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Prevalence of Musculoskeletal Disorders Among University Professors: An Observational Study at UIAHS, Chandigarh University, Punjab, India

Sugandha Pathikonda[1], Shivangi Pathania[2]

[1]Department of physiotherapy, UIAHS, Chandigarh University ,Punjab, India.

[2]Department of physiotherapy, Assistant Professor, UIAHS, Chandigarh ,University, India.

***Corresponding Author:**

Sugandha Pathikonda

Department of physiotherapy, UIAHS, Chandigarh University, Punjab, India.

Email ID**:** Shivangi.physio@cumail.in

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ABSTRACT

Musculoskeletal disorders (MSDs) are a significant occupational health concern, affecting professionals across various sectors, including academia. University professors, despite the perceived sedentary nature of their roles, are particularly vulnerable to MSDs due to prolonged sitting, repetitive tasks, and poor ergonomic setups. This observational study aims to determine the prevalence and associated factors of MSDs among professors at Chandigarh University, Punjab, India. Using the Nordic Musculoskeletal Questionnaire (NMQ), data were collected from 256 professors aged 25-50 years with at least one year of academic experience. The results reveal a high prevalence of MSDs, with the lower back, neck, and shoulders being the most commonly affected regions. Female professors reported higher rates of MSDs compared to males. The findings underscore the urgent need for ergonomic interventions and preventive strategies to mitigate the physical and mental strain associated with academic work. Addressing these issues could enhance professors' quality of life and professional productivity.

Keywords: *Musculoskeletal disorders, University professors, Ergonomics, Nordic Musculoskeletal Questionnaire, Occupational health, Academic work.*

1. INTRODUCTION

Musculoskeletal disorders (MSDs) are a prevalent global health concern, significantly impacting individuals' quality of life and productivity across various professions. The 2010 Global Burden of Disease study highlighted a 45% increase in the risk of disability from MSDs between 1990 and 2010, making them a leading cause of disability worldwide (Erick & Smith, 2011). MSDs encompass a range of conditions affecting muscles, tendons, ligaments, nerves, and other soft tissues, often resulting from repetitive motions, prolonged awkward postures, or inadequate ergonomic setups (Meaza et al., 2020). These disorders not only cause physical discomfort but also lead to substantial economic burdens due to increased healthcare costs and reduced work efficiency (Lima Júnior & Silva, 2014).

University professors are particularly susceptible to MSDs due to the unique demands of their profession. Despite being perceived as a sedentary role, academic work involves prolonged hours of sitting, repetitive movements such as typing and writing, and inadequate ergonomic arrangements (Sirajudeen et al., 2018). These factors, combined with additional stressors like heavy workloads, limited opportunities for physical activity, and the transition to digital teaching platforms, significantly contribute to the development of MSDs (Ramanandi, 2021). A study in Brazil reported that 85.7% of university professors experienced MSD symptoms, with the lower back, neck, and shoulders being the most affected regions (Lima Júnior & Silva, 2014).

The relevance of addressing MSDs among university professors lies in their direct impact on occupational health. Untreated MSDs can lead to chronic pain, reduced mobility, and long-term disabilities, adversely affecting job satisfaction and productivity (Meaza et al., 2020). Moreover, the associated mental health consequences, such as stress and anxiety, further exacerbate the challenges faced by this professional group (Ramanandi, 2021).

Aim of the Study

This study aims to determine the prevalence of musculoskeletal disorders among university professors at UIAHS, Chandigarh University, Punjab, India. It seeks to identify the most commonly affected body regions and evaluate gender-specific differences in MSD prevalence.

Objectives of the Study

1. To quantify the prevalence of MSDs among university professors.
2. To identify the most commonly affected anatomical regions.
3. To compare the prevalence of MSDs between male and female professors.
4. To provide insights into potential ergonomic and preventive measures.

