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Prevalence of migraine among post graduate medical students

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Abstract

Introduction: Migraine is a common primary headache disorder. This study aimed to find the prevalence and triggers of migraine among postgraduate medical students in Nepal.

Method: A cross-sectional study was conducted from Jul to Dec 2024 among postgraduate medical students at the Nepalese Army Institute of Health Sciences, Kathmandu, Nepal. Ethical approval was obtained. Inclusion criteria: all clinical postgraduate students. Exclusion criteria: comorbidities. Migraine was assessed based on ICHD-3 criteria. Data were collected via a self-administered questionnaire and analysed using IBM SPSS version 22. Descriptive statistics and Pearson chi-square test were used with p-value <0.05 considered significant.

Result: Among the participants (n=90), the prevalence of migraine was 15(16.7%). It was higher in females 9(25.0%) than males 6(11.1%) [OR=2.379; 95% CI: 0.767–7.386; p=0.139]. The most common triggers were stress 14(93.3%), skipping meals/hunger 12(80.0%), prolonged computer work 7(46.7%), and menstruation among females 5(55.6%).

Conclusion: Migraine is common among postgraduate medical students, with stress as the leading trigger. Interventions to manage stress and lifestyle factors may help reduce its burden.

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Introduction

Migraine is one of the most common primary headache disorders worldwide.[1] Its prevalence ranges from 2.6% to 21.7%, with women affected two to three times more frequently than men.[1] The World Health Organization ranks migraine among the top twenty most disabling diseases globally and among the top ten for the female population.[2] It is a chronic, multifaceted neuro-inflammatory disorder characterized by recurrent, throbbing headaches, often unilateral, and accompanied by symptoms such as nausea and visual disturbances.[3]

Medical students represent a population under considerable physical and psychological stress due to demanding academic curricula and clinical workloads, factors known to potentially exacerbate or trigger migraine.[4] Studies indicate a higher prevalence of headache disorders, including migraine, among medical students compared to the general population, which can adversely affect their academic performance and quality of life.[5,6]

While global and regional data on migraine prevalence exist, there is limited specific research focusing on postgraduate medical students in Nepal. A knowledge gap persists regarding the distinction between migraine and other headache types, often leading to self-medication without a formal diagnosis.[7,8] Therefore, this study aims to determine the prevalence of migraine and identify its common trigger factors among postgraduate medical students at a tertiary care institute in Kathmandu, Nepal.

Method

A cross-sectional study was conducted from Jul to Dec 2024 at the Nepalese Army Institute of Health Sciences (NAIHS), Kathmandu, Nepal. The study population comprised clinical postgraduate medical students from various departments including Medicine, Surgery, Gynaecology, Paediatrics, Orthopaedics, Dermatology, Psychiatry, Emergency, Ophthalmology, ENT, Pathology, and Microbiology.

The sample size was calculated using the Cochran formula: $n=Z^2pq/e^2$. Assuming a prevalence (p) of migraine as 30% based on a previous study,[9] with a 95% confidence level (Z=1.96) and a 10% margin of error (e), the initial sample size was 81. Accounting for a 10% non-response rate, the final sample size was determined to be 90.

Data were collected using a self-administered, validated questionnaire administered over a period of six months. The questionnaire included sections on socio-demographic information, migraine status, trigger factors, and relieving factors. Migraine was diagnosed according to the criteria of the International Classification of Headache Disorders, 3rd edition (ICHD-3), and requiring headache attacks lasting 4–72 hours with at least two of the following characteristics: unilateral location, pulsating quality, moderate or severe pain intensity, or aggravation by routine physical activity.

Ethical approval was obtained from the Institutional Review Committee of NAIHS, Kathmandu (Reg. No. 951, January 2024). Written informed consent was obtained from all participants after explaining the study objectives. Confidentiality was maintained, and data were used solely for research purposes.

Inclusion criteria were all clinical postgraduate students of NAIHS. Students with comorbidities such as hypertension, heart disease, or those who were pregnant were excluded from the study.

The collected data were entered and analysed using IBM SPSS Statistics version 22. Categorical data were presented as frequency and percentage. Continuous data were summarized as mean and standard deviation for normally distributed data, and median with interquartile range for non-normally distributed data. The Pearson chi-square test was applied to determine associations between migraine and socio-demographic characteristics, with a p-

value of less than 0.05 considered statistically significant.

Result

A total of 90 postgraduate clinical students participated in the study. The median age of the respondents was 30 years (interquartile range: 2 years), with an age range of 26 to 33 years. The majority of participants were female 54(60.0%) and most identified as Hindu 86(95.6%). The demographic characteristics of the respondents are detailed in Table 1.

The overall prevalence of migraine among the participants was 15(16.7%), Figure 1.

Migraine was more prevalent in female students 9(25.0%) than in male students 6(11.1%). The odds of having migraine were 2.4 times higher in females compared to males (OR=2.379; 95% CI: 0.767–7.386), although this difference was not statistically significant (p=0.139). There was also no statistically significant association between migraine and age group (p=0.697). The distribution of migraine by age and gender is presented in Table 2.

