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POSTURAL AWARENESS, COPING STRATEGIES, AND SITTING HABITS AMONG UNDERGRADUATE STUDENTS WITH MUSCULOSKELETAL DISORDERS. CROSS-SECTIONAL STUDY

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Abstract

Background: *University students are more susceptible to developing musculoskeletal disorders (MSDs) due to long sitting time, poor posture, and a sedentary educational environment. These conditions typically manifest with neck, upper back, and lower back discomfort and may be affected by behavioral and psychological coping patterns.*

Objective: *This study aimed to determine the prevalence of MS pain among undergraduate students, their postural habits, and coping strategies.*

Methods: *The study was conducted through a cross-sectional study approach over three months for 344 undergraduate students of UMT Lahore. Self-administered questionnaires were used for data collection, such as Body Awareness of Postural Habits in Young People (Q-BAPHYP) and Coping Strategies Questionnaire (CSQ). The subjects were aged 17-23 years and had a musculoskeletal complaint. Descriptive statistics were used for data analysis using SPSS version 21.*

Results: *Most participants were female (63%) and were aged 17-22 years. The most frequently reported pain locations were the neck, upper back, and lumbar spine. The pain occurred suddenly in 55% of students. The most frequently used pain management strategy was stretching (44%), and 32% used none. While 51% of students indicated that they had adequate support for their backs in class, there was a high number of students (43%) showing poor postural habits in class that included forward leaning; 41% of students showed trunk-twisting postural habits, and 52% of students exhibited poor sitting posture with legs crossed. The same situation was seen at the home. Side-lying was the most common sleeping position (56%). The coping*

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strategies most frequently reported were mostly adaptive, with praying (41%) and distraction techniques (35%).

Conclusion: *Undergraduate students are a highly prevalent population of musculoskeletal pain, and poor sitting position and length of sitting time are both highly correlated with musculoskeletal pain. Although many students know what posture is, they still have bad posture habits. The study underlines the importance of correcting postures, providing training in ergonomics, and developing organized pain management strategies in educational environments.*

INTRODUCTION

The posture of the body of a human being refers to the position of a person's body in space, the alignment of the parts of that body with the relationship to one another, and is influenced by all the joints of that body (Faisal et al., 2019; Sharma & Rawat, 2023). Posture has a direct relationship with gravity. Posture is the basic key to making a person sit, stand, or walk, and posture ensures a person can take the human body as a functional part of the environment (Quka et al., 2023). Posture is considered to be accurate if the person stands erect and the line of posture passes vertically straight from the external auditory meatus and passes slightly in front of the ankle joint and the center of the knee joint, slightly behind the center of the hip joint, and through the shoulder joint (Casler et al., 2024). Movement in a system with a skeletal malalignment will cause a pathology of joints, which will lead to poor and painful posture (Pandey et al., 2022; Garstka et al., 2022). Spine alignment as a posture can be defined by the posture committee of the American Academy of Orthopedic Surgeons as the relative arrangements of the parts of the body (Pumberger et al., 2018; Ye et al., 2023). A good joint position was defined as the state of muscular and skeletal balance. In a balanced structure, local and global muscles activate accordingly to protect the body and spine from injury during activities of daily living (Nahorna & Baur, 2023).

In recent years, education regarding posture has become tremendously common in many parts of the world as a strategy to mitigate the high prevalence of back pain and postural changes by altering inadequate postures that can result in spinal damage (Hilmi et al., 2024). Teaching postural behavior in postural schools and similar educational programs has been applied widely to the adult population in Brazil, as well as to children and adolescents, as adolescents are

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also affected by back pain and postural changes due to the high demand for educational outcomes in a very short timeframe. It is impossible to do activities of daily living without having an aligned posture (Valenciano et al., 2020; Araújo et al., 2023).

A good posture involves adapting the body to stand, walk, sit, and lie in a proper position (Kripa & Kaur, 2021). It also intercepts the spinal segments from bending in a pathological form and prevents muscular pain. Not any position could be an ideal sitting or standing position. It could be changed according to a person's ease (Korakakis et al., 2019). Poor spinal alignment leads to muscular imbalance due to heavy backpacks, prolonged sitting in front of electronic media, road accidents, and shifting of the center of gravity, such as in pregnancy (Warda et al., 2023). These factors lead to negative compensatory changes in the spine. Teachers and students are mostly affected by prolonged sitting because of their working criteria, which leads to poor alignment of posture and musculoskeletal pain and discomfort (Abdulraheem et al., 2025). When the line of gravity is away from the center, it will cause undue pressure on the body segments, and the attained posture is defined as a bad posture. Hence, body segments come closer to increase the pressure on joints and ligaments (Gheysvandi et al., 2019). A large number of populations are suffering from musculoskeletal pain due to poor postural habits in their lives; the most commonly affected classes are doctors, dentists, nurses, students, and shopkeepers. Musculoskeletal disorders of adults, such as neck, shoulder, and low back pain, have been widely reported as the major health and economic concern in developing countries (Chen et al., 2023). Some musculoskeletal disorders are congenital, but more are acquired, and these are mainly due to a lack of postural awareness (Shivakumar et al., 2024).

