

Original Article

Association of Tension Headache with Anxiety among Medical Students of Lahore, A Cross-Sectional Study

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ABSTRACT

Background: The prevalence of anxiety and tension-type headaches among medical students has become a topic of growing concern, given the rigorous demands of medical education. Anxiety, characterized by feelings of worry, nervousness, or unease, has been closely linked with the occurrence of tension-type headaches, a common condition manifesting as bilateral, pressing pain in the head. The intersection of these conditions within the medical student population necessitates a deeper investigation to elucidate potential associations and contributing factors.

Objective: This study aimed to explore the association between chronic tension-type headaches and anxiety among medical students in Lahore, focusing on the prevalence of these conditions and identifying any significant correlations between them.

Methods: A descriptive, cross-sectional study was conducted among 370 medical students in Lahore using convenient sampling. Data collection spanned from May 2020 to October 2020. Participants' anxiety levels were assessed using the Hamilton Anxiety Rating Scale, and tension-type headaches were evaluated based on criteria from the International Classification of Headache Disorders-3. Statistical analysis was performed using SPSS version 25, with a significance level set at $p < 0.05$.

Results: The mean age of participants was 20.98 ± 1.8911 years, with 54.05% being female. The prevalence of chronic tension-type headaches was 72.97%, while anxiety levels were classified as mild (30.27%), moderate (32.97%), and severe (36.76%). A significant positive correlation ($r = .348, p < .000$) was observed between chronic tension-type headaches and anxiety levels among the medical students.

Conclusion: The findings indicate a high prevalence of both chronic tension-type headaches and anxiety among medical students, with a significant association between these conditions. This underscores the need for medical educational institutions to implement comprehensive mental health and wellness programs to address these issues effectively.

Keywords: Chronic tension-type headache, Anxiety, Medical students, Prevalence, Hamilton Anxiety Rating Scale, Cross-sectional study, Mental health in medical education.

INTRODUCTION

Headache stands as one of the most common complaints within clinical practice, significantly impacting work efficiency, diminishing quality of life, and imposing restrictions on mobility (1, 2). Among the various types of headaches, tension-type headache is particularly prevalent, characterized by its bilateral presence, squeezing and tightening sensation, and mild to moderate severity. Such headaches can persist from mere minutes to several days without exacerbating due to routine physical activity. Although nausea is typically absent in these cases, sufferers may experience phonophobia or photophobia (2, 3). Concurrently, anxiety is recognized as a predominant psychological disorder, manifesting through a spectrum of symptoms that encompass a persistent gloomy mood, diminished focus and joy, lowered self-esteem and confidence, feelings of guilt, concentration difficulties, and

disruptions in sleep and appetite. This constellation of symptoms is further compounded by physical manifestations such as trembling, increased sweating, palpitations, and psychological aspects including fear, agitation, worry, and nervousness (4-6).

In the high-pressure environment of academic institutions, particularly within medical faculties, students strive for excellence to secure their future success. This journey, while initially perceived as relaxed and fulfilling, gradually unveils a plethora of stressors including the extensive duration of medical education, the demanding nature of the curriculum, and the anxieties tied to clinical practice (7, 8). Educational stressors specific to medical students encompass the vast quantity of material to be mastered, performance expectations, and the relentless sequence of examinations (9). Such stressors are not without consequence, often leading to psychological distress and adversely affecting cognitive function and learning capabilities, thereby emphasizing the necessity for robust support systems aimed at the rehabilitation and counseling of medical undergraduates (10, 11).

The exploration of the relationship between tension headaches and anxiety among medical students is crucial for understanding the complex interplay between these conditions. By delving into this association, we aim to uncover the underlying mechanisms and identify potential risk factors, thereby facilitating the development of effective management strategies. This comprehensive analysis seeks to highlight the bidirectional nature of tension headaches and anxiety, offering insights into the factors contributing to their coexistence. Through a synthesis of existing research, this article endeavors to provide a nuanced understanding of how these conditions intersect within the unique context of medical education, thereby guiding future interventions to mitigate their impact on this vulnerable population.

