



Original Article

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Prevalence of Primary Headache among Medical Students in Northern Border University

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ABSTRACT

Medical students have been the subject of several studies since they are a high-risk category for stress and primary headache. Previous study on primary headache problems in medical students discovered a connection between low academic performance and the need for intervention. The purpose of this study is to find out how common primary headache problems are among medical students at Northern Border University in Arar, Saudi Arabia. A cross-sectional study was carried out by using an online administered questionnaire at one point in time. The target sample is medical students in Saudi Arabia. The study included 405 participants, 50.9% of them were males and 49.1% were females. 91.9% of participants aged between 18- 24 years old. Average headache attacks were once daily in 54.2% and twice daily 18.7% and three times daily in 17.6% while 33 reported one headache attack weekly, 23.5% reported two attacks weekly and 25.6% reported three attacks weekly. 34.5% reported intense, 34.8% reported moderate, and 30.7% light. Headache is accompanied by nausea in 46%, vomiting in 42.7%, sensitivity to light in 56.5%, noise sensitivity in 60.9%, and one or more neurological defects in 48.3%. 29.7% of participants use a prescription for headache medication, and 18.9% use medication without a prescription. In Saudi Arabia, primary headache is very common among medical students. Regarding its effects on their way of life and academic achievement, it poses a serious challenge. Emphasis should be placed on the value of seeking neurologist consultation if one experiences headaches.

Key words: Headache, Medical students, Migraine, TTH

INTRODUCTION

Primary headaches are one of the most common neurological illnesses, and they can affect people of all ages. In primary headaches, several variables cause episodic and persistent head pain in the absence of an underlying pathologic process, illness, or traumatic damage [1].

90% of headaches are caused by primary headache syndromes, while secondary headache syndromes account for only 10% of headache cases [2]. According to the American Academy of Neurology, the global prevalence of migraine headache, a subtype of primary headache, is estimated to be 18% in women and 6% in males [3]. According to the International Headache Society, According to several studies, the prevalence of tension-type headaches in the general population ranges from 30% to 78 percent. According to Cleveland Clinic, the prevalence of cluster headaches in the general population is somewhat less than 0.5 percent [4].

Migraine, tension-type headaches, and trigeminal autonomic cephalalgias are the most common. Primary headaches, particularly migraine, are cyclic diseases characterized by a complicated series of symptoms that

occur during each headache attack. Unfortunately, the pathogenesis of primary headache syndromes is unknown, although experts believe that migraine and cluster headaches are caused by neurological brain malfunction, with cranial vascular and trigeminal nerve involvement following [2].

One of the most common ailments among medical students is headache. and it can be caused by a variety of physical or psychological pressures. The severity of a headache is directly related to the detrimental impact it has on a person's academic achievement, quality of life, functional ability, and associated psychiatric diagnoses [5].

Given medical students' importance in promoting community health, the problem may also have an impact on student's future job performance, posing a significant cost for both individuals and society [6, 7]. However, Because the causes of migraine and tension-type headache (TTH) are still unclear, clinicians and researchers need to conduct epidemiological studies on specific populations to assist them in establishing the source of pain and factors influencing headache frequency [8]. The purpose of this study is to find out how common primary headache problems are among medical students at Northern Border University in Arar, Saudi Arabia.

MATERIALS AND METHODS

From the 1st of May through the 31st of October 2022, a cross-sectional analytical The study included 303 individuals chosen at random from all medical students at the northern border university in Arar, Saudi Arabia. Students were asked to complete a self-administered questionnaire distributed via WhatsApp, Twitter, and/or Facebook messaging. Data was collected using an online questionnaire that had been re-designed to meet the study's objectives. The questionnaire was divided into four pieces. The first portion dealt with the participants' sociodemographic data, such as age, gender, marital status, and academic year. The second portion dealt with primary headache symptoms, triggers, and treatment options.

The questionnaire includes a brief introduction that explained the research concept to participants. The informed consent form was shared on social media with the questionnaire. There was no clinical examination or blood tests to be performed, therefore the findings were solely dependent on the replies of the pupils.