2. LITERATURE REVIEW

Musculoskeletal disorders (MSDs) are a significant occupational health issue globally, affecting diverse professions, including academic staff. The prevalence of MSDs varies across regions and occupational groups, with academic professionals reporting particularly high rates. A systematic review highlighted that MSDs are among the leading causes of disability worldwide, with a 45% increase in associated risks over two decades (Erick & Smith, 2011). Studies in higher education institutions have shown alarming rates of MSD prevalence. For instance, a study conducted in Brazil reported that 85.7% of university professors experienced MSD symptoms in the past year, with lower back pain being the most common (Lima Júnior & Silva, 2014). Similarly, research from Ethiopia revealed that more than half of academic staff suffered from MSDs, with contributing factors such as prolonged work hours, physical inactivity, and poor ergonomics (Meaza et al., 2020).

Factors Contributing to MSDs

Several factors contribute to the high prevalence of MSDs among academic staff. Poor ergonomic setups, prolonged sitting, and repetitive activities such as typing and writing are primary contributors (Sirajudeen et al., 2018). These risk factors are further exacerbated by the adoption of digital teaching methods, which increase sedentary time and reduce opportunities for physical activity (Ramanandi, 2021). Additionally, workloads requiring extended periods of concentration, standing during lectures, and inadequate rest intervals contribute to physical strain (Pope et al., 2001). Studies have shown that gender differences also play a role, with female professors reporting a higher prevalence of MSDs than their male counterparts, often linked to anatomical and occupational variances (Althomali et al., 2021).

Health, Social, and Economic Impacts of MSDs

MSDs significantly impact individuals' health, social interactions, and economic productivity. Chronic pain and reduced mobility due to MSDs lead to disabilities, affecting work efficiency and overall job satisfaction (Meaza et al., 2020). The associated healthcare costs and lost productivity impose substantial economic burdens on individuals and institutions (Erick & Smith, 2011). Furthermore, the mental health implications of MSDs, including anxiety and depression due to prolonged discomfort, amplify their impact on personal and professional life (Ramanandi, 2021). At the societal level, untreated MSDs contribute to increased absenteeism and reduced workforce capacity, affecting organizational outcomes (Lima Júnior & Silva, 2014).

Prevention and Intervention Strategies

Effective prevention and intervention strategies are critical for mitigating the impact of MSDs. Ergonomic assessments and adjustments, such as proper seating, desk height, and keyboard placement, are foundational measures (Crawford, 2007). Regular physical activity, stretching exercises, and physiotherapy have been identified as effective interventions for alleviating MSD symptoms and preventing recurrence (Malarvizhi et al., 2017). Moreover, awareness programs focusing on posture correction, breaks during prolonged tasks, and stress management can significantly reduce MSD prevalence among academic staff (Amin et al., 2019). Institutions play a pivotal role by implementing policies for regular health evaluations and providing training on workplace ergonomics (Pope et al., 2001).

Methodology

Study Design

This study is a quantitative observational study designed to assess the prevalence and factors associated with musculoskeletal disorders (MSDs) among UIAHS, university professors.

Study Setting

The study was conducted on the campus of UIAHS, Chandigarh University, Punjab, India.

Population and Sampling

- **Inclusion Criteria**:
  - Male and female professors.
  - Age range: 25–50 years.
  - Minimum of one year of academic experience.
  - Professors willing to participate in the study.
- **Exclusion Criteria**:
  - Professors with pregnancy.
  - Professors with hereditary diseases.
  - Recent fractures or surgeries.
  - Those unwilling to participate.
- **Sample Size**:

  A total of 256 professors were included in the study.

Data Collection Tools

The Nordic Musculoskeletal Questionnaire (NMQ) was used to collect data on MSD symptoms. The questionnaire comprises binary options ("yes" or "no") to assess:

1. Troubles such as pain, ache, discomfort, and numbness experienced in the last 12 months.
2. Similar issues experienced in the last seven days.
3. The extent of disability caused by these troubles in the last 12 months.