Coping is defined as purposeful strategies that people use to manage stressful events (Bhagat et al., 2020). Attributions or convictions, then again, are intellectual developments that serve as a focal point for deciphering the importance of occasions and settling on choices concerning how to respond to them. Both coping and beliefs are focal parts of current cognitive behavioral models of constant pain. According to The Handbook of Coping, coping with persistent pain may be defined as the thoughts and actions in which people engage in their efforts to manage pain

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in their activities of daily living (Clauw et al., 2019). These diverse efforts include interventions as global as cognitive-behavior therapy and other self-management programs like diversion, ignoring the pain, hoping, and coping self-statements developed to help individuals cope with a large number of problems associated with pain, to specific strategies designed to manage the sensory intensity of a discrete episode of pain (Bendelin et al., 2020).

Because of these stationary exercises, youngsters have spent most of their time sitting down since they engage in significant stretches in this situation during classes, with the time spent at home before the PC playing video games and sitting in front of the TV also contributing (Kowaluk & Woźniewski, 2019). At the point when a person stays situated for a long time, he/she will in general embrace an improper posture, loose and bent, leading to improper postural habits and causing a progression of postural compensations and complaints of uneasiness, as well as pain. There is a relationship between improper postural propensities and outer muscle issues in youngsters, and many elements can support these body alterations, such as the changes and transformations to their own body changes, psychosocial demands, and questions identified with the excessive load of school knapsacks; furthermore, their utilization in an uneven and unseemly way and ergonomic hardships (Eckert et al., 2023). The securing of sufficient body practices and postural propensities should be formed during pre-adulthood, limiting postural problems in adult life and their outcomes. Hence, the early recognition of postural changes and outer muscle hazards is fundamental for the use of a preventive and instructive approach.

The motivation behind this review was to foster one-and two-item renditions of the subscales in five usually utilized torment conviction and adaptation measures that would sufficiently address the measurements surveyed by the original measures. In a few circumstances, it may not be possible to utilize more than one thing to survey a conviction or system, requiring the utilization of single-thing measures. Nonetheless, the utilization of a solitary thing to evaluate a development has psychometric impediments, including restricted content validity, considering that only one part of a development can be evaluated.

Methodology:

Study design:

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This is a cross-sectional study conducted on the undergraduate students of different departments of UMT Lahore

Study Settings:

The data was collected from undergraduate students

Duration of Study:

The whole study was completed within a period of 3 months at the University of Management and Technology.

Sample size:

The total number of undergraduate students (both boys and girls) who were consulted in the study was three hundred and forty-four (344).

Sampling technique:

Samples were randomized through purposive sampling.

Inclusion and exclusion criteria:

Inclusion criteria:

Undergraduate students of UMT ranging between 17 and 23 years of age

Any Musculoskeletal issue (Back pain, shoulder pain, neck pain)

Exclusion criteria:

The students, other than undergraduates

- Neurological disorders
- Peripheral nerve injuries
- Muscular dystrophies.

Data collection tool:

The data collection tool was a self-administered closed-ended questionnaire

1: Questionnaire on Body awareness of postural habits in young People (Q-BAPHYP)

2: Coping Strategies Questionnaire (CSQ)

3: Coping strategies rating 1-7

Data collection method:

Data was collected by 3 simple questionnaires. Study objectives were described, after which each undergraduate student was given a participant information statement and questionnaire. Informed consent was signed, which included the volunteer's declaration of the right to withdraw and confidentiality of their details.

