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An Investigation Into The Prevalence Of Musculoskeletal Disorders Among University Students: A Survey Study

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ABSTRACT

A cross-sectional survey was conducted to assess the prevalence of musculoskeletal disorders (MSDs) among university students at Desh Bhagat University, Mandi Gobindgarh, Punjab. A sample of 300 students (81.3% female, 18.7% male) aged 19–25 years was selected using convenience sampling. Data were collected via an interview schedule and the Nordic Musculoskeletal Questionnaire (NMQ), comprising 25 items on MSD symptoms. Informed written consent was obtained from participants. The study found that 70% of students experienced MSDs in the past 12 months, with pain most prevalent in multiple regions (42.1%), followed by neck (12.7%) and lower back (6.7%). The mean prevalence rate was 70% with a standard deviation of 3.2. Risk factors included prolonged study hours (44.3%), computer use (71%), and lack of physical activity (57.3%). Sleep duration was significantly associated with MSD prevalence ($p=0.004$). The findings indicate a high MSD burden among students, necessitating ergonomic interventions.

Key words: Musculoskeletal disorders, university students, prevalence, risk factors.

INTRODUCTION

Musculoskeletal disorders (MSDs) are conditions affecting muscles, bones, ligaments, tendons, and nerves, causing pain, disability, and reduced quality of life (Mirzaei et al., 2014). Globally, MSD prevalence among university students ranges from 32.9% to 89.3%, driven by prolonged sitting, poor posture, and intensive smartphone/computer use (Tantawy et al., 2017; Samaei et al., 2017). These factors, combined with academic stress and inadequate ergonomic conditions, increase MSD risk, particularly in the neck, lower back, and shoulders (Woolf et al., 2003). University students, often engaged in sedentary activities like studying and screen time, are vulnerable to MSDs, which can impair academic performance and well-being (Ogunlana et al., 2019). This study investigates the prevalence of MSDs among university students at Desh Bhagat University and identifies associated risk factors to inform preventive strategies.

OBJECTIVES

- To determine the prevalence of MSDs among university students.
- To identify the risk factors associated with MSDs among university students.
- To assess the association of MSD prevalence with selected demographic and clinical variables.

METHODOLOGY

A cross-sectional survey was conducted at Desh Bhagat University, Mandi Gobindgarh, Punjab, to assess the prevalence of musculoskeletal disorders (MSDs) among university students. A sample of 300 students (81.3% female, 18.7% male) aged 19–25 years was selected using convenience sampling. Inclusion criteria included enrollment in a university course and regular attendance; exclusion criteria included soft tissue injuries, fractures, congenital skeletal malformations, or joint diseases in the past 12 months. The data collection tool consisted of two sections: Section A: Demographic characteristics (e.g., age, gender, year of study, BMI). Section B: Nordic Musculoskeletal Questionnaire (NMQ) with 25 items assessing MSD symptoms in nine body regions over the past 12 months and 7 days. Data were collected through 20-minute interviews during students' leisure hours. Informed written consent was obtained from participants. Data were analyzed using SPSS version 26, with frequency, percentage distribution, mean, standard deviation, and chi-square tests to assess associations between MSD prevalence and demographic/clinical variables.

FINDINGS OF THE STUDY

Findings related to sample characteristics of University students:

The baseline data showed that the majority of students (81.3%) were aged 21–25 years, followed by 19–20 years (18.7%). Most students (81.3%) were female, and 18.7% were male. The majority (47.3%) were in their first year of study, followed by 28.7% in the second year. Regarding Body Mass Index (BMI), 46.3% had normal BMI, 44.7% were underweight, 8.7% were pre-obese, and 0.3% were obese. Most students (92.7%) were right-handed, 44.3% studied 2–4 hours daily, 71% used computers <2 hours daily, and 38% used mobiles <2 hours daily. Half of the students (50.7%) slept 6–8 hours nightly, and 57.3% were not involved in physical activity.

Findings related to MSD prevalence and risk factors:

The study found that 70% of students experienced MSDs in the past 12 months. The mean prevalence rate was 70% with a standard deviation of 3.2. Pain was most prevalent in multiple regions (42.1%), followed by neck (12.7%) and lower back (6.7%). Risk factors included prolonged study hours (44.3%), computer use (71%), mobile use (38%), and lack of physical activity (57.3%). Most students (78.3%) did not take pain medication, and 76.3% did not undergo physiotherapy, though 72.7% of those who did reported improvement.

Table 1 Frequency and Percentage Distribution of 12-Month MSD Prevalence

N=300

Level of MSD	Frequency	Percentage
MSD Present	210	70%
MSD Absent	90	30%

Table 2 Frequency and Percentage Distribution of Region-Wise MSD Prevalence

N=210

Body Region	Frequency	Percentage
Multiple Regions	88	42.1%
Neck	27	12.7%
Lower Back	14	6.7%
Shoulder	6	3.0%
Knee	6	2.8%
Upper Back	4	1.7%
Ankles/Foot	2	1.0%
Wrists/Hand	1	0.7%

Association of MSD prevalence with selected demographic and clinical variables:

The chi-square test showed no significant association between MSD prevalence and demographic variables such as age, gender, or year of study. However, sleep duration was significantly associated with MSD prevalence ($X^2=13.599$, $p=0.004$), indicating that students with shorter sleep durations (e.g., 4–6 hours, 31.3%) had a higher MSD prevalence.

DISCUSSION**Objective-1: To determine the prevalence of MSDs among university students**

The findings showed that 70% of university students experienced MSDs in the past 12 months, with a mean prevalence rate of 70% ($SD=3.2$). Pain was most prevalent in multiple regions (42.1%), followed by neck (12.7%) and lower back (6.7%). These results align with Senarath et al. (2021), who reported a 73.6% MSD prevalence among allied health students, and Hend et al. (2021), who found an 82% prevalence among medical students. The high prevalence may be attributed to prolonged sitting and poor ergonomic conditions (Ogunlana et al., 2019).

Objective-2: To identify the risk factors associated with MSDs among university students

The study identified prolonged study hours (44.3%), computer use (71%), mobile use (38%), and lack of physical activity (57.3%) as key risk factors. These findings are consistent with Muniba et al. (2018), who reported that prolonged static postures and inadequate physical activity precipitate MSDs. The significant association between sleep duration and MSD prevalence ($p=0.004$) suggests that sleep deprivation may exacerbate MSD symptoms, as supported by Lubas et al. (2019).

Objective-3: To assess the association of MSD prevalence with selected demographic and clinical variables

No significant association was found between MSD prevalence and age, gender, or year of study, possibly due to the homogeneous sample. However, the significant association with sleep duration ($X^2=13.599$, $p=0.004$) highlights a modifiable risk factor. This aligns with Tantawy et al. (2017), who linked academic stress and lifestyle factors to MSDs.

Limitations of the study

The study was delimited to:

- Students at a single university, limiting generalizability.
- A relatively small sample size of 300 students.

Conclusion

The study revealed a high prevalence of MSDs (70%) among university students, primarily affecting multiple body regions, neck, and lower back. Risk factors included prolonged study hours, computer/mobile use, and lack of physical activity, with sleep duration significantly associated with MSD prevalence. These findings underscore the need for ergonomic interventions, awareness programs, and promotion of physical activity to reduce MSD burden and enhance students' quality of life and academic performance.

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