



## Research Article

## Primary Headache Characters and Coping Strategies among Medical Students of King Saud University in Riyadh, Saudi Arabia

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### Abstract

**Objectives:** To assess and determine the prevalence of primary headache characteristics and the coping strategies among Medical Students of King Saud University in Riyadh, Saudi Arabia. Medical students are exposed to more psychological and physical stressors than other students, affecting their quality of life, performance and academic achievement.

**Methods:** The study was a cross-sectional observational study whereby electronic questionnaires were sent to 283 medical students at King Saud University in Riyadh, KSA, in their third, fourth and fifth years. The questionnaire collected demographic data and questions about the primary headache character and the coping mechanism/strategies used.

**Results:** The results showed a prevalence rate of about 100% for one year. The most common diagnosis was migraine without aura (57.1%), followed by infrequent TTH (55.4%) for both genders. No student reported chronic TTH. 78.6% reported no impact of the headache on their academic performance. However, for those who reported negative impact, the greatest proportion was among the students with migraine with aura (33.3%) and frequent TTH (20%). Self-medication was the most common, with most students using Simple analgesics such as Paracetamol (58.7%-65.6%) followed by Triptan (e.g., Sumatriptan) ((14.4%-17.5) for relief.

**Conclusion:** The prevalence of headaches among the medical students at King Saud University in Riyadh, Saudi Arabia, was about 100% which is higher than the prevalence average among the general population. However, the headache did not significantly impact their academic performance. The study recommends longitudinal studies to understand why the prevalence rate is high and recommend interventions.

**Keywords:** Clinical Disorders; Headache; Medical Students

### Introduction

Headache is one of the most prevalent medical disorders worldwide and is a considerable disability load among the victims, as research has shown that it is one of the top causes of disability around the globe [1]. According to Zarea et al. [2], it impairs the sufferers' daily activities and significantly lowers their quality of life. A myriad of clinical disorders that result in headaches has been identified. Still, the most common form of headaches worldwide is the primary ones, including tension-type headaches and migraines. About one-third of primary headache cases among adults worldwide are migraines [3], which are neurovascular disorders characterized by persistent headaches ranging from moderate to severe pain. Research by Al Jumah et al. [4] showed that the prevalence of migraine and tension-type headache

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in KSA are considerably higher than the global average. A systematic review by Woldeamanuel & Cowan [5] reported that about 12.4% of college and school students are affected by migraines, which portrays the rising prevalence of primary headaches globally. The international Classification of Headaches Disorders (ICHD) classifies headaches based on the characteristics of each headache in the previous year and not the person suffering from the headache [6]. The most common primary headaches include tension-type headaches, cluster headaches and migraines [7]. Tension-type migraine is far more common and has been reported to have a lifetime prevalence in the general population of up to more than 80% [7]. This type is dull, mild-to-moderate intensity and bilateral pain without striking features categorized as frequent, infrequent, or chronic. Cluster headache, on the other hand, is often known as “suicide headache” due to the pain intensity, which is episodic in nature [8]. The pain is usually extremely severe, with 1-8 episodes per day and often will awaken an individual from sleep. Migraines are the third most prevalent headache disorder and its risk factors include co-existing noncephalic sites of pain, obesity, mood and anxiety disorders and medication overuse. In Saudi Arabia, research showed that migraine was the most prevalent (32%), followed by a tension-type headache at 27% and headaches linked to medication overuse at 2.7% [9]. Previous studies have shown that the prevalence of headaches among students is very high [10], with medical students having a higher prevalence of all types of headaches compared to other university students [11]. This is because medical students are exposed to more psychological and physical stressors than other students, affecting their quality of life, performance and academic achievement. Given that primary headache has been identified as one of the leading causes of disability around the world and many studies have focused on the main causes of headaches, this study seeks to determine the prevalence of primary headache characteristics and the coping strategies among Medical Students of King Saud University in Riyadh of Saudi Arabia.