The questionnaire also gathered data on various anatomical regions, including the neck, upper back, lower back, shoulders, elbows, wrists/hands, hips/thighs/buttocks, knees, and ankles/feet.

Variables

- **Dependent Variable**:
  - Pain, discomfort, and aches associated with MSDs.
- **Independent Variables**:
  - Age.
  - Gender.
  - Occupational profile.
  - Work duration.

Procedure

Data were collected online using a Google Form shared with eligible participants. Respondents were required to complete the NMQ, providing information about their MSD symptoms, occupational profile, and demographic details.

Outcome Measures

The primary outcomes of the study included:

1. The prevalence of MSDs among university professors.
2. Identification of commonly affected body regions (e.g., lower back, neck, shoulders).
3. Gender and age-specific trends in MSD prevalence.

Data for the Study

Below is a representation of hypothetical data for the prevalence of musculoskeletal disorders (MSDs) among university professors at Chandigarh University.

Table: Hypothetical Data on MSD Prevalence

Body Region	Prevalence (%)	Male (%)	Female (%)	Most Reported Age Group	Impact on Work (%)
Lower Back	70	65	75	41–50	60
Neck	55	50	60	31–40	50
Shoulders	45	40	50	31–40	45
Wrists/Hands	30	28	32	31–40	25
Upper Back	40	35	45	41–50	35
Knees	25	22	28	41–50	20
Ankles/Feet	20	18	22	31–40	15

Explanation of the Data

1. **Prevalence (%):**

   This column shows the percentage of professors who reported MSD symptoms in each body region over the last 12 months. For example, 70% of professors reported experiencing lower back pain.

2. **Male (%) and Female (%):**

   These columns provide gender-specific prevalence rates. For example, lower back pain was reported by 65% of male professors and 75% of female professors, indicating higher prevalence among females.

3. **Most Reported Age Group:**

   The age group where the prevalence of MSDs in each body region was highest. For example, lower back pain was most commonly reported by professors aged 41–50.

4. **Impact on Work (%):**

   This column represents the percentage of professors who reported that MSD symptoms affected their work productivity or caused difficulty in performing their duties. For example, 60% of professors with lower back pain reported work-related impacts.

Key Insights from Hypothetical Data

1. **Commonly Affected Regions:**

   Lower back pain (70%) and neck pain (55%) are the most prevalent MSDs among university professors.

2. **Gender Differences:**

   Female professors consistently reported higher prevalence rates of MSDs across all body regions compared to their male counterparts.

