

## Research Article

# The Prevalence of Migraine Headache and the Health-Seeking Behavior of Medical Undergraduates in Punjab

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**Abstract: Background:** Neurological headaches have been on the rise recently; among these, migraine is the most common. Younger individuals are more prone to this, and it affects their quality of life to a great extent.

**Objective:** To identify the prevalence, specific characteristics, and relieving factors of migraine as well as the healthcare-seeking practice among undergraduate medical students of Punjab.

**Materials and Methods:** This cross-sectional survey was conducted on undergraduate medical students of Punjab from June to September 2021. Convenience sampling was used to select 150 students. A validated questionnaire assessed the prevalence of migraine headaches, symptoms, and relieving factors.

**Result:** The females reported a higher prevalence, 78.57%, than males. Of all the types observed, 67.74% suffered from migraines, 22% suffered from tension headaches, and 9.8% had cluster and other headaches. The prevalence of headaches was most significant among subjects aged 20 to 25 years (37.93%). The top three symptoms experienced before the start of the migraine were disturbance from lights, disturbance by sound, and mood swings. The top three symptoms experienced during migraine were disturbance from light, difficulty in concentration, and irritation from sound. The top three relieving factors were rest, sleep, quietness, and massage.

**Conclusion:** Migraine is more prevalent in females than males, especially younger adults. Proper sleep/rest, avoiding stress, noise, regular exercise, and healthy lifestyles can significantly prevent migraine headaches. Disturbance from light was the most common symptom experienced before and during headaches. The most common relievers were rest and sleep.

**Keywords:** Behavior, Migraine, Prevalence, Symptoms, Stress, Noise.

## INTRODUCTION

Migraine is a disabling neurological headache prevalent in developed and developing countries [1, 2]. This primary type of headache involves complicated neurovascular mechanisms resulting in recurrent attacks of debilitating headaches. There seems to be a genetic association between migraines, showing both monogenic and polygenic patterns of inheritance [3].

Migraine is a pervasive and prevalent disorder with a slight female predominance. Six percent of men suffer from this severe headache disorder compared to 18 percent of females. Moreover, it is observed that relatively young people (in their 20s to 50s) are more prone to this type of headache [4]. Recently, it has been considered a significant health hazard and listed among the first

20 major health problems worldwide [5]. Students, especially in the medical profession, are an integral component of their community and play an essential role in maintaining healthy societies [6]. Anxiety and lack of sleep are essential triggering factors for migraine, and both are usually present together in the life of medical students who are stressed out by their extensive courses, frequent examinations, extremes of competition, and multiple years of education and training [7].

Some dietary habits also have a strong association with migraine, especially in the adolescent age group. Long periods of hunger, caffeinated drinks, alcoholic beverages, citrus fruits, and chocolates can trigger migraines. This might be due to the release of neurotransmitters like serotonin and norepinephrine [8]. According to the Global Burden of Disease Survey, 2010, migraine was the 3<sup>rd</sup> most prevalent and 7<sup>th</sup> highest disabling disease worldwide [9].

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Anxiety and mood problems are found to be significantly more prevalent in those with chronic migraine compared to the general population, with a ratio ranging from two to 10 times higher.

Medical students typically work diligently, necessitating continuous focus and study, which can lead to significant stress and sleep disruptions due to high-pressure environments [6, 7]. In a research in Saudi Arabia, it was found that 30% of students, particularly females, experienced migraines, accounting for 47.9% of all reported headaches [10]. The overall migraine prevalence among medical students in Pakistan was 52.3%, with most migraines occurring in females [11]. In a study in India, around 68% of medical students reported having some form of headache. Females were more commonly affected as compared to males [12]. Various international studies have demonstrated the epidemiology and occurrence of migraine. Affecting more than 10% of the world’s population, migraine is one of the most debilitating diseases of modern times [13]. Previous literature has reported around 20% prevalence of migraine headaches in north American and European populations, which is quite higher when compared to the Asian populations [14].

Understanding the prevalence of migraines in this demographic is crucial for several reasons. First, it provides insights into how common migraines are among future healthcare providers. Investigating this phenomenon among medical undergraduates in Punjab is particularly pertinent due to the high-stress environment associated with medical education, which could exacerbate or contribute to the frequency and severity of migraine episodes.

The study aimed to identify the prevalence, specific characteristics, relieving factors and the healthcare-seeking practice among undergraduate medical students of Punjab.

**MATERIALS AND METHODS**

This descriptive cross-sectional study was conducted after the approval from the Institutional Review Board of University College of Medicine and Dentistry (UCD/ERCA/21/12GR) from June 2021 to September 2021. A total of 150 medical students suffering from headaches were selected using convenience sampling from two private and two public medical colleges of Punjab after screening. The inclusion criteria were undergraduate medical students from the first year of medical school to the final year, who had a history of headaches.