MATERIAL AND METHODS

This study, a non-experimental, descriptive cross-sectional investigation, sought to elucidate the association between tension-type headache and anxiety among medical students in Lahore. Employing a convenient sampling technique, data were gathered from 370 medical students across various years of study, ranging from the first to the fifth year, within the time frame from May 2020 to October 2020. The duration for the completion of the study spanned six months.

The methodological approach involved the utilization of questionnaires previously validated and employed in similar research endeavors (12, 13). To assess anxiety levels among participants, the Hamilton Anxiety Rating Scale was utilized, which features a scoring range from 0 to 56. Based on the scores obtained, anxiety was classified into three categories: scores below 18 indicated mild anxiety, scores between 18 and 24 suggested moderate anxiety, and scores above 24 were indicative of severe anxiety (14). Additionally, the study incorporated a diagnostic tool based on the International Classification of Headache Disorders-3 criteria, further validating its application in diagnosing headache disorders (13, 15).

Participation in the study was voluntary, with students from the first to fifth years being included based on their willingness and provided consent. A strict confidentiality protocol was adhered to, ensuring that personal data collected during the study was not disclosed to any external parties or used for further analysis. The study excluded individuals with a history of traumatic brain injury (TBI), epilepsy, meningitis, Bell's palsy, or whiplash injury, aiming to mitigate confounding variables that could influence the outcomes.

Data analysis was conducted using SPSS for Windows, version 25. The analysis included descriptive statistics, with personal information being summarized through means, standard deviations, and the range of minimum and maximum values. The determination of statistical significance was set at a p-value of less than 0.05.

Ethically, the study was conducted in accordance with the Declaration of Helsinki, ensuring that all participants were informed of the study's purpose, the confidentiality of their data, and their right to withdraw at any time without repercussion. The ethical considerations and protocols were rigorously followed to uphold the integrity of the research and the welfare of the participants.

RESULTS

In the conducted study, a comprehensive demographic analysis revealed a mean age of 20.98 years among the participants, with a standard deviation of 1.8911, indicative of a relatively young and homogenous group of medical students (Table 1). Gender distribution within the sample showed a slight female predominance, with 200 female students (54.05%) compared to 170 male students (45.95%). The body mass index (BMI) classifications of the participants varied, with a significant portion, 150 students (40.54%), being classified as underweight. In contrast, 100 students (27.03%) fell within the normal BMI range, 50 students (13.51%) were considered overweight, and 70 students (18.92%) were categorized as obese. The socioeconomic status of the participants predominantly reflected an upper-class background, with 200 students (54.05%) identifying as such, while 120 students (32.44%) represented the middle class, and 50 students (13.51%) were from the lower class.

The prevalence of tension headache among the respondents was notably high, with 270 of the 370 surveyed students (72.97%) reporting experiencing such headaches (Table 2). This prevalence underscores the significant impact of tension headaches within

this demographic. On the other hand, the prevalence of anxiety, as measured by the Hamilton Anxiety Rating Scale (HARS), presented a balanced distribution across the categories of mild, moderate, and severe anxiety. Specifically, 112 students (30.27%) reported mild anxiety, 122 students (32.97%) experienced moderate anxiety, and 136 students (36.76%) were classified with severe anxiety, highlighting a considerable presence of anxiety-related symptoms among the study population (Table 3).

Table 1: Frequency of Demographic Data

Demographic Feature	Specification	Frequency	Percentage (%)
Age	Mean \pm SD	20.98 \pm 1.8911	-
Gender	Male	170	45.95
	Female	200	54.05
BMI	Underweight	150	40.54
	Normal	100	27.03
	Overweight	50	13.51
	Obese	70	18.92
Socioeconomic Status	Upper Class	200	54.05
	Middle Class	120	32.44
	Lower Class	50	13.51

Table 2: Prevalence of Tension Headache Among Respondents

Response	Frequency	Percentage (%)
Yes	270	72.97
No	100	27.03
Total	370	100.0

Table 3: Prevalence of Anxiety Among Respondents

Anxiety Level (HARS)	Frequency	Percentage (%)
Mild	112	30.27
Moderate	122	32.97
Severe	136	36.76