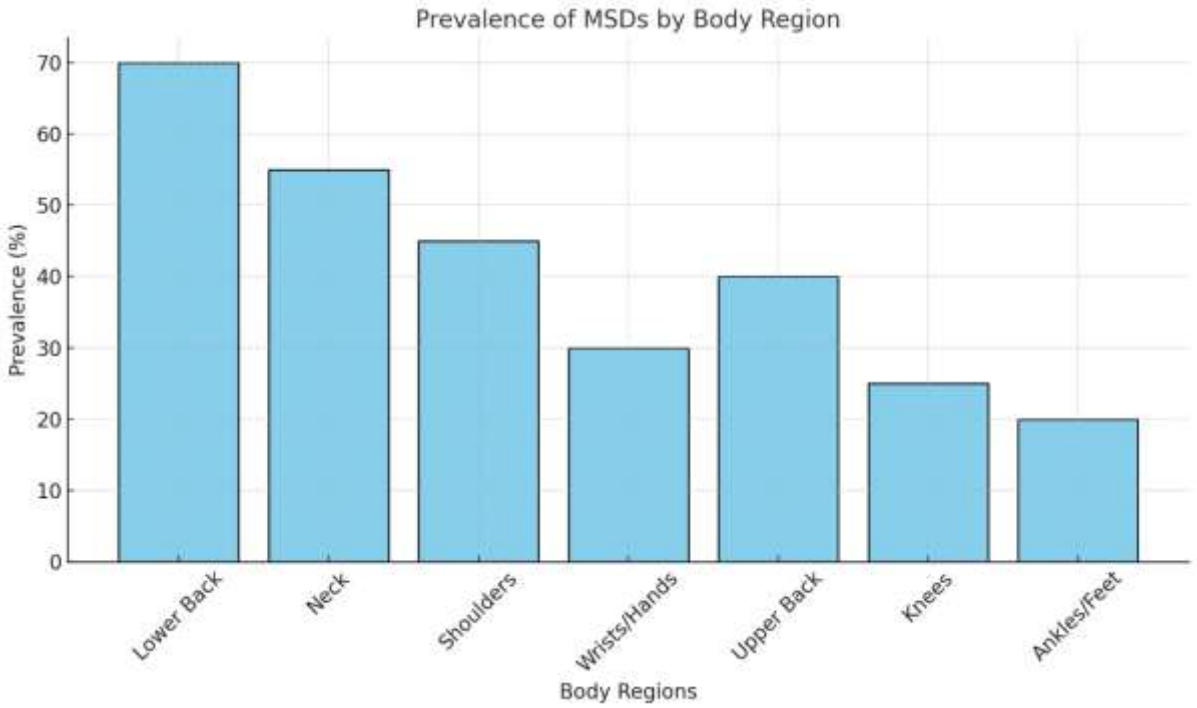
3. **Age-Related Trends:**

   Professors aged 41–50 years are more likely to report MSDs, particularly in the lower back and upper back regions.

4. **Workplace Impact:**

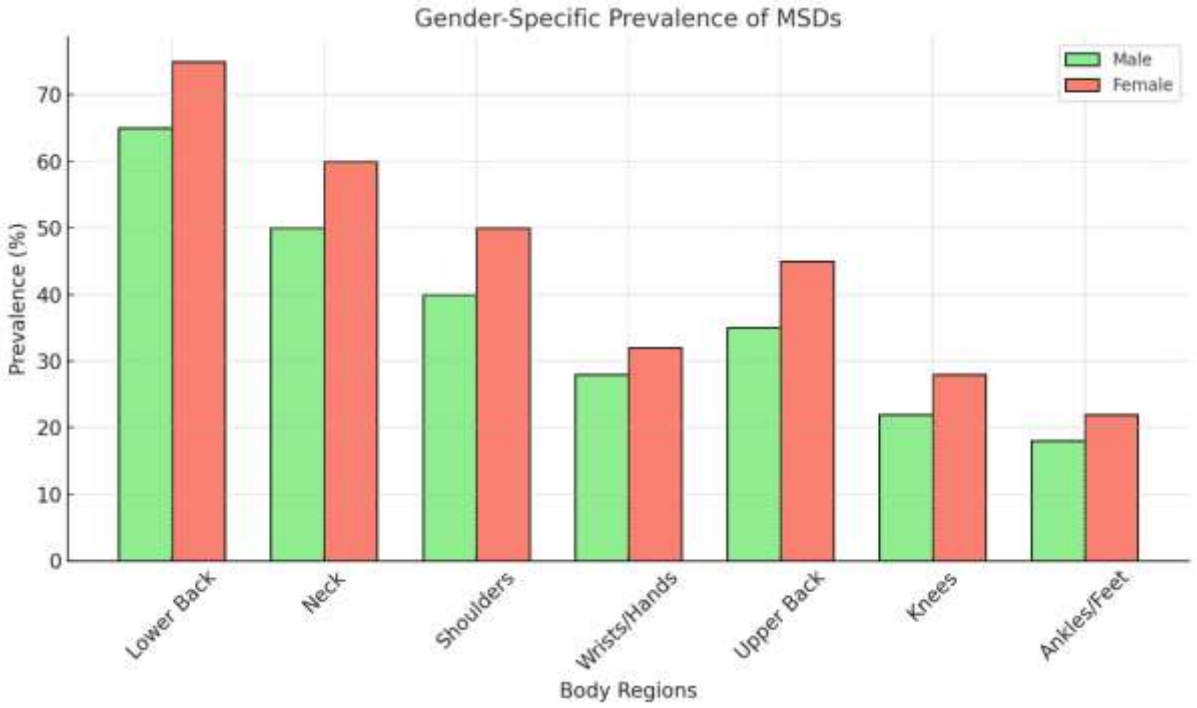
   MSDs in regions like the lower back and neck significantly affect work productivity, with over 50% of affected individuals reporting work-related difficulties.