A self-administered questionnaire, involving ten items was developed to collect data. Demographic information, including age, gender, education and marital status, comprised the first section of the questionnaire, followed by the items regarding diagnosis of headache, frequency, and duration of headache, aural and post-aural symptoms, and relieving factors. The validation of the questionnaire was done by two research experts from community dentistry department through content and face validity. The questionnaire underwent pilot testing and several revisions were made before the final draft was approved. Only those students filled the questionnaire who had a history of headaches. The self-administered questionnaire was filled out anonymously

by the participants, and forms were collected in a sealed envelope immediately.

**STATISTICAL ANALYSIS**

Statistical Package for Social Sciences (SPSS version 25, IBM, Inc.) was used for data analysis.

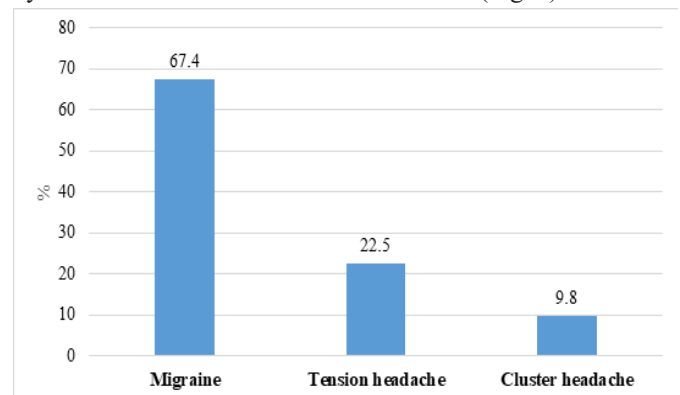
**RESULT**

A total of 150 students were reported to suffer from headaches. The mean age was 21.3±5.1. The prevalence of headaches in various demographics is tabulated in Table 1. Females reported headaches more frequently than males. Similarly, respondents from 20 to 25 years of age reported more headaches (n=68, 45.3%). The types of headaches the respondents suffered from are given in Fig. (1).

**Table 1.** Demographical Details of the Respondents and Prevalence of Headache.

Demographics	n(%)	Prevalence of Headaches n(%)	
Gender	Male	61(40.7)	32(21.4)
	Female	89(59.3)	118(78.5)
Age	Less than 20 years	33(22.0)	41(27.3)
	20 to 25 years	68(45.3)	57(37.9)
	More than 25 years	49(32.6)	52(34.7)

The most common headache reported was migraine, followed by tension headaches and cluster headaches (Fig. 1).



**Fig. (1).** Types of Headaches Experienced by the Respondents.

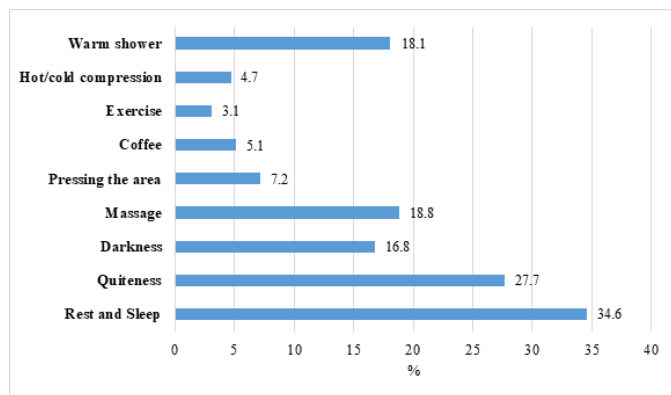
The top three self-reported symptoms experienced before the start of the migraine were disturbance from lights (n=43, 42.96%), disturbance by sound (n=34, 33.7%), and mood swings (n=31, 30.3%). However, the top three symptoms experienced during migraine were disturbance from light (n=60, 59.5), dif-

faculty in concentration (n=53, 52.1%), and disturbance from sound (n=51, 50.4%) (Table 2).

