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Research Paper

A Study on The Clinical Characteristics and Causal Factors of Headache Among Pharmacy Students: A Cross-Sectional Survey

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ABSTRACT

Objective: To study the clinical characteristics and causal factors of headaches among pharmacy students.Methodology: A cross- sectional study design was conducted across five different pharmacy colleges in the Anand District. The purpose of the study was explained to the participants and they were included after signing the consent form. The data related to participant's demographics, clinical characteristics, associated symptoms, triggering factors, and relieving factors of headache were collected.Result: A total 375 participants were included in the study.The participants aged between 18 years to 29years, with 230(61.3%) females and 145(38.7%) males. The headache was unilateral,with185 (49.3%) participants experiencing sensation of pressure during the episode of headache. Majority of the participants, 209 (55.7%) experienced headaches that lasts for few hours. On evaluating this pain using visual analogue scale, about220(58.7%) participants reported headache of moderate intensity.269 (71.7%) and 207 (55.2%) participants reported disturbed sleep and stress, respectively, as triggers for their headache. Sleep was the most common relieving factor reported by 317 (84.5%) participants.Conclusion: Tension-type headaches are more common, influenced by sleep disturbance, stress, noise, and smartphone usage. Non-pharmacological treatments opted by participants include head massages and sleep.

INTRODUCTION

Headache also known as cephalgia, are a prevalent and debilitating condition that significantly affects the quality of life for many individuals, especially students engaged in rigorous academic programs.

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Headache are characterized by pain localized above the orbitomeatal line, in the nuchal ridge, or other cranial regions. They are broadly classified into primary headache, which occur independently and include migraine, tension-type headache, and cluster type headache; and secondary headache, which are associated with underlying medical conditions.[1]

The 2019 Global Burden of Disease (GBD) study estimated around 581.8 million migraine cases and 964.8 million tension-type headache (TTH) cases worldwide, representing increases of 16% and 37%, respectively, since 1990.[2] South Asia had the highest prevalence rates, with India alone reporting over 213.8 million migraine cases and approximately 374.5 million TTH cases—an 86.22% increase in prevalence since 1990.[3]

Healthcare students, particularly those in demanding fields like medicine, nursing, pharmacy etc. are highly vulnerable to headache due to intense academic pressures, rigorous curriculum , and long study hours. Stress, sleep disturbances and prolonged screen time are common triggers, contributing to a higher prevalence of headache compared to the general population.[4] Among pharmacy students, studies indicate that up to 66.1% experience severe headache episodes, often characterized by throbbing pain, pressure sensations, photophobia, and phonophobia.[5,6,7,]

Understanding the impact of headache on academic performance is crucial, as many students perceive these episodes as disruptive to their studies and daily activities. Though distribution of different types of headache varies with environmental, socio-demographic, lifestyle and genetic aspects, As per data reviewed a very less data is available on headache epidemiology in west zone of India.[8] By identifying common patterns and potential causal factors specific to this group, this research aims to contribute valuable insights that can enhance student well-being and support academic success.[9]

MATERIALS AND METHODS:

An Observational Cross-sectional study was conducted among Pharmacy students using purposive sampling. This was a questionnaire based study conducted between 13 January 2024 to 12 March 2024.The targeted population included pharmacy students pursuing Diploma in Pharmacy (D Pharm), Bachelor of Pharmacy (B Pharm), Master of Pharmacy (M Pharm), and Doctor of Pharmacy (Pharm D). Students of both gender, aged at least 18 years, who experienced at least one episode of headache in the last six months were considered for inclusion in the study. Students suffering from any neuropsychiatric disorder or secondary headache were excluded.

A total of 861 students were screened for inclusion in the study, out of which 375 met the inclusion criteria. They were explained the purpose of the study, and informed consent was obtained. Data related to participant demographics, clinical nature of the headache, associated symptoms, and triggering and relieving factors of headache were gathered. The data obtained was entered and analyzed using MS Excel.

RESULTS

Out of 861 students, 388 (45.06%) met the inclusion criteria. However, 13 (3.5%) students were excluded from the study pertaining to the past history of head injury, trauma or brain surgery.

Sociodemographic details: A total of 375 participants were included in the study. The age of the participants ranged from 18 years to 29 years with a mean age of 21 years. Out of 375 participants, 230 (61.33%) were female and 145 (38.67%) were male.

