

# Musculoskeletal Disorders among Desk-Based Officials: An Upcoming Challenge for Corporate Professionals

**Sushanta Kumar Ghose<sup>1</sup>, Md Shahjahan<sup>2</sup>, Muhammad Abdul Mojid Mondol<sup>3</sup>, Noor Sanjana Firoz<sup>4</sup>, Zobaer Alam<sup>5</sup> and Md Monoarul Haque<sup>6\*</sup>**

<sup>1</sup>PhD Fellow, School of Science and Technology, Bangladesh Open University, Bangladesh

<sup>2</sup>Professor, Department of Public Health, Daffodil International University, Bangladesh

<sup>3</sup>Professor, School of Science and Technology, Bangladesh Open University, Bangladesh

<sup>4</sup>Lecturer, Daffodil Health Institute, Bangladesh

<sup>5</sup>Deputy Program Manager, Center for Injury Prevention and Research, Bangladesh

<sup>6</sup>Associate Professor, Department of Public Health, German University Bangladesh, Bangladesh

**\*Corresponding author:** Monoarul Haque, Associate Professor, Department of Public Health, German University Bangladesh, Bangladesh

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## ABSTRACT

Musculoskeletal disorders (MSDs) are the most prevalent occupational health issues worldwide, affecting significantly desk-based professionals. These disorders encompass a range of conditions affecting muscles, bones, tendons, and joints, primarily caused by poor posture, repetitive movements, and prolonged sedentary work. Desk-based officials, particularly in urban settings like Dhaka City, are at a heightened risk due to long hours spent working on computers in ergonomically unsound environments. As Bangladesh continues to develop economically and technologically, the number of office-based jobs is increasing, making MSDs a growing public health concern. This review was aimed to find gap/missing of existing literature in order to make foundation of new research on MSDs. After repeated critical review of number of original articles, some gaps have been found. Almost every article they focused on outcome and mildly highlighted input variables but did not consider all possible variables and missed to show interlink between those variables.

**Keywords:** Musculoskeletal Disorders; Desk-Based Officials; Challenge; Corporate Professionals

## Introduction

Musculoskeletal disorders (MSDs) have emerged as a significant occupational health concern globally, particularly among desk-based workers who engage in prolonged periods of sedentary activities. These disorders encompass a range of conditions affecting muscles, tendons, ligaments, nerves, and other soft tissues, leading to pain and functional impairment. In urban settings like Dhaka City, the rapid expansion of desk-based occupations has been paralleled by an increase in MSD prevalence, underscoring the need for effective preventive strategies. The etiology of MSDs among office workers is multifactorial, with poor posture and inadequate ergonomic practices

identified as primary contributors. Prolonged sitting, often in suboptimal postures, exerts excessive strain on the musculoskeletal system, particularly the lower back, neck, and shoulders. A study conducted in Bangladesh reported that 76% of paper-based office workers experienced musculoskeletal symptoms over a 12-month period, with the lower back being the most commonly affected region (Habib, et al. [1]). In conclusion, the high prevalence of musculoskeletal disorders among desk-based officials in Dhaka City necessitates targeted interventions focusing on postural and ergonomic training. By addressing the root causes of these disorders through education and workplace modifications, it is possible to enhance employee health, reduce economic burdens, and improve overall quality of life. Future research

should aim to develop and evaluate culturally appropriate ergonomic programs that can be feasibly implemented in the diverse occupational settings of Dhaka. Musculoskeletal disorders (MSDs) have become a critical occupational health issue among desk-based workers, particularly in urban environments such as Dhaka City. The increasing reliance on digital technology and prolonged sedentary work patterns have significantly contributed to the rising prevalence of MSDs, which affect employees' productivity, well-being, and overall quality of life. Studies indicate that prolonged sitting, poor posture, and inadequate ergonomic practices are key contributors to the development of MSDs, with common complaints including neck pain, lower back pain, and repetitive strain injuries. Despite the evident risks, awareness and implementation of ergonomic interventions remain limited in many workplaces in Dhaka.