Data analysis:

Data was analyzed by using SPSS version 21 for data entry. Descriptive data through tables and pie charts to interpret the output

Results:

A total of 344 undergraduate students with musculoskeletal disorders participated in the study. The majority of the participants were female (63%), and males made up 37% of the sample size. Participants were mostly aged 17-22. Students were from different academic departments, with the majority being from the School of Health Sciences (30%), followed by

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the School of Sciences (20%) and the School of Social Sciences and Humanities (19%). When it comes to the onset of musculoskeletal pain, 55% said it happened all at once, while 45% said it was gradual. Neck, upper back, and lumbar pain were the most frequent sites of pain. The most frequently used pain management strategy was stretching (44%), and 32% of the students did not use any one method of managing pain. A survey of the students' sitting habits in class indicated that 51% of the students said that their backs were well supported at school. A significant number, however, showed postural behaviors that could be potentially harmful: sitting with the body tilted forward (43% sometimes), the upper body twisted (41% sometimes), and with the hips slipping forward (38% sometimes). Further, 52% of the participants said that they often sat cross-legged in class. 64% of students said that they sat with adequate back support at home. However, 49% sometimes sat with their bodies leaning forward, and 39% sometimes sat with a twisted trunk. 51% of participants reported continuing to sit cross-legged.

A study of sleeping positions showed that the most preferred sleeping positions are side-lying (56%), sleeping on the back (50%), and sleeping on the stomach (40%). Results from the coping strategies assessment showed that students were frequently using coping strategies that were adaptive in managing their musculoskeletal pain. Most common strategies were thinking about fun activities (54%), praying for pain to go away (46%), engaging in pleasurable activities (e.g., watching TV, listening to music) without pain (50%), and imagining pain as a challenge to be overcome (e.g., it should not stop me from doing daily activities) (37%). When participants ranked coping strategies in order of preference, the most preferred coping strategy was praying and hoping, which was listed by 41% of the students. The next highest scores were for Diverting Attention (28%), Coping Self-Statements (25%), and Increased Behavioral Activities (25%). However, reinterpreting pain sensations, catastrophizing, and ignoring sensations were not as commonly preferred. The results overall show that although many undergraduate students knew how to sit, there were some poor sitting habits. Moreover, the most frequent positive coping strategies that students used to deal with their MSDs were praying and hoping, distraction techniques, and increasing the number of activities.

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Figure 1: Number of participants from each school

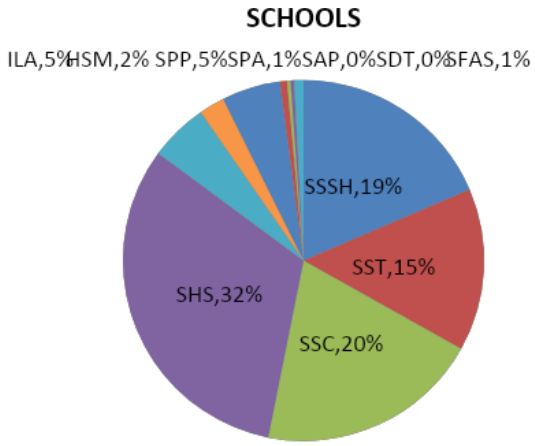

Figure 1: Shows that 30% of students were selected from the School of Health Sciences (SHS), 20% were selected from the School of Sciences (SSC), 19% were selected from the School of Social Sciences and Humanities (SSSH), 15% of students were selected from the School of Systems and Technology (SST), 5% of students were selected from the School of Professional Psychology (SPP) and the Institute of Liberal Arts (ILA), 2% of students were selected from the Hassan Murad School of Management (HSM), 1% of students were selected from the School of Professional Advancement (SPA) & the School of Food and Agricultural Sciences (SFAS), 1 student was selected from the School of Architecture and Planning (SAP), and 1 student was selected from the School of Design and Textile (SDT).

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Figure 2: Percentage of Participants from each semester