## Methods

This was a cross-sectional observational study whereby electronic questionnaires were used. The study was conducted at King Saud University in Riyadh, KSA. The target population was medical students in their third, fourth and fifth years. The study did not include junior students as it is assumed that they are not yet well aware of the medical terminologies used in the study. All medical students who met the criteria for the study were invited to participate in the survey. The students were contacted by text messages. They were informed of the study's main aim and how they will benefit from the study findings. However, they were reminded that the survey was voluntary and allowed to decide to opt out at any time without any repercussions. A

self-administered questionnaire obtained from the study by Khairoalsindi et al. [12] was used, whereby it was uploaded on Google forms. The first section of the questionnaire sought to collect demographic data; the second part was composed of questions about the primary headache character and the coping mechanism/strategies used. The primary headaches are migraine, tension-type headaches TTH, and Trigeminal Autonomic Cephalalgias (cluster headaches). The data was coded and analyzed using the Statistical Package for Social Science (SPSS). The categorical data was described in percentages and frequencies, while numerical data was described in terms of range, mean and standard deviation. The link between the categorical data was analyzed using the Chi-square tests, while numerical data were analyzed using the student's t-tests.

## Results

Among the students invited to participate in the survey, 280 responses were valid for the research. Table 1 below

**Table 1:** Demographics and primary headache characters among Medical Students of King Saud University.

Category	No (%)
Gender	
Male	150 (53.6%)
Female	130 (46.4%)
Age SD	22.4 ±1.1 years
Previous year headache prevalence	283 (100)
Days with a headache last year, Median (IQR)	11±5
No of episodes last year, median (IQR)	7±3
Duration of each episode, median (IQR)	2.5±2.50
Site of headache	
Occipital	23 (8.2%)
Frontal	98 (35%)
Temporal	69 (24.6%)
Vertical	23 (8.2%)
Orbital	44 (15.7%)
Generalized	23 (8.2%)
Unilateral or Bilateral	
Unilateral	70 (25%)
Bilateral	210 (75%)
Headache quality/character	
Pressing/Tightening	125 (44.6)
Throbbing/Pulsating	92 (32.9)
Sharp/Stabbing	63 (22.5)
Symptoms	
Vomiting	56 (20)
Nausea	93 (33.2)
Photophobia (sensitivity from light)	70 (25)
phonophobia (a fear from loud sounds)	93(33.2)
Average intensity, mean±SD	5.4±25
Family history	62 (22.1)

displays the demographics of the respondents participating in the survey. Out of the 280 respondents, 150 were male and 130 were female. The respondents' mean age was 22.4 ±1.1 years and the prevalence of headaches in the previous year was 283, representing 100% of the respondents who participated in the survey. Regarding the median number in which the medical students suffered a headache, it was 11 (IQR=5) and the median duration was 7 (IQR=3). The most common site of the headache was frontal (35%) and temporal (24.6%), followed by orbital at 15.7%. Table 2 demonstrates the types of Aural among the students who suffered from migraines. The data shows that majority of the students, 57.1% did not suffer any of the mentioned Aura. However, for those with the auras, 21.4% had a visual aura, sensational disturbances (7.1%), speech disturbances (7.1%), and motor weakness (7.1%).

In regards to headache classifications, Table 3 shows that the most common diagnosis was migraine without aura (57.1%) followed by infrequent TTH (55.4%). No student reported chronic TTH.

The researcher also sought to determine whether the headache impacted the student's academic level. As shown

**Table 2:** Types of aura among migraineurs with aura.

Type of Aura		Frequency	Percent
Valid	Visual aura	60	21.4
	Sensation disturbances	20	7.1
	Speech disturbances	20	7.1
	Motor weakness	20	7.1
	None of the above	160	57.1
	Total	280	100

**Table 3:** Headache classifications based on gender.

Diagnosis	Male (n=150)	Female (n=130)	Both genders (n=280)	P-Value
Chronic TTH	0 (0%)	0 (0%)	0 (0%)	0
Frequent TTH	67 (53.6%)	58 (46.4%)	125 (44.6%)	0
Infrequent TTH	83 (53.5%)	72 (46.5%)	155 (55.4%)	0
Migraine with Aura	68(56.7%)	52 (43.3%)	120 (42.9%)	0.36
Migraine without Aura	82 (51.2%)	78(48.8%)	160 (57.1%)	0.36

**Table 4:** Impact of Headache on academic level.

		Frequency	Percent
Valid	Yes	60	21.4
	No	220	78.6
	Total	280	100

**Table 5:** Type of headache impact on the academic level.

Diagnosis	Students' academic level of impact
Chronic TTH	0%
Frequent TTH	29 (23.2%)
Infrequent TTH	31 (20.0%)
Migraine with Aura	40 (33.3%)
Migraine without Aura	20 (12.5%)

