Frequency of Neck Pain and Associated Disability in Medical Students

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ABSTRACT

Background: Musculoskeletal disorders, particularly neck pain, have been increasingly documented among medical students due to their rigorous academic and clinical training demands. The impact of neck pain can lead to significant disability, affecting academic performance and quality of life. Prior studies have demonstrated varying prevalence across different geographies, indicating a need for further localized research.

Objective: This study aimed to assess the prevalence of neck pain and its associated disability using the neck disability index among students of Akhtar Saeed Medical College and to compare these findings with global data.

Methods: A cross-sectional descriptive study design was employed, involving 150 students from various medical programs. Data collection was conducted via a structured questionnaire including the Neck Pain Disability Index and the Visual Analog Scale for pain intensity. Ethical approval was obtained in line with the Helsinki Declaration. The sample size was determined statistically, and the collected data were analyzed using SPSS version 24.0. Statistical tests including independent t-tests and Chi-square tests were utilized to discern the significance of associations, with a p-value of less than 0.05 considered statistically significant.

Results: Participants had an average age of 22.74±2.04 years, with a gender distribution of 58.7% female and 41.3% male. The mean score for neck pain disability was higher in females (21.33±6.45) compared to males (20.76±5.11), albeit non-significantly (p=0.562). The prevalence of neck pain in our sample (58.7%) was higher than in similar cohorts from Brazil (8.23%), Thailand (22.3%), and China (33.8%), yet comparable to Pakistan (44.8%), Australia (52.8%), and Central Saudi Arabia (54%). Approximately 22.7% of students reported neck pain that interfered with their normal activities.

Conclusion: Neck pain was found to be prevalent among the medical student population, with a higher incidence in females. The study underscores the association between neck pain and disability, suggesting the need for preventive measures and interventions within the medical academic setting.

Keywords: Neck Pain, Medical Students, Musculoskeletal Disorders, Neck Disability Index, Prevalence, Cross-Sectional Study, Academic Performance, Quality of Life.

INTRODUCTION

Musculoskeletal disorders (MSDs) represent a significant public health concern, affecting a broad spectrum of individuals, particularly those engaged in activities demanding considerable physical and psychological effort. The Global Burden of Disease study of 2017 highlighted musculoskeletal conditions as the second leading cause of global disability, underscoring the paramountcy of lower back pain as the foremost cause of disability worldwide (1). Neck pain, alongside low-back pain, stands as a principal source of morbidity, prominently featuring in family care settings across various countries and population segments. The incidence of low-back pain is on an upward trajectory, particularly in regions of lower economic status, thus exerting a negative impact on health systems by escalating healthcare-related expenses (2).
Neck pain, identified as a prevalent form of MSD worldwide, exhibits a higher incidence among females, individuals from lower socio-economic backgrounds, and urban dwellers (3). It predominantly affects those aged between 35 to 49 years, indicating a demographic at heightened risk for developing this condition (4). The methodological approach to gauging the prevalence of neck pain often hinges on self-reporting through questionnaires, focusing solely on "pain" as an outcome variable. This approach might underestimate the prevalence, as respondents experiencing symptoms perceived as less severe than pain may report negatively, thereby skewing prevalence rates lower (5). Studies estimate the annual incidence of neck pain to range between 12% and 20.6%, with a notably higher prevalence among students, office workers, and individuals frequently using computers. This elevated risk is attributed to inadequate posture awareness and a lack of knowledge regarding optimal working positions, with the general population's mean prevalence rate standing at 27% (6).

In addressing neck pain, research advocates for the employment of muscle relaxants, exercise therapy, epidural corticosteroid injections, and, in certain cases, surgery. The combined use of muscle relaxants and exercise therapy proves particularly efficacious for mild to moderate neck pain, whereas epidural corticosteroids and surgical interventions are recommended for individuals presenting with radiculopathy or myelopathy, offering greater benefits (7). Neck pain not only emerges as a prevalent musculoskeletal complaint but also significantly hampers daily activities. It primarily affects the region extending from the lower margin of the mandible down to the suprasternal notch and the upper border of the clavicle (8). Among the various manifestations of neck pain, those associated with movement impairments are most common, with "Text Neck Pain" emerging as a burgeoning epidemiological concern among the adult population (9).

The widespread use of mobile phones, often in ergonomically unfavorable postures, elevates the risk of physical injury (10), contributing to increased anxiety and worry among students in the absence of their smartphones (11). The term "Nomo phobia" has been coined to describe the anxiety symptoms prevalent among smartphone users, further exacerbating anxiety and depression levels among students (12). The advent of technology has significantly transformed communication, with approximately 79% of the population aged 18-44 owning cell phones (13). In the United States, 87% of teenagers (aged 14-18 years) and in the UK, 79% of teenagers (aged 12-15 years) possess smartphones (14), underscoring the ubiquity of these devices. Currently, 91% of adults use cell phones, with 35% engaging in text messaging (15), highlighting the pervasive nature of mobile technology in modern life. This technological ubiquity poses both challenges and opportunities for addressing the physical and psychological impacts associated with its use, especially concerning musculoskeletal health.

