Pharmacophore

ISSN-2229-5402

Journal home page: http://www.pharmacophorejournal.com

MIGRAINE PREVALENCE AND ITS IMPACT ON ACADEMIC PERFORMANCE AND CAREER CHOICES AMONG MEDICAL STUDENTS IN KSA

Ahmed Khaled Shukri[1], Nouf AlMalki[2], Ghadi AlZahrani[3], Abdullah AlHubayshi[2], Abdullah Malaka[2], Ali AlEdrisi[2], Meshari Abu AlGhaith[2], Khames AlZahrani[4*]

1. *Department of Family Medicine, Faculty of Medicine, University of Jeddah. Jeddah, Saudi Arabia.*
2. *College of Medicine, University of Jeddah, Jeddah, Saudi Arabia.*
3. *College of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia.*
4. *Saudi Board of Endodontic SR, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia.*

ARTICLE INFO

Received:
28 Sep 2023
Accepted:
06 Dec 2023

Keywords: Migraine, Primary headache, Medical students, Saudi Arabia

ABSTRACT

Although migraine is a significant health issue, there needs to be more epidemiological research among medical students in Jeddah city assessing its prevalence and effect on career choices and education. The study aims to determine the prevalence of migraine among medical students in Jeddah city and to assess its impact on academic performance and career decisions. A cross-sectional study was done through an online questionnaire that was sent to participants using social media platforms targeting undergraduate medical students in Jeddah, Saudi Arabia. The study included 761 participants. The collected data was analyzed using SPSS. The study included 761 participants, 65.8% of them were females and 34.2% were males. 83.4% of participants were 20-25 years old. 33.5% of participants show a score of migraine according to the ID-Migraine test and 65.5% don't have migraine. 531 (69.8%) of participants had a history of two or more episodes of migraine in the last 3 months. Of participants who have migraine, 61.2% of participants reported