## Critical Reviewed literatures

Musculoskeletal disorders (MSDs) are injuries or disorders that affect the musculoskeletal system of the body. These conditions can range from mild discomfort to severe health issues, potentially leading to unplanned time off from work or even hospitalization. Increasingly, MSDs are becoming a prevalent health concern affecting all age groups (Obembe, et al. [2]). Disorders of the musculoskeletal system impose a significant burden on both affected individuals and employers. The term MSDs encompasses a range of inflammatory and degenerative disorders impacting muscles, tendons, ligaments, joints, peripheral nerves, and supporting blood vessels, resulting in pain or discomfort (Tinubu, et al. [3]). In developing countries, the high prevalence rate of musculoskeletal pain contributes to a considerable health burden, including healthcare costs, work-related disability, and reduced quality of life (Wijnhoven, et al. [4]). Work-related musculoskeletal disorders (WMSDs) are a major public health concern, particularly affecting areas such as the neck, shoulder, elbow, wrist, hand, upper back, lower back, hip, knee, ankle, and foot (Akrouf, et al. [5]). Low back pain accounts for nearly half of all MSDs, with neck pain ranking as the fifth most severe condition (Christopher, et al. [6]). The prevalence of MSDs is higher among older adults compared to younger age groups and is generally more common in developed countries than in developing or underdeveloped regions. WMSDs are non-traumatic soft tissue disorders caused or aggravated by workplace conditions (Darvishi, et al. [7]).

MSDs can be categorized based on various factors, particularly the location of pain—upper extremities, lower extremities, and back, with the back being most commonly affected. Disorders affecting muscles, tendons, joints, ligaments, or nerves all fall under the umbrella of MSDs (Darwishi, et al. [8]). MSDs impact people regardless of age or gender and are prevalent across numerous industries and occupations (Da Costa, et al. [9]). Research indicates that MSDs account for 42% to 58% of all work-related illnesses, making them a leading cause of health-related work absences (Kamel, et al. [10]). Studies from Iran, Bangladesh, Punjab (India), and Tamil Nadu have report-

ed WMSD prevalence rates among bankers as 78.5%, 69.3%, 83.5%, and 33.8%, respectively (Darvishi, et al. [7]). A study in Kuwait found that the prevalence of WMSDs among bankers was 57% in the week before the study and 80% in the year prior (Akrouf, et al. [5]). These disorders are often associated with poor workplace postures, such as flexed, static, twisted postures and repetitive trunk movements. Other risk factors include age, gender, lifestyle habits (e.g., smoking, alcohol consumption), psychological stress, past pain symptoms, socio-economic status, low muscle flexibility and strength, physical activity, and workload. WMSDs significantly impair quality of life, leading to absenteeism, increased work restrictions, job changes, and financial losses at individual, organizational, and societal levels (Sohail, et al. [11]).

Office workers are particularly susceptible due to repetitive movements and poor ergonomic practices, often leading to musculoskeletal pain. Psychosocial factors such as heavy workloads and time pressures further exacerbate the problem (Janwantanakul, et al. [12]). Common WMSDs include tennis elbow, golfer's elbow, tendonitis, thoracic outlet syndrome, carpal tunnel syndrome, tension neck syndrome, and degenerative spinal disorders. Without timely treatment, these conditions can result in permanent disabilities. Factors like poor posture, repetitive tasks, noise, mental stress, biomechanical loading, gender, and obesity also contribute to the development of MSDs (Rashaduzzaman, et al. [13]). These disorders negatively impact employee productivity, leading to significant psychological, economic, and service-related consequences. In regions like the US, Europe, and Australia, the financial burden of MSDs has been extensively documented (Hoe, et al. [14]). Musculoskeletal disorders (MSDs) represent one of the most common occupational health concerns globally, significantly impacting productivity, quality of life, and healthcare costs. MSDs encompass a range of conditions affecting muscles, tendons, ligaments, joints, nerves, and other soft tissues, often resulting in pain, functional impairment, and disability (World Health Organization, 2021). These disorders can arise from repetitive movements, poor posture, prolonged static positions, and inadequate ergonomic setups, all of which are prevalent in modern desk-based work environments.