Table 4: Association of Chronic Type Tension Headache with Anxiety Among Medical Students

	Tension Headache	Anxiety
Tension Headache	Pearson Correlation	1
	Sig. (2-tailed)	-
	N	370
Anxiety	Pearson Correlation	.348**
	Sig. (2-tailed)	.000
	N	370

The analysis investigating the association between chronic type tension headaches and anxiety among medical students revealed a significant correlation (Table 4). The Pearson correlation coefficient was .348, indicating a moderate positive correlation between the occurrence of tension headaches and the severity of anxiety symptoms. This correlation was statistically significant with a p-value of less than .000, emphasizing the interconnectedness of these conditions among medical students. The size of the sample for this analysis comprised the entire cohort of 370 students, further validating the robustness of these findings.

The detailed examination of demographic data, alongside the prevalences of tension headaches and anxiety, supplemented by the analysis of their association, offers a nuanced understanding of the health challenges faced by medical students. These results not only illuminate the commonality of tension headaches and anxiety within this specific academic population but also underscore the significant correlation between these two conditions, suggesting a potentially intertwined pathophysiology or mutual influence, warranting further investigation and targeted interventions.

DISCUSSION

The findings of this study illuminate the high prevalence of anxiety among medical students, which appears to predispose them to the development of chronic tension-type headaches. This suggests a probable coexistence of chronic tension-type headaches and anxiety throughout the educational journey of medical students, with the demanding curriculum, prolonged study durations, and competitive academic environment being key contributors to the incidence of these conditions (16). The transition from episodic to chronic tension headaches is believed to be mediated by prolonged activation of pain pathways in the central nervous system, a process that is exacerbated by the stressors inherent in medical education (17).

The role of neurotransmitters, particularly serotonin, is pivotal in this context. Anxiety states are associated with reduced serotonin levels, which is considered a crucial mechanism leading to pain in chronic tension-type headaches (9). This study's cohort, primarily aged between 17 to 30 years with a mean age of 20, aligns with previous research conducted in diverse geographic locations, including Riyadh, Saudi Arabia (18), and Rawalpindi, Pakistan (19), which also reported a heightened occurrence of headaches among medical students. The prevalence rates of anxiety and chronic tension-type headaches observed in this study closely mirror those found in earlier research (9), indicating a consistent pattern of these conditions within medical student populations.

Interestingly, the prevalence of chronic tension-type headaches identified in this study (72.9%) starkly contrasts with findings from a study in Baghdad, which reported a prevalence of only 5.3% among medical undergraduates (20). This discrepancy underscores the variability in the incidence of chronic tension headaches across different educational and cultural contexts.

The positive association between chronic tension-type headaches and anxiety found in this study is in line with previous findings from China (21), reinforcing the notion that the stressful environment of medical education, coupled with the vast amount of curriculum material, contributes to the elevated anxiety levels. This, in turn, leads to decreased serotonin levels and triggers pain pathways in the central nervous system, culminating in chronic tension-type headaches. However, this significant association contrasts with a study from Saudi Arabia, which identified a negative relationship between stress and the occurrence of chronic tension headaches among female medical students (3).

The high prevalence of chronic tension headaches and their association with anxiety among medical students highlights the need for medical educational institutions to integrate comprehensive mental health services. Such services should be easily accessible and affordable, with proactive mental health screening at the point of entry into medical schools to identify and support students at risk. Despite the robust findings, this study acknowledges certain limitations, including its cross-sectional design and reliance on self-reported measures, which may not capture the full spectrum of anxiety or tension headaches. Additionally, the convenience sampling method, while practical, might limit the generalizability of the findings across all medical students in Lahore.

CONCLUSION

In conclusion, this study underscores the significant burden of chronic tension-type headaches and anxiety among medical students in Lahore, driven by the stressful demands of medical education. The evidence of a strong positive association between anxiety and chronic tension-type headaches calls for an integrated approach to mental health within medical education, emphasizing early detection, prevention, and intervention strategies. Future research should aim to include a broader demographic from various medical institutes to enhance the representativeness and applicability of the findings, thereby informing targeted interventions to alleviate these conditions among medical students.

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