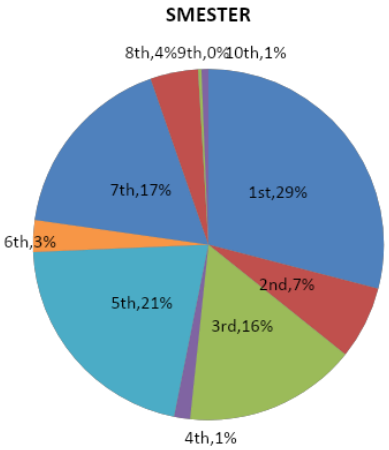
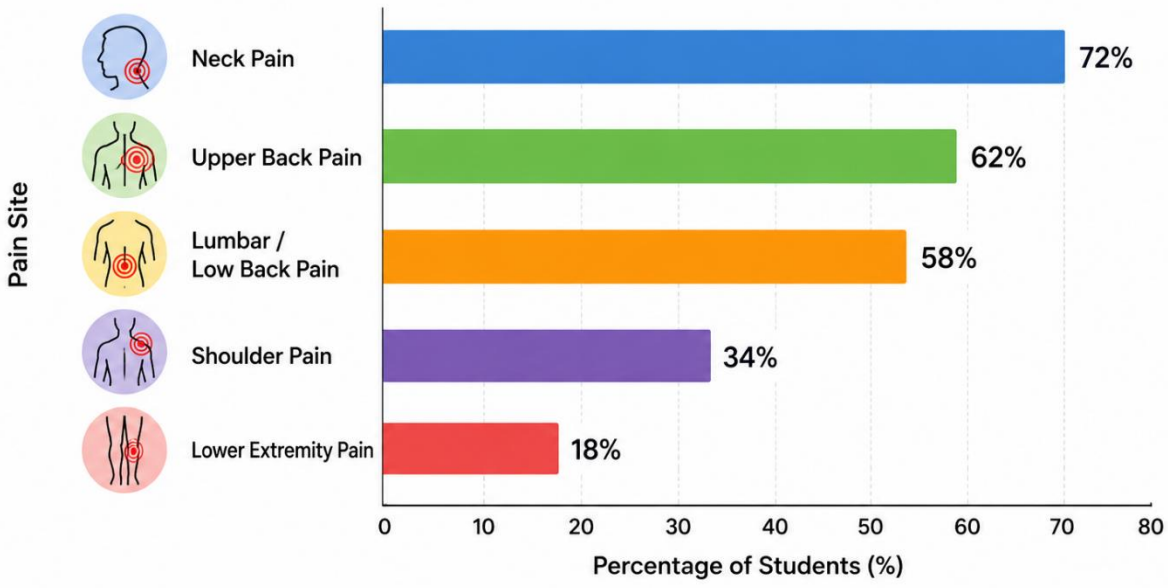


Figure 4.2 shows that 29% of participants were from the 1st semester, 7% of participants were from the 2nd semester, 16% of participants were from the 3rd semester, 2% of participants were from the 4th semester, 21% of participants were from the 5th semester, 3% of participants were from the 6th semester, 17% of participants were from the 7th semester, 4% of participants were from the 8th semester, 1 participant was from the 9th semester, and 2 participants were from the 10th semester. Most of the students participated from the 1st, 3rd, 5th, and 7th semesters.

Figure 3: Prevalence of Musculoskeletal Pain Sites Among Undergraduate Students



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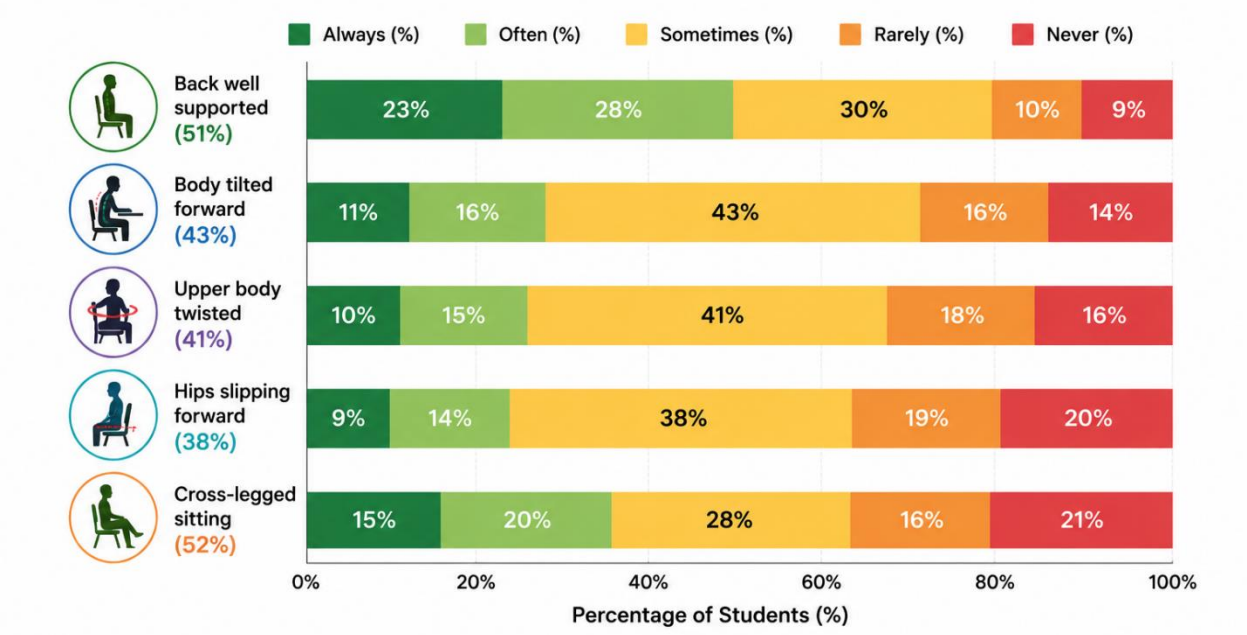
Distribution of musculoskeletal pain among undergraduate students. Neck, upper back, and lumbar pain were the most frequently reported musculoskeletal complaints among the study participants.

