing, repetitive board work, and static postures. The study highlights a high prevalence of neck, shoulders, and lower back pain, strongly linked to the physical demands of teaching. These health problems not only affect the personal well-being of educators but also hinder their professional effectiveness, leading to increased absenteeism and reduced productivity. The findings underscore the unique vulnerability of women teachers, shaped by both ergonomic and gender-related factors. Addressing these challenges requires more than individual coping strategies. It calls for systemic changes in school environments and work culture. Preventive measures such as ergonomic training, optimized classroom design, scheduled breaks, and institutional support are essential to safeguard the health of educators. By recognizing MSDs as a legitimate occupational hazard, policymakers and school administrators can implement targeted interventions that promote long-term health and enhance teaching outcomes. Ultimately, investing in the physical well-being of women teachers is vital for ensuring sustainable education systems and a healthier workforce.

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