Among the 15 students with migraine, 7(46.7%) reported a gradual increase in headache intensity, while 4(26.7%) reported sudden onset. Headaches occurred at any time of the day for 6(40.0%) respondents. Without medication, 10(66.7%) experienced moderate pain and 5(33.3%) experienced mild pain.

The most common trigger factors for migraine were stressful times 14(93.3%), skipping meals or hunger 12(80.0%), prolonged work on computer 7(46.7%), and menstruation among female respondents 5(55.6%). Other triggers included loud sounds 6(40.0%), too much caffeine 5(33.3%), and alcohol consumption 3(20.0%), Figure 2.

The most frequently reported relieving factors were staying in a dark, quiet room 11(73.3%), sleeping or lying down 8(53.3%), and head massage 4(26.7%).

Table 1. Demographic characteristics of postgraduate clinical students surveyed for migraine, n=90

Demographic Variable	n(%)
Age in years	
26	1(1.1)
27	4(4.4)
28	13(14.4)
29	16(17.8)
30	21(23.3)
31	17(18.9)
32	14(15.6)
33	4(4.4)
Sex	
Male	36(40.0)
Female	54(60.0)
Religion	
Hindu	86(95.6)
Buddhist	4(4.4)
Ethnicity	
Brahmin	49(54.4)
Chhetri	15(16.7)
Janjati	17(18.9)
Others	9(10.0)

Table 2. Association of migraine with age group and gender among postgraduate clinical students, n=90

Variable	Migraine Yes n(%)	Migraine No n(%)	Odds Ratio	95% CI	p-value
Age group (years)					
26-29	5(14.7)	29(85.3)	1.261	0.391-4.062	0.697
30-33	10(17.9)	46(82.1)	Ref.	-	-
Gender					
Female	9(25.0)	27(75.0)	2.379	0.767-7.386	0.139
Male	6(11.1)	48(88.9)	Ref.	-	-