**Table 2.** Symptoms Experienced by the Respondents before and during Migraine Headache.

Symptoms	Before		During	
	n	(%)	(n)	(%)
Nausea	27	26.8	39	38.7
Vomiting	12	11.9	25	24.8
Disturbed by light	43	42.6	60	59.5
Sparkling	26	25.8	31	30.7
Puffy eyelids	10	9.9	12	11.9
Loss of vision	15	14.9	17	16.9
Numbness	9	9.1	17	16.9
Speech difficulty	5	4.9	19	19.0
Loss of consciousness	3	3.0	5	4.9
Diarrhea	0	0.0	0	0.0
Bothered by sound	34	33.7	51	50.4
Blurred vision	14	13.9	31	30.7
Difficulty in concentration	24	23.8	53	52.1
Runny nose	3	2.9	0	0.0
Lightheadedness	10	9.9	10	9.9
Weakness of arm/leg	7	7.1	9	9.1
Mood swings	31	30.3	48	47.6

The self-reported relieving factors of migraine are illustrated in Fig. (2). The top three relieving factors were rest & sleep (n=35, 34.6%), quietness (n=28, 27.7%), and massage (n=19, 18.8%).



**Fig. (2).** Self-reported Relieving Factors of Migraine Headaches.

**DISCUSSION**

Migraine headache is a common neurological disorder characterized by recurrent, severe headaches accompanied by various neurological symptoms [1]. In the present study, the prevalence was higher than the global range [1, 13, 15]. Moreover, the trig-

gering factors and symptoms were also in agreement with the previous data.

Several studies have investigated the prevalence of migraine among different populations. In a study conducted by Queiroz *et al.* the estimated global prevalence of migraine was 14.7%, making it one of the most common neurological disorders worldwide [15]. However, the prevalence of migraine among specific subpopulations, such as medical undergraduates, can vary due to factors like stress, lifestyle, and genetic predisposition [8]. In a cross-sectional study conducted in Punjab, India, among medical undergraduates, the prevalence of migraine was 22% [16]. The higher prevalence of headaches among medical undergraduates compared to the general population could be attributed to the stress, irregular sleep patterns, and academic demands associated with medical education [17]. In the present study, the most prevalent headache was migraine, followed by tension headaches and cluster-type headaches.

In the present study, the prevalence of headaches was higher in females, especially migraine headaches. These findings were consistent with the previous studies [18, 19]. The prevalence of headaches varies according to gender. Laurell *et al.* showed an increased incidence of tension-type headaches and migraine in the females [20]. Lyngberg *et al.* showed a 1:6 incidence of migraine and 1:3 of tension-type headache when males were compared with females [21]. A study conducted on a large population in India stated that females were more prone to developing headaches, but tension-type headaches were more common in males [22]. This finding may be due to a higher number of female students in the medical colleges. Increasing the number of members of the research population and an equal representation of male and female members may remove this ambiguity.

A study conducted in Poland reported a higher prevalence of migraines in the adult population, with a mean age of 39.9 years [23]. Previous studies have reported the prevalence of migraine more common in the age group between 25 to 34 years [24, 25]. In the present study, the prevalence of headaches was higher in the students of the age group 20-25 years, with a prevalence of 37.9%. The results of the present study were in agreement with the previous literature [18, 20, 24, 25].

Symptoms such as nausea, vomiting, being bothered by light, sparkling, puffy eyelids, loss of vision, numbness, speech difficulty, loss of consciousness, weakness of arms, diarrhea, and mood changes are found to be associated with nearly all members of our study population. These findings are consistent with some previous studies conducted using the same scale [26]. In the present study, the top three symptoms were disturbance from lights, disturbance by sound, and mood swings.

Among the factors that relieve migraine are rest and sleep, quietness and darkness, massage and pressure on the area of headache, coffee, hot and cold compressions, warm showers, medications, and avoiding stress and anxiety. This finding is consistent with previous global research results [27-29]. Further research and discussion on individual relieving factors

may result in understanding the underlying physiology of these factors with migraine treatment. It needs a lot of attention to discover the real cause of this multifactorial disease.

## CONCLUSION

The study concluded that migraine is more prevalent in females than males, particularly young adults and adults. Of all the observed types of headaches, most of the patients were suffering from migraines, followed by tension headaches and cluster/other types of headaches. In nearly all patients, migraine was usually preceded by nausea, vomiting, numbness, sparkling, loss of vision, and lightheadedness. Stress, weather changes, fatigue, noise, sunshine, and missed meals trigger most patients' migraines. Proper sleep/rest, avoiding stress, noise, sparkling, regular exercise, and healthy lifestyles can significantly prevent migraine headaches.

## AUTHORS' CONTRIBUTION

- **Noreen Maqbool Bokhari:** Conception and design, Article drafting, Data interpretation.
- **Ayesha Khalid:** Data Collection, Article drafting, Data interpretation.
- **Fatima Khalid:** Manuscript drafting, Critical revision.
- **Ayma Azhar:** Data Collection, Manuscript drafting.
- **Muhammad Maaz Arif:** Data interpretation, Data Collection.
- **Hammad Hassan:** Critical revision, Statistical analysis.

## CONFLICT OF INTEREST

Declared none.

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