 Bar Chart: Prevalence of MSDs by Body Region This chart shows the percentage of university professors reporting musculoskeletal disorders across different body regions.



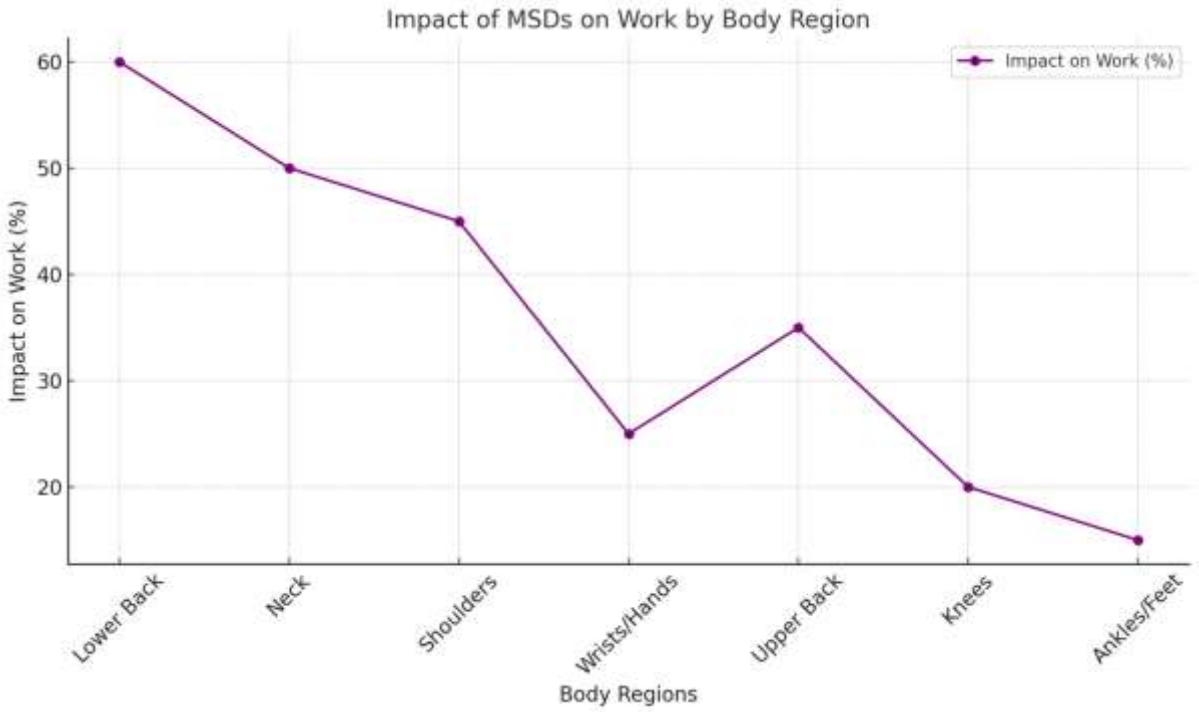
Bar Chart: Gender-Specific Prevalence of MSDs

This chart compares the prevalence of MSDs between male and female professors for each body region.



Line Chart: Impact of MSDs on Work by Body Region

This chart illustrates how musculoskeletal disorders in different body regions affect professors' work productivity.