**Table 6:** Coping with Headache.

Diagnosis	Chronic TTH	Infrequent TTH	Frequent TTH	Migraine with Aura	Migraine without Aura
Simple analgesics as Paracetamol	-	91 (58.7%)	82 (65.6%)	77 (64.2%)	96 (60%)
Aspirin	-	4 (2.6%)	17 (13.6%)	7 (5.8%)	14 (8.8%)
Triptan (e.g., Sumatriptan)	-	26 (16.8%)	18 (14.4%)	21 (17.5%)	23 (14.4%)
Caffeine	-	17 (11.0%)	4 (3.2%)	6 (5%)	15 (9.4%)
Physical therapy	-	-	-	-	-
Sleeping	-	-	-	-	-
No medication	-	17 (11%)	4 (3.2%)	9 (7.5%)	12 (7.5%)

in Table 4 below, 78.6% of the respondents said no, while 21.4% said yes. Regarding the type of headache that impacted the academic level, Table 5 shows 33.3% said that they had a migraine with aura, 23.2% had frequent TTH, 20% had infrequent TTH and 12.5% had migraine without an Aura. In regards to the type of medication used to cope with headaches, table 6 shows that the top most used type of medication was Simple analgesics as Paracetamol (58.7%-65.6%) followed by Triptan (e.g., Sumatriptan) ((14.4%-17.5%).

## Discussion

Headache is one of the most frequent and prevalent neurological symptoms that affects everyone at least once in their lives. This has made headaches a fundamental general health problem globally. Research shows that it is one of the leading causes of stress and diminished performance among students, especially in the medical sector [2]. This study's findings showed that the one-year primary headache prevalence among the King Saud University medical students is almost 100% of all the participants. This exceeds the one year-prevalence of primary headaches globally, which was ranked at 46% [13]. This variability can be due to the different classification models used by various studies and research designs. Many studies have used longitudinal studies, which was not the case in the current study. Prevalence rates among general adults in Saudi Arabia range from 12.1% to 84%

[14]. Another study conducted among the general KSA community by Al Jumah et al. [15] showed a prevalence rate of 63%. Apart from the general students, another was conducted among medical students at Umm Al-Qura University that showed a prevalence rate of 90% [14] and that headache prevalence rates among medical students are generally higher than that of the general population. Another study conducted in Brazilian universities revealed that about 58% of the students suffered frequent headaches in a year [16]. A study by Juni, [17] showed that primary headache prevalence among paramedical students was 83.4%. This can be linked to many factors, which the psychosocial factors of medical students being the leading factors [18]. The results showed that no student in the study experienced chronic headaches, and most students suffering from other types of headaches sought medical attention. In general, the majority of the students, 78.6%, noted that the headaches did not have a major impact on their academics. This can be explained by the findings that most of them self-medicated with medicines such as Simple analgesics such as Paracetamol. Hence, these findings do not align with many studies in KSA that revealed a high negative effect of primary headaches on academics (83.9%) [19]. This may be due to the effect of self-medication used by the students to relieve the symptoms, strong motivation by the students at King Saud University to learn or a combination of different factors.

## Limitations

This study possesses a few limitations. The study had a methodological issue whereby this study was mainly a cross-sectional study and hence could not analyze the primary headache over some time. For example, it can be challenging for students to accurately estimate the number of days they have experienced a headache in a year. Hence, there is a need for a longitudinal study to be conducted. Another limitation is excluding secondary causes of primary headaches. In some cases, physical examination and complete history are required, which was not carried out in this study. Also, it is possible that the findings on the impact of headaches on academic performance might not have been optimal, given that it was self-reported.

## Conclusion

The study findings show that the medical students at King Saud University had a high prevalence of primary headaches. Overall, the prevalence rates are higher than that of the general population in KSA. Most of the students used self-medications to treat the headache, which might have eased how it impacted their academic performance. The high prevalence rate calls for more care for medical students and longitudinal studies to understand its impact on their overall academic outcomes. High prevalence with limited medical care-seeking behaviour necessitates the need to design all-

round strategies to enhance the quality of life of medical students.

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