In Dhaka City, the rapid urbanization and expansion of desk-based occupations have exacerbated the prevalence of MSDs among professionals. Studies indicate that factors such as poor workstation ergonomics, extended working hours, high work demands, and long commuting times contribute to the increasing incidence of musculoskeletal pain among office workers (Ali, et al. [15]). This trend mirrors global patterns, where the shift towards sedentary work has heightened concerns regarding occupational health. The impact of MSDs extends beyond physical discomfort. Affected individuals often experience reduced work efficiency, increased absenteeism, and higher healthcare utilization. In economic terms, MSDs contribute to significant costs related to lost productivity and medical expenses. Conse-

quently, preventive measures, including ergonomic interventions and postural training, have become essential components of workplace health strategies. This literature review explores the prevalence of MSDs among desk-based officials, highlights the unique challenges faced by workers in Dhaka City. The review draws on both local and international studies to provide a comprehensive understanding of the factors contributing to MSDs and the effectiveness of preventive measures. The global rise in sedentary work environments has significantly increased the risk of MSDs among office workers. A study by (Ali, et al. [5]) involving 593 full-time bank employees in Dhaka City reported a one-month prevalence of low back pain at 36.6%, with the highest prevalence (64.3%) observed among employees aged 51–59.

Prolonged working hours (>9 hours) and obesity were identified as significant risk factors. Similarly, (Islam, et al. [16]) conducted a study on 526 desk-based officials in Dhaka, finding that 64% experienced musculoskeletal pain, with 19% reporting severe pain. The study identified associations between musculoskeletal pain and demographic factors such as gender, body mass index, monthly income, type of organization, physical activity levels, and mental health conditions like depression. In Asia, studies reflect comparable trends. A study conducted in South Korea found that 52% of office workers reported experiencing musculoskeletal pain, particularly in the neck and lower back regions (Lee, et al. [17]). (Amin, et al. [18]) examined the prevalence of computer-related MSDs among bankers in Dhaka and emphasized the need for education programs on prevention and coping strategies. Their findings revealed that improper workstation setups, such as inadequate chair support and incorrect monitor height, significantly contributed to musculoskeletal discomfort. Moreover, implementing sit-stand desks and promoting micro-breaks have been shown to reduce the risk of MSDs. A meta-analysis by (Shrestha, et al. [18]) confirmed that interventions promoting regular movement and ergonomic adjustments effectively reduced musculoskeletal pain and improved overall well-being among office workers. In China, a randomized controlled trial demonstrated that implementing adjustable workstations and ergonomic training significantly reduced neck and shoulder pain among office workers over a six-month period (Zhang, et al. [20]).

In Australia, a study by (Straker, et al. [21]) highlighted the positive impact of workplace-based physical activity programs combined with ergonomic interventions in reducing MSDs. In Dhaka, the sedentary nature of desk-based jobs, compounded by long commuting hours, exacerbates poor postural habits. Integrating postural training into workplace wellness programs can address these challenges and promote musculoskeletal health. Dhaka City presents unique challenges that influence the prevalence of MSDs among desk-based officials. Traffic congestion often results in extended commuting times, contributing to sedentary behavior and increased musculoskeletal strain. (Ali, et al. [5]) found that 21.7% of bank employees reported long road traffic delays, with 81% of them experiencing musculoskeletal health complaints. Implementing comprehensive train-

ing programs that address both ergonomic principles and postural awareness is essential. Employers must invest in creating supportive work environments and fostering a culture that prioritizes employee health. Employee resistance to change and lack of motivation can also pose barriers. Many workers underestimate the impact of posture and ergonomics on their long-term health. Educational initiatives that emphasize the benefits of these interventions are crucial in overcoming these challenges.

## Conclusion

The high prevalence of MSDs among desk-based officials in Dhaka City underscores the need for targeted interventions. Evidence suggests that such measures can significantly reduce musculoskeletal pain, enhance functional capacity, and improve overall well-being. Employers, policymakers, and health professionals must collaborate to implement comprehensive strategies that promote musculoskeletal health in the workplace.

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**Monoarul Haque.** Biomed J Sci & Tech Res



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