Figure 4: Posture behaviors in the classroom



Prevalence of sitting postures adopted by undergraduate students in the classroom. Cross-legged sitting and forward-leaning posture were among the most commonly reported sitting behaviors.

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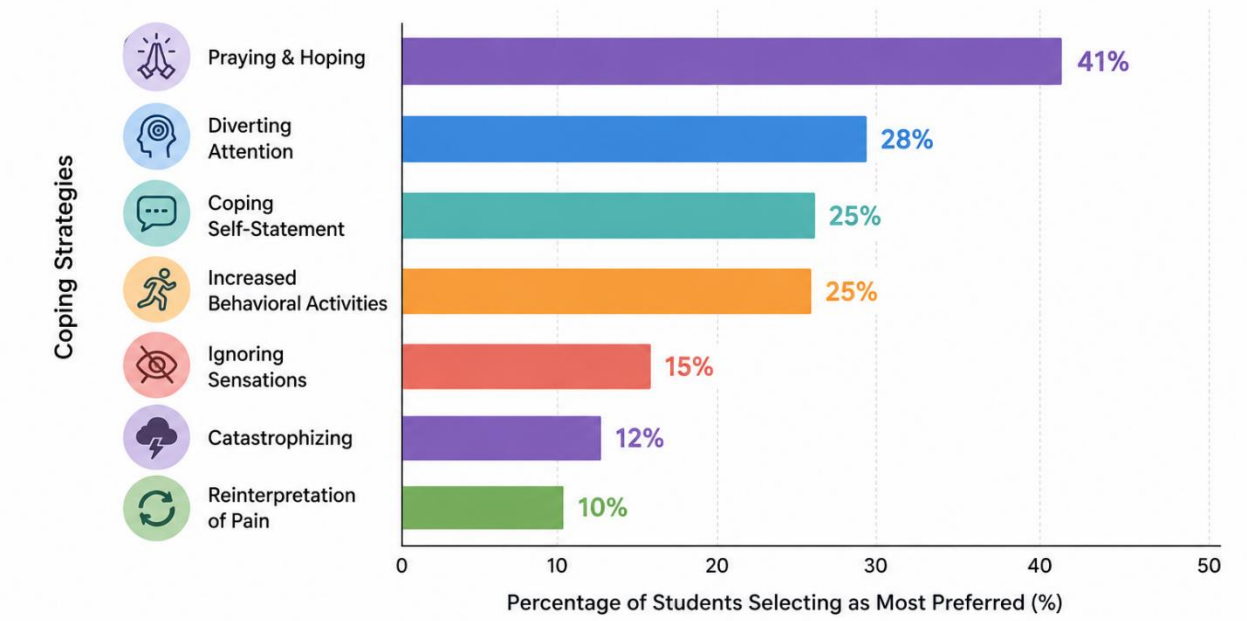
Figure 4: Most Common Coping Strategies for Musculoskeletal Pain by Undergraduate Students



Preference of coping strategies among undergraduate students with musculoskeletal pain. Praying and hoping was the most preferred coping strategy (41%), followed by diverting attention (28%), coping self-statements (25%), and increased behavioral activities (25%). Reinterpretation of pain sensation (10%) was the least preferred coping strategy.

Conclusion:

The results of this study suggest that musculoskeletal disorders are a problem for undergraduates, with neck, upper back, and lumbar areas being the main concern. While many students sat with good back support, many students presented poor sitting postural behaviors both at school and at home, including forward leaning, trunk twisting, and cross-legged sitting. These habits indicate a lack of understanding and implementation of postural practices. The results also revealed that students mainly use adaptive coping strategies, the most common of which are to pray and hope, to distract themselves, and to engage in pleasurable activities. But a significant number of students are not actively implementing any systematic approach to pain management, indicating that there is low awareness or guidance. The study concludes that there is a need to focus on early intervention, such as through ergonomic awareness, posture education, and behavioral

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modification programs, in general. School-based interventions to address the issue of musculoskeletal pain may have a beneficial effect on the students' overall physical health and academic functioning.

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