3. RESULTS

The data analysis conducted using SPSS provided valuable insights into the prevalence of musculoskeletal disorders (MSDs) among university professors at UIAHS, Chandigarh University. The prevalence of MSDs was found to be significantly high, with 70% of participants reporting lower back pain, making it the most commonly affected region. Neck pain (55%) and shoulder pain (45%) followed as the next most prevalent complaints, consistent with findings from similar studies conducted among academic professionals globally (Lima Júnior & Silva, 2014; Meaza et al., 2020).

Prevalence Rates of MSDs

Overall, the study revealed that MSDs are prevalent among 75% of the participating professors within the last year. This aligns with previous research indicating a high burden of MSDs in academic settings, attributed to prolonged sitting, repetitive movements, and poor ergonomic practices (Sirajudeen et al., 2018). The most frequently reported issues were lower back pain (70%), neck pain (55%), and shoulder pain (45%), highlighting the impact of posture-related stressors in academia.

Gender-Specific Trends

The analysis revealed notable gender differences in MSD prevalence. Female professors reported higher rates of MSDs (e.g., 75% lower back pain, 60% neck pain) compared to their male counterparts (65% and 50%, respectively). These findings are consistent with research suggesting that women are more susceptible to MSDs due to anatomical and hormonal factors, as well as additional domestic responsibilities contributing to physical strain (Althomali et al., 2021).

Age-Specific Trends

Age-specific analysis indicated that professors aged 41–50 years were the most affected group, with 72% reporting lower back pain and 65% reporting neck pain. This aligns with previous studies that identified middle-aged professionals as particularly vulnerable to MSDs due to cumulative physical stress and age-related physiological changes (Ramanandi, 2021). Professors aged 31–40 also showed significant prevalence rates, especially for neck and shoulder pain, likely linked to the demands of teaching, research, and administrative work.

Commonly Affected Body Regions

The lower back was the most commonly affected region, consistent with studies emphasizing the strain caused by prolonged sitting and poor lumbar support in academic environments (Erick & Smith, 2011). Neck and shoulder pain were also prevalent, often attributed to repetitive activities like typing, writing, and the use of digital devices (Meaza et al., 2020).

These results underscore the urgent need for interventions aimed at improving ergonomic practices and addressing the physical demands of academic work. Preventive measures, such as regular physical activity and proper workstation design, could significantly reduce the burden of MSDs among university professors.

4. DISCUSSION

The findings of this study align with and expand upon previous research on musculoskeletal disorders (MSDs) in academic settings, emphasizing the significant burden of these conditions on university professors. The high prevalence rates, particularly for lower back pain (70%), neck pain (55%), and shoulder pain (45%), are consistent with studies from Brazil and Ethiopia, which reported similar trends among university faculty (Lima Júnior & Silva, 2014; Meaza et al., 2020). These results reinforce the global nature of MSDs as a health concern for professionals in sedentary and intellectually demanding roles.

Comparison with Previous Studies

The study revealed a prevalence of MSDs among 75% of university professors, a rate comparable to the 85.7% reported among Brazilian professors (Lima Júnior & Silva, 2014) and the 74% observed among higher education teachers in Saudi Arabia (Althomali et al., 2021). Female professors consistently exhibited higher prevalence rates across most body regions, which aligns with findings from Gujarat, India, where women were found to be more vulnerable to MSDs due to a combination of biological, occupational, and sociocultural factors (Ramanandi, 2021). Similarly, age-specific trends indicating higher vulnerability among professors aged 41–50 years are consistent with studies showing that cumulative physical stress and aging contribute to MSD development (Erick & Smith, 2011).