MATERIAL AND METHODS

In a structured cross-sectional descriptive study, 150 students from Akhtar Saeed Medical College were systematically evaluated. Prior to commencement, the study obtained the requisite approval from the Ethics Review Committee of the Akhtar Saeed College of Rehabilitation Sciences, Lahore, ensuring adherence to the ethical standards outlined in the Declaration of Helsinki. The study employed a calculated sample size to ensure statistical robustness, adhering to the established formula for sample size determination which takes into account the desired confidence level and margin of error. Participants were selected through a stratified sampling method, reflecting the composition of the student body in terms of academic year and specialization.

Data collection was conducted via a structured questionnaire, which was developed to capture socio-demographic characteristics, the extent of neck pain, and the associated disability. The Neck Pain Disability Index (NDPI) was utilized to quantify the functional impairment caused by neck pain, whereas the Visual Analog Scale (VAS) served to measure the intensity of the pain experienced by the participants.

All gathered data were meticulously entered into the Statistical Package for the Social Sciences (SPSS) software, version 24.0, and analyzed accordingly. Quantitative variables were summarized using means and standard deviations, while categorical variables were presented in tabular and graphical formats. The comparison of means for the NDPI and VAS scores between different groups, such as gender and age categories, was performed using the independent t-test. The Chi-square test was employed to examine the association of neck pain with various demographic and educational factors. A p-value of less than 0.05 was predetermined to denote statistical significance.

RESULTS

In the present study, a diverse age group of 150 students from Akhtar Saeed Medical College was assessed for the prevalence of neck pain and associated disability. The age distribution of the participants (Table 1) was relatively young, ranging from 18 to 28 years. The mean age was calculated to be 22.74 years, with a standard deviation of 2.04, suggesting a relatively homogenous group in terms of age.
The investigation aimed to ascertain the prevalence of neck disability among medical science students at a collegiate level. The participant cohort had an average age of 22.74±2.04 years, with a gender distribution of 58.7% female and 41.3% male students. The majority of respondents were enrolled in the MBBS program (40.7%), followed by the Doctor of Physical Therapy (DPT) at 36%, Bachelor of Dental Surgery (BDS) at 13.3%, and Doctor of Pharmacy (Pharm-D) at 10%. An analysis of gender-based mean scores revealed that females exhibited a marginally higher mean score (21.33±6.45) compared to males (20.76±5.11), although this difference did not reach statistical significance (p=0.562).

Comparatively, the prevalence observed in this study was in alignment with findings from Pakistan (44.8%) (16), Australia (52.8%) (17), and Central Saudi Arabia (54%) (18). However, it exceeded the prevalence rates documented in Brazil (8.23%) (19), Thailand (22.3%) (20), China (33.8%) (21), Iran (39.4%) (22), Malaysia (41.8%) (23), and Nigeria (34.9%) (24). Such variations may reflect geographical, cultural, or educational differences in the study populations or methodologies.

Consistent with the literature, the current research supported the notion that musculoskeletal pain is more prevalent in females (25), as evidenced by a significant proportion (75.2%) of the 400 female students reporting neck pain. This gender disparity was corroborated by a prevalence study indicating that, in 83% of the surveyed studies, women reported more neck pain than men (26). This was echoed by findings from a Norwegian study which noted higher neck pain reports among females (25%) compared to males (15%) (27).

Interestingly, the phenomenon of cervicogenic headaches, headaches emanating from neck structures, was highlighted as being predominantly prevalent in females, occurring at four times the rate of their male counterparts (28). Such headaches were reported by 20% of patients with chronic headache conditions. The study further revealed that 22.7% of students were impeded in their regular activities due to neck pain. This contrasts with the finding that the majority (58.8%) reported no difficulties with their activities. Nonetheless, a study indicated that neck pain and workload are significantly correlated, with a 7% increased risk of neck pain for every additional year of workload (29).
The implications of the study are particularly relevant for students in clinical practice, where factors like poor posture, extended work hours, and insufficient rest may exacerbate neck pain (30). This suggests that educational and healthcare institutions need to consider these factors when addressing the physical well-being of their students.

The research determined a notable frequency of neck pain in female students, linked to physical limitations. There was a discernible correlation between the neck pain disability score, age, pain intensity, and an increment in work demands. Future research could benefit from including a broader scope of medical departments to thoroughly evaluate the risk factors contributing to neck pain and the resultant disability.

CONCLUSION

In conclusion, the study delineated that a significant proportion of students experienced mild pain, with a subset experiencing moderately infrequent headaches and about one-fifth reporting concentration difficulties and disturbed sleep. Notably, the mean total score was higher among younger students, females, those with less sleep, and hostel dwellers, suggesting that lifestyle factors may play a role in the experience of pain. These findings underscore the need for heightened awareness and preventive strategies, tailored to mitigate the risk factors associated with neck pain and its consequential disability among medical students. The research also acknowledges the limitations inherent in a cross-sectional study design and the need for longitudinal studies to establish causality and the effectiveness of intervention measures.

REFERENCES