Clinical characteristics of headache in study participants: 173 (46.13%) participants had tension type headache, 80 (21.33%) had migraine headache, 118 (31.46%) had cluster headache and 4 (0.10%) had sinus headache. Most of the participants, 124 (33.1%) experienced headaches rarely, whereas 119 (31.7%) experienced it once a month, 114 (30.4%) experienced it once a week and very few, 18 (4.8%), experienced headache on daily basis *(Table 1).* 209 (55.7%) participants experienced headache that lasted for a few hours, while 128 (34.1%) had headache lasting for few minutes and only 38 (10.13%) reported headache which lasted for few days. In our study, out of 173 suffering from TTH, 58.38% experienced headache lasting a few hours while 14.45% experienced headache lasting for few days. Among 80 participants suffering from Migraine headache, 53.75 % reported headache lasting only few minutes while 45% reported their headache lasting for few hours. 118 participants suffered from cluster headache, majority of them, 60.17% had headache lasting few hours whereas 29.66% experienced headache lasting few minutes. Unilateral headache was a common feature in Migraine headache (81.25%) while Bilateral headache was a distinct feature for Tension type headache (62.43%). The severity of pain was evaluated using visual analogue scale, the results indicated moderate 220 (58.7%) being the most common characteristic among all the types of headaches, followed by mild 122 (32.5%), severe 28 (7.5%), and worst 5 (1.3%). Upon assessing the nature of headache, study participants described it as follows: burning 22 (5.9%), stabbing 64 (17.1%), dull ache 40 (10.7%), tight band 113 (30.1), and pressure 185 (49.3%).

Symptoms associated with headache: Out of 375 students, 80 participants suffering from Migraine headache was accompanied with nausea among 21 (26.25 %) participants, vomiting among 7 (8.75 %), fever among 24 (30%) and sensitivity to light among 20 (25%). In contrast, cluster headaches are more commonly associated with symptoms like irritability among 65 (55.08%) and vomiting among 11 (9.32%), whereas Tension-type headaches are frequently linked to irritability in 95 (54.91%) participants, fatigue in 42 (24.28%) participants, and changes in vision in 4 (2.31%) participants.

Triggering factors: Disturbed sleep was the most frequently reported trigger across all types of headaches, affecting 117 (32.32%) individuals with tension-type headache (TTH), 83 (22.93%) with cluster headache, and 65 (17.95%) with migraine. Stress was another common trigger, reported by 103 (28.54%) participants with TTH, 63 (17.4%) with cluster headache, and 89 (10.77%) with migraine. Skipping meals was also a significant factor, affecting 70 (19.33%) individuals with TTH, 54 (14.91%) with cluster headache, and 44 (12.51%) with migraine. Additionally, environmental changes, strong smells, and noise contributed to headaches, though to a lesser extent.

Relieving factors: Sleep is the most effective relieving factor among 147 (40.6%) participants suffering from TTH, 94 (25.96%) with cluster headache and 73 (20.16%) with Migraine headache. Massage benefits about 72 (19.88%) participants with TTH, 61 (16.85%) with cluster headache and 37 (10.22%) with Migraine headache. Other common relieving factors in our study population were A dark quiet room, Meditation, Yoga and exercise.

DISCUSSION:

Headache disorders are a common concern across all age groups, significantly impacting quality of life by disrupting academic performance and social well-being. In our study, headache were

more prevalent among females, accounting for 61.33% of cases. This finding is consistent with previous research indicating a higher occurrence of headaches in females [10-12]. Several factors contribute to this predominance, including hormonal fluctuations—particularly those related to the menstrual cycle—which can influence the onset and severity of headaches, especially migraines. Additionally, psychosocial factors such as stress levels and societal expectations regarding health reporting play a crucial role in the perception and management of headaches among women.

Among the different types of headache, tension-type headache (TTH) was the most common, affecting 46.13% of our study participants, followed by migraine at 31.46% and cluster headache at 33%. Previous studies report a wide prevalence range for migraine (6.4% to 28%) and TTH (18.1% to 71.5%) [13-15], while cluster headache remain the least common, with a reported prevalence of 0.20% [16]. The high prevalence of TTH can be attributed to lifestyle factors such as stress and poor posture. These headache often stem from muscle tension and emotional strain, making them a frequent concern among individuals coping with daily stressors. In contrast, migraine, though less prevalent, tend to be more severe and are influenced by genetic predisposition and hormonal fluctuations, which may explain their significant impact despite their lower occurrence.

In terms of headache frequency, 31.7% of participants experienced headache at least once a month, while 4.8% of participants experienced headache daily. These findings align with Nandha et al. (2013), who reported that 52.94% of participants experienced headache one to four times per month.[17]

Among individuals with migraine, unilateral headache were the most common, occurring in 81.5% of cases, with 43% reporting throbbing pain and moderate pain intensity being the most frequently observed. These characteristics reflect the neurological and vascular mechanisms of migraines, including brainstem activation and blood vessel dilation. Similarly, among those with tension-type headache (TTH), bilateral pain was reported in 62.43% of cases, with 49.3% describing a pressure-like sensation of moderate intensity, likely associated with muscle tension and stress. These findings align closely with the diagnostic criteria set by the International Headache Society (HIS) and are consistent with previous research. [15,18]

Disturbed sleep is a common trigger for all types of headaches, aligning with previous studies that have identified stress and insufficient sleep as frequent headache triggers.[16,19,20] Sleep is essential for regulating pain perception, hormone levels, and neurotransmitter balance, so when it is disturbed, it can heighten stress, muscle tension, and inflammation, increasing the brain's sensitivity to pain. Lack of sleep also affects serotonin and dopamine levels.