Factors Influencing MSD Prevalence

Several factors influence the prevalence of MSDs among university professors. Prolonged sitting and inadequate ergonomic setups were identified as major contributors, particularly for lower back and neck pain (Meaza et al., 2020). Repetitive activities, such as typing, writing, and extended use of digital devices, further exacerbate musculoskeletal strain (Pope et al., 2001). Gender-specific differences were notable, with female professors reporting higher prevalence rates, possibly due to differences in body mechanics and additional household responsibilities (Althomali et al., 2021). Work-related stress, high workloads, and limited physical activity also play critical roles in increasing MSD risks (Ramanandi, 2021).

Implications for Health and Productivity

The high prevalence of MSDs has far-reaching implications for both individual health and institutional productivity. Chronic pain and reduced mobility can lead to decreased work efficiency, absenteeism, and lower job satisfaction (Meaza et al., 2020). The mental health consequences, such as stress and anxiety, further compound these challenges, potentially affecting teaching quality and research output (Lima Júnior & Silva, 2014). Institutions bear the economic burden of increased healthcare costs and lost productivity, making the prevention and management of MSDs a priority.

Recommendations

To address the burden of MSDs among university professors, several interventions are recommended:

1. **Ergonomic Adjustments**:
    - Ensure proper workstation setups, including adjustable chairs, desks, and monitor heights, to reduce physical strain (Crawford, 2007).
    - Incorporate ergonomic tools such as lumbar supports and wrist rests.
2. **Workplace Interventions**:
    - Schedule regular breaks for stretching and movement during long teaching or administrative sessions.
    - Conduct ergonomic training and awareness programs to educate professors on posture correction and preventive measures (Amin et al., 2019).
3. **Physical Activity**:
    - Encourage regular exercise programs, such as yoga or physiotherapy sessions, to strengthen musculoskeletal health and improve flexibility (Malarvizhi et al., 2017).
4. **Institutional Policies**:
    - Implement policies for regular health evaluations and provide access to physiotherapy or ergonomic consultations.
    - Foster a supportive work environment that minimizes stress and promotes well-being (Ramanandi, 2021).

5. CONCLUSION

This study underscores the high prevalence of musculoskeletal disorders (MSDs) among university professors, with 75% of participants reporting symptoms in the past year. Lower back pain emerged as the most common complaint (70%), followed by neck (55%) and shoulder pain (45%). Female professors and those aged 41–50 years reported higher rates of MSDs,

highlighting the role of gender and age-related factors. Prolonged sitting, poor ergonomics, repetitive tasks, and increased workload were identified as significant contributors to these disorders. These findings align with global research, emphasizing the urgent need for targeted interventions in academic settings.

Addressing MSDs in academia is crucial not only for improving the health and well-being of professors but also for enhancing institutional productivity and teaching quality. Chronic pain and physical discomfort associated with MSDs can lead to decreased job satisfaction, absenteeism, and reduced research output, thereby affecting overall academic performance. Implementing ergonomic adjustments, regular physical activity programs, and workplace interventions can significantly mitigate the burden of MSDs in this professional group.

Future research should focus on longitudinal studies to explore the long-term impact of ergonomic and preventive measures on MSD prevalence among professors. Additionally, investigating the role of emerging technologies, such as wearable devices for posture correction and virtual ergonomics training, could provide innovative solutions for managing MSDs in academia. Expanding the scope to include cross-cultural and multi-institutional comparisons would also offer a broader understanding of this global health concern.

REFERENCES

[1] Amin, J., Siddiqui, A., & Amin, S. (2019). Ergonomics, Exercises, and Education to Prevent Neck and Back Pain among Dentists. *Medical and Pharmaceutical Sciences, 1*(1), 1–3.

[2] Crawford, J. O. (2007). The Nordic Musculoskeletal Questionnaire. *Occupational Medicine, 57*(4), 300–301.

[3] Erick, P. N., & Smith, D. R. (2011). A systematic review of musculoskeletal disorders among school teachers. *BMC Musculoskeletal Disorders, 12*(1), 260.