Sampling

Northern Border University has a total of 674 students enrolled in medical school.

We included 303 students chosen by systematic random sampling from all Northern Border University medical students who agree to participate in the study during the study period after providing informed written consent and completing the questionnaire. All medical students who refuse to engage in the study, incomplete questionnaires, and individuals from other institutions or faculties were excluded.

Inclusion criteria

- Saudi
- From NBU
- Welling to participate

Exclusion criteria

- Non-Saudi
- Not from NBU
- Not willing to participate

Pilot study

A pilot study was conducted on ten students to determine the tool's viability, applicability, and clarity, and no changes were made. Students from the pilot research were not eligible for the

Management of data and statistical analysis

The acquired data was entered and analysed using version 23 of the Statistical Package for the Social Science (SPSS Inc. Chicago, IL, USA). We used descriptive statistics. For qualitative characteristics, percentages were given. The Chi-square test was used to establish significance. If $P < 0.05$, the P-value was judged significant.

Considerations for ethics

Approval to conduct Northern Border University's Research Ethics Committee approved the project. The questionnaire will include a brief introduction outlining the study's goals and importance. The questionnaire was anonymous in order to protect the participants' privacy, and the data was kept secure.

RESULTS AND DISCUSSION

The study included 405 participants, 50.9% of them were males and 49.1% were females. 91.9% of participants aged between 18- 24 years old. 64.% were single. 50.6% of them were smokers as illustrated in the **Table 1**.

Table 1. Shows the sociodemographic characteristics of the participants (n=405).

Parameter	No.	Percent	
Gender	Male	206	50.9
	Female	199	49.1
Age	18-24	372	91.9
	25-39	22	5.4
	40-59	7	1.7
	60+	4	1.0
	Marital status	Unmarried	260
	married/married	134	33.1
	divorced / widow	11	2.7
Monthly income	<5,000 SAR	169	41.7
	5000 - 10000 riyals	177	43.7
	>10,000 riyals	59	14.6
Physical activities (walking for half hours or more/week)	Start	167	41.2
	1	113	27.9
	3-1	102	25.2
	3+	23	5.7
smoking	yes	205	50.6
	no	200	49.4

Table 2 shows that 96.5% of participants had a headache in the past 3 months. Average headache attacks were once daily in 54.2% and twice daily 18.7% and three times daily in 17.6% while 33 reported one headache attack weekly, 23.5% reported two attacks weekly and 25.6% reported three attacks weekly.

Table 2. Average headache attacks among study participants (n=405)

Parameter	No.	Percent	
Had headache in the past 3 months	yes	391	96.5
	no	14	3.5
Average headache attacks (Daily)	Once	212	54.2
	twice	73	18.7
	three times	69	17.6
	Furthermore	37	9.5
	Average headache attacks (Weekly)	Once	129
	twice	92	23.5
	three times	100	25.6
	Furthermore	70	17.9
Average headache attacks (Monthly)	Once	114	29.2
	twice	67	17.1
	three times	78	19.9
	Furthermore	132	33.8

As illustrated in the **Table 3**, 62.7% reported that headaches have increased in frequency since they started. Headache starts usually gradually in 37.3%, suddenly in 33.8%, and differs in 28.9%. The headache usually continues for minutes in 35.5% and 26.1%, for hours in 30.7% and 32.2%, and days in 33.28% and 41.7% (with and without medication respectively).

Regarding headache severity, 34.5% reported intensity, 34.8% reported moderate, and 30.7% light. 33% described headaches as from one side while the remaining participants were on both sides of the head. The nature of the headache was reported as pulsating in 58.3% of participants and compressive in 41.7%. 21% of participants consulted a family physician while 26.3% consulted a neurologist and 52.7% did not have a medical consultation.