In our study, sleep was the most commonly reported relieving factor for all types of headache, with 40.6% of participants, followed by massage in 19.88%. These findings align with a study conducted in Palestine, which also identified sleep as a primary self-management strategy for the relief of all types of headache. [21]

CONCLUSION

Headache is one of the major health concerns among the pharmacy students, with TTH being the most common one, primarily associated with stress and disturbed sleep. Migraine which was mainly unilateral in nature, associated with symptoms like nausea and vomiting, was also attributed to these factors. Thus, identifying the nature of the headache along with its triggers will help in prevention of headaches and channelizing specific interventions.

REFERENCES

1. The International Classification of Headache Disorders, 3rd edition (beta version) . Cephalgia. 2013,33:629-808. 10.1177/0333102413485658
2. Li XY, Yang CH, Lv JJ, Liu H, Zhang LY, Yin MY, Guo ZL, Zhang RH. Global, regional, and national epidemiology of migraine and tension-type headache in youths and young adults aged 15-39 years from 1990 to 2019: findings from the global burden of disease study 2019. J Headache Pain. 2023 Sep 18;24(1):126. doi: 10.1186/s10194-023-01659-1
3. Zhang YJ, Li XY, Guo ZL. Temporal trends of migraine and tension-type headache burden across the BRICS: implications from the Global Burden of Disease study 2019. J Headache Pain. 2020;21(1):1-10. doi:10.1007/s10194-020-01123-4
4. Ghorbanifar A, Zanzibar A. Prevalence and clinical characteristics of headache among medical students, Isfahan, Iran. Iran J Neurol Disord. 2007;15(9):480−490
5. Medicina. Assessment of headache characteristics, impact, and managing techniques among pharmacy and nursing undergraduates−An observational study. Medicina. 2023;59(1):130
6. Axon DR, Dawid A. Student pharmacist characteristics and management of headache. Curr Pharm Teach Learn. 2022;14(9):1054-1060. doi:10.1016/j.cptl.2022.07.040
7. Tahir M, Mubashir R, Amin F. Prevalence and management of headache and its associated factors among female undergraduate pharmacy and non-pharmacy student population of Lahore College for Women University, Lahore. Int J Sci Res Publ. 2017;7(11):424-432
8. Bhattarai B, Adhikari S, Shrestha S. Prevalence and clinical characteristics of headache among medical students of Nepal: A cross-sectional study. J Headache Pain. 2022;23(11)
9. El-Met Wally A, Al-Sayed A, Abou El-Fetouh M. Prevalence and characteristics of headache among medical students in Egypt: A multicentric cross-sectional study. Egypt J Neurol Psychiatry Neurosurg. 2024;60(10).
10. Mitsikostas DD, Gatzonis S, Thomas A, Kalfakis N, IIias A, Papageorgiou C. An epidemiological study of headaches among medical students in Athens. Headache. 1996;36:561-4.
11. Bahrami P, Zebardast H, Zibaei M, Mohammadzadeh M, Zabandan N. Prevalence and characteristics of headache in Khoramabad, Iran. Pain Physician. 2012;15:327-32.
12. Abduljabbar M, Ogunniyi A, al Balla S, Alballaa S, al-Dalaan A. Prevalence of primary headache syndrome in adults in the Qassim region of Saudi Arabia. Headache. 1996;36:385-8.
13. Panigrahi A, Behera BA, Sarma NN. Prevalence, pattern, and associated psychosocial factors of headache among undergraduate students of health profession. Clin Epidemiol Glob Health. 2019;15:67-74.
14. Almesned IS, Alqahtani NG, Alarifi JA, Alsaawy TN, Agha S, Alhumaid MA. Prevalence of primary headache among medical students at King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia. J Family Med Prim Care. 2018;7:1193-6.
15. Ojini FI, Okubadejo NU, Danesi MA. Prevalence and clinical characteristics of headache in medical students of the University of Lagos, Nigeria. Cephalalgia. 2009;29:472-7.

16. Kurt S, Kaplan Y. Epidemiological and clinical characteristics of headache in university students. Clin Neurol Neurosurg. 2008;110:46–50.
17. Nandha R, Chhabra MK. Prevalence and clinical characteristics of headache in dental students of a tertiary care teaching dental hospital in Northern India. Int J Basic Clin Pharmacol. 2013;2(1):51–5.
18. Taghi AS, Leyla S, Afshin BH. Epidemiologic and clinical characteristics of migraine and tension-type headaches among hospital staff of Shiraz (Iran). Acta Med Iran. 2009;47:115-20.
19. Desouky DE, Zaid HA, Taha AA. Migraine, tension-type headache, and depression among Saudi female students in Taif University. J Egypt Public Health Assoc. 2019;94:1–9. Doi:10.1186/s42506-019-0008-7.
20. Al-Hashel JY, Ahmed SF, Alroughani R, et al. Migraine among medical students in Kuwait University. J Headache Pain. 2014;15:1–6. Doi:10.1186/1129-2377-15-26.
21. Anaya F, Abu Alia W, Hamoudeh F, Nazzal Z, Maraqa B. Epidemiological and clinical characteristics of headache among medical students in Palestine: a cross-sectional study. BMC Neurol. 2022;22(1):4

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