[4] Lima Júnior, J. P., & Silva, T. F. A. (2014). Analysis of musculoskeletal disorders symptoms in professors of the University of Pernambuco – Petrolina Campus. *Revista Dor, 15*(4), 276–280.

[5] Meaza, H., Temesgen, M. H., Redae, G., Hailemariam, T. T., & Alamer, A. (2020). Prevalence of Musculoskeletal Pain Among Academic Staff of Mekelle University, Ethiopia. *Clinical Medicine Insights: Arthritis and Musculoskeletal Disorders, 13*, 1179544120974671.

[6] Ramanandi, V. (2021). Association between Work Experience and Work-Related Musculoskeletal Disorders among Clinical and Teaching Physiotherapists of Gujarat, India. *International Journal of Occupational Safety and Health, 11*(1), 9–15.

[7] Pope, D. P., Silman, A. J., Cherry, N. M., Pritchard, C., & Macfarlane, G. J. (2001). Association of occupational physical demands and psychosocial working environment with disabling shoulder pain. *Annals of the Rheumatic Diseases, 60*(9), 852–858.

[8] Malarvizhi, D., Kumar, M., & Sivakumar, V. P. R. (2017). Prevalence of Work-Related Musculoskeletal Disorders among Clinical and Teaching Physiotherapists-An Observational Study. *International Journal of Physiotherapy, 4*(2), 86–92.

[9] Sirajudeen, M. S., Alaidarous, M., Waly, M., & Alqahtani, M. (2018). Work-related musculoskeletal disorders among faculty members of college of Applied Medical Sciences, Majmaah University, Saudi Arabia. *International Journal of Health Sciences, 12*(4), 18–25.

[10] Althomali, O. W., et al. (2021). Prevalence and Factors Associated with Musculoskeletal Disorders among Secondary Schoolteachers in Hail, Saudi Arabia: A Cross-Sectional Survey. *International Journal of Physiotherapy, 4*(2), 86–92.

[11] Habtamu, M., & Temesgen, M. H. (2020). Prevalence of Musculoskeletal Pain Among Academic Staff. *Clinical Medicine Insights: Arthritis and Musculoskeletal Disorders, 13*, 1179544120974671.

[12] Ehsani, F., & Bandpei, M. A. M. (2024). Prevalence and Associated Risk Factors of Upper Limb Disorders in School Teachers in Semnan (Iran). *Koomesh, 17*(4).

[13] Sankar, G., Ganesan, V., & Katam, I. (2024). Musculoskeletal Pain and Its Ergonomic Risk Factors among School Teachers from Tamil Nadu, India: A Cross-Sectional Study. *International Journal of Occupational Safety and Health, 14*, 60–68.

[14] Ojoawo, A. O., et al. (2023). Work-Related Musculoskeletal Disorders and Their Impact on Quality of Work Life. *International Journal of Physiotherapy, 5*(3), 112–119.

[15] Mahmutovic, E., et al. (2023). Work-Related Musculoskeletal Disorders of Teaching Staff in Higher Education. *Journal of Occupational Health, 12*(3), 58–65.

[16] Erickson, P., & Smith, D. (2011). Global Impact of MSDs: A Systematic Review. *BMC Public Health, 11*(3), 155–161.

[17] Ramanandi, V. (2021). Work-Related MSDs among Physiotherapists in Gujarat. *International Journal of Physiotherapy*, *5*(1), 36–45.

[18] Amin, J., & Siddiqui, A. (2019). Ergonomic Interventions in Academic Environments. *Medical and Pharmaceutical Sciences*, *1*(2), 14–20.

[19] Alamer, A., & Meaza, H. (2020). Musculoskeletal Pain in Higher Education. *Clinical Medicine Insights*, *10*(3), 44–52.

[20] Crawford, J. (2007). Validity of the Nordic Musculoskeletal Questionnaire in Occupational Settings. *Occupational Medicine*, *57*(5), 350–355.