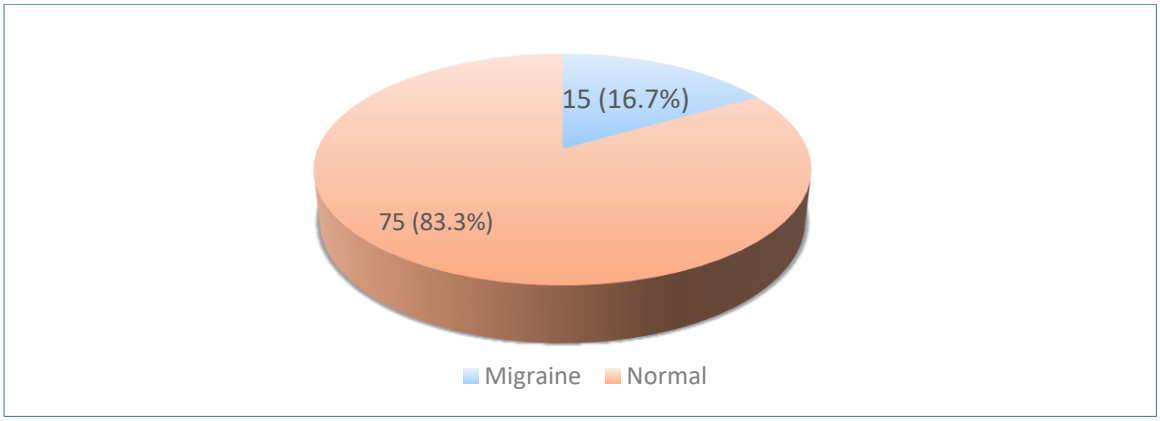

Figure 1. Prevalence of migraine among postgraduate clinical students, n=90

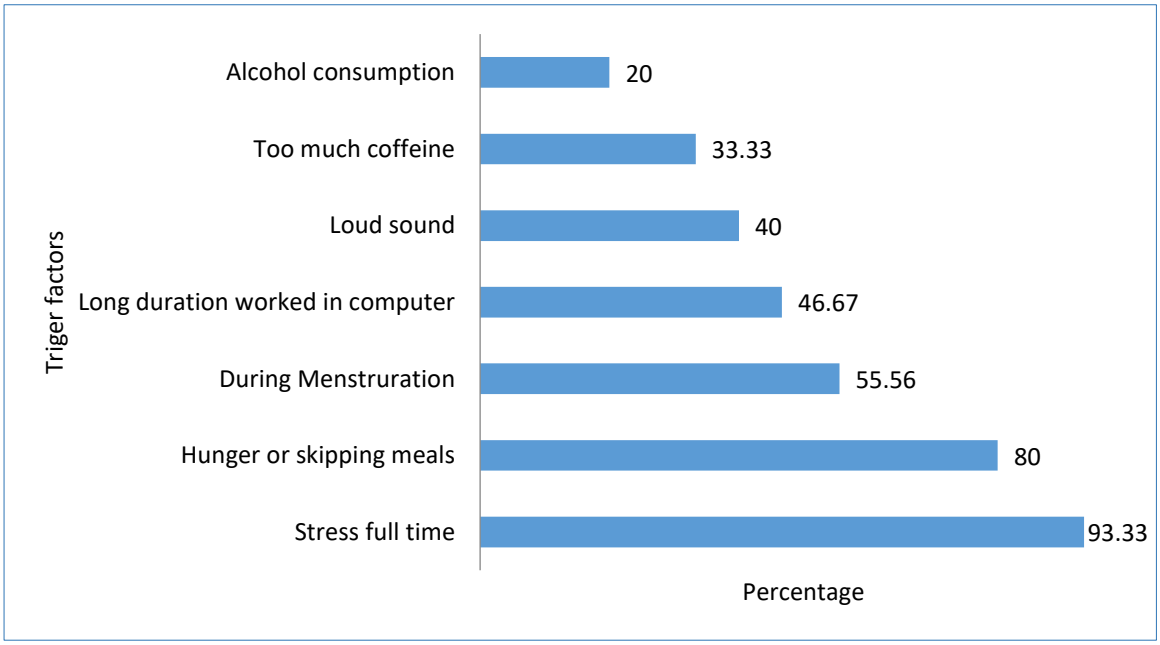

Figure 2.Trigger factors for migraine among students with migraine, n=15

Discussion

This study found that the prevalence of migraine among postgraduate clinical students at a tertiary care institute in Nepal was 15(16.7%). The prevalence was higher in female students 9(25.0%) than in males 6(11.1%), aligning with global epidemiological patterns where migraine is two to three times more common in women.[10] This gender disparity is often attributed to hormonal influences, particularly fluctuations in oestrogen levels, which can affect neurotransmitter and vascular pathways involved in migraine pathophysiology.[11]

The prevalence observed in this study is comparable to findings from similar settings, such as a study among medical students in Mali (17.3%)[12] and Kathmandu (21.54%).[13] However, it is lower than rates reported in studies from India (28%),[14] South India (30%),[9] Saudi Arabia (32.5%),[15] and Kuwait (27.9%).[16] These variations may be attributed to differences in genetic predisposition, environmental factors, lifestyle, diagnostic criteria, and study methodologies across populations.

Consistent with other research, stress was identified as the predominant trigger factor, reported by 14(93.3%) of participants with migraine. This mirrors findings from a study in Southeast China, where stress was also the most common trigger (93.6%).[1] The high-stress academic environment of medical training likely contributes significantly to this finding. Skipping meals or hunger 12(80.0%) and prolonged computer work 7(46.7%) were also major triggers, highlighting the role of irregular lifestyle habits and ergonomic factors common among students.[17]

Among female respondents, menstruation was a significant trigger 5(55.6%), which is a well-established phenomenon linked to the decline in oestrogen levels during the menstrual cycle.[9] Other common triggers included loud sounds 6(40.0%) and excessive caffeine intake 5(33.3%), which are consistent with known sensory and dietary precipitants of migraine attacks.

The most effective relieving factors reported were non-pharmacological interventions: staying in a dark, quiet room 11(73.3%) and sleeping or lying down 8(53.3%). This aligns with clinical recommendations for acute migraine management and findings from other studies, emphasizing the importance of rest and sensory attenuation during an attack.[12]

Notably, this study found no statistically significant association between migraine prevalence and gender or age group within this relatively homogenous sample of young adults. Although the sample size of 90 was calculated to estimate the prevalence with a 10% margin of error, it represents a modest number of participants in the context of comparative subgroup analyses. When the total sample is divided into smaller subgroups (e.g., by gender and age), the number of migraine cases within each subgroup becomes small. This reduces the statistical power to detect significant differences, even when clinically relevant associations, such as the higher prevalence in females, are observed.

The limitations of this study include its cross-sectional design, which precludes causal inference; single-centre setting, which limits the generalizability of findings to other populations of medical students; and the potential for recall bias inherent in self-reported data. Despite these limitations, this study provides valuable baseline data on the burden of migraine among a high-risk group of postgraduate medical students in Nepal, highlighting the role of stress and modifiable lifestyle factors as triggers, and offering insights for interventions aimed at improving student well-being and academic performance.

Conclusion

The prevalence of migraine among postgraduate medical students in this study

was 15(16.7%), with a higher frequency in females. Stress was the predominant trigger, followed by skipping meals, prolonged computer use, and menstruation. The reliance on non-pharmacological relief, such as rest in a dark room, underscores the need for practical coping strategies. This significant health concern within a key future healthcare workforce requires institutional programs for stress management and lifestyle education. Further multi-center research is warranted to explore this issue in greater depth.

Author contribution

Concept design: NM, LP; Literature search: NM, LP; Data collection: NM, LP; Data analysis: NM; Draft manuscript: NM, LP; Final manuscript and accountability: All

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Conflict of Interest

None

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None

Supplementary material

The data and supplementary material that support the findings of this study are available from the corresponding author upon reasonable request.

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