Table 3. Determinants of primary headache among study participants (n=405)

Parameter	No.	Percent	
Headache increasing in frequency since started	yes	245	62.7
	no	146	37.3
The headache usually starts...	gradually	146	37.3
	suddenly	132	33.8
	Differs	113	28.9
The headache usually begins in...	the morning	106	27.1
	evening	170	43.5
	the night	115	29.4
The headache usually continues (with medication)	minutes	139	35.5
	hours	120	30.7
	day	132	33.8
The headache usually continues (without medication)	minutes	102	26.1
	hours	126	32.2
	day	163	41.7
Headache severity:	Intense	135	34.5
	Moderate	136	34.8
	light	120	30.7
Headache type	from one side	129	33.0
	on both sides of the head	262	67.0
The nature of the headache:	pulsating / palpitating	228	58.3
	opaque/compressive	163	41.7
Consultation with a specialist or consultant:	family doctor	82	21.0
	neurologist	103	26.3
	no one	206	52.7

Table 4 shows that headaches delay the daily activity of 64.5% of participants and impair the daily activity of 47.1%. Headache exacerbated by physical activities in 44.2%. Headache is accompanied by nausea in 46%, vomiting in 42.7%, sensitivity to light in 56.5%, noise sensitivity in 60.9%, and one or more neurological defects in 48.3%.

Table 4. Effects of headache on daily activity and its associated symptoms among study participants (n=405)

Parameter	No.	Percent	
Delay daily activities	yes	252	64.5
	no	139	35.5
Impairment of daily activities	yes	184	47.1
	no	207	52.9
Headache exacerbated by physical activities	yes	173	44.2
	no	218	55.8
Headache accompanied by nausea	yes	180	46.0

	no	211	54.0
Headache accompanied by vomiting	yes	167	42.7
	no	224	57.3
sensitivity to light	yes	221	56.5
	no	170	43.5
Noise sensitivity	yes	238	60.9
	no	153	39.1
One or more completely reversible neurological defects present (eg, visual impairment or speech disturbance)	yes	189	48.3
	no	202	51.7

In **Table 5**, 29.7% of participants use a prescription for headache medication, 18.9% use medication without a prescription and 51.4% do not use medications at all. 50.9% of participants have a family history of headaches. As for headache duration, almost half of the participants have had a headache for less than a year, one quarter from 2- 3 years and 10.2% have it for more than 5 years. 31.5% of participants were absent from work 1- 5 days during the last year because of headaches, 25.6% were absent for more than 5 days and 43% did not absent from work because of headaches at all.

Table 5. Use of medications and family history of headache among study participants (n=405)

Parameter	No.	Percent	
Use of medicines:	Use as a prescription	116	29.7
	Use without a prescription	74	18.9
	Do not use medicines	201	51.4
Family history of headaches:	yes	199	50.9
	no	192	49.1
Headache duration (in years):	less than one year	192	49.1
	2-3 years	98	25.1
	3-5 years	61	15.6
	more than 5 years	40	10.2
Absenteeism from work because of a headache during the last year	5-1 days	123	31.5
	more than 5 days	100	25.6
	I didn't miss	168	43.0

Given that this cohort may be more prone to headaches than the general population due to academic-related variables, such as emotional stress and poor sleep and eating habits, studying headaches in university students is crucial. For convenience sampling, we selected students from the Schools of Medicine and Psychology in our study, because headache risk factors are similar for medical students and psychology students [9]. Numerous studies have focused on medical students since they are at a greater risk for stress and main headaches. There is a connection between low academic performance and the need for intervention, according to an earlier study on primary headache disorders among medical students [3]. The purpose of this study is to find out how common primary headache problems are among medical students at Northern Border University in Arar, Saudi Arabia.

According to our study results, 96.5% of participants had a headache in the past 3 months. Average headache attacks were once daily in 54.2% and twice daily 18.7% and three times daily in 17.6% while 33 reported one headache attack weekly, 23.5% reported two attacks weekly and 25.6% reported three attacks weekly. According to a Saudi research done in Riyadh to investigate the frequency of headaches among male and female medical students, the prevalence of headaches was 53.78%, with tension-type headaches being 41.66%. Migraine headaches were common in 7.1% of people. There was just one incidence of cluster headache found. The prevalence of unspecified headaches was 3.78% [5]. According to one study, the latest one-year Saudi prevalence of primary headache problems among Saudi community adults was 63% [3]. Aside from medical students, one research was undertaken on medical and paramedical health personnel in Taif city hospitals [10]. Over a three-month period, the total prevalence of headaches among research participants was 88.3%. Other worldwide studies on headache prevalence among medical students found a wide range of results (58.7%,

88.3%, 46.0%, 90.0%, 96.8%, and 33.0%) [11-16]. An observational, cross-sectional study in the Western Region of Saudi Arabia discovered that one-year headache prevalence was (89.6%) [3]. In Palestine, TTH and migraine were shown to be prevalent in 59.8% and 22% of medical students, respectively, with a higher prevalence among basic-year students [12]. Another study among medical students at Udayana University Denpasar reported that their headaches had some influence on their lives, with more than 10% reporting significant and severe consequences. More than 80% of research participants said they had a headache in the previous year, and about 67% said they had a headache in the previous 1 to 3 months. The majority of the participants (50.8%) had pulsing headaches, and 78 percent had headache recurrence up to 5 times per month [17]. Another cross-sectional study was carried out at Iran's Isfahan University of Medical Sciences, which discovered that migraine headache prevalence was 14.2% and tension-type headache prevalence was 44.2% [18].

In our study, 33% described headaches as from one side while the remaining participants were on both sides of the head. This was comparable to a previous study that reported that frontal headache reported as the most common type of headache (24.1%) [19], nearly similar findings recorded by Shehata *et al.*, in Saudi Arabia [20] and Nandha & Chhabra [21] in India.

The nature of the headache was reported as pulsating in 58.3% of participants and compressive in 41.7%. This finding agrees with Momayyezi *et al.* who reported that (50.9%), (25.9%) and 2022 (22.6%) of the participants mentioned pressing, pulsating, and lancinating pain respectively [22].

Medical students reported low consultation rates despite being expected to be more aware of the value of consultations for health issues. In our study, only 29.7% of participants use a prescription for headache medication, 18.9% use medication without a prescription and 51.4% do not use medications at all. According to Costa *et al.*, 84% of their research participants—medical students—reported self-medicating for headaches, whereas 34% said they sought medical attention [23]. According to Deleu *et al.*, Only 23% of their study participants sought medical assistance for headaches, and 80% of medical students self-medicate [15]. The percentage of headache sufferers who said they sought medical attention was 8% in Blau's study [24]. Amay *et al.* discovered that 56% of their respondents self-medicated, and 50% of them said they sought medical attention when they were having a headache crisis [25]. Another research conducted in an Oman agricultural community by Deleu *et al.* found that 40% of people self-medicate [15].

While the relatively high prevalence of self-medication reported by medical and psychology students is probably connected to the students' level of education, pharmacology knowledge, and ease of access to painkillers, the literature's variable self-medication rate may be caused by sociocultural differences among the varied research subjects in different studies. Of our subjects, 52% said they never missed class because of headaches. This could be due to students' high drive to attend classes, modest symptom intensity, or successful self-medication that effectively reduced symptoms; or, most likely, it's a mix of all these variables [15, 20].

The current study indicated that 50.9% of migraine patients reported a family history of headaches, which is nearly in agreement with prior studies by Balaban and colleagues [26] who discovered that 72% of medical students with migraine had a positive family history of headaches. While Ghorbani and colleagues' study found a prevalence of 20.6%, other investigations have found a less favorable family history of headache prevalence among medical students with migraine [27].

CONCLUSION

In Saudi Arabia, primary headache is very common among medical students. Regarding its effects on their way of life and academic achievement, it poses a serious challenge. Campaigns by the Faculty of Medicine should educate students on the high occurrence of migraines, how to identify them, and how it affects their academic performance. Furthermore, emphasis should be placed on the value of seeking neurologist consultation if one experiences headaches. Programs for stress management should be created so that kids can acquire the proper techniques for reducing stress, which will in turn minimize the influence of migraine on their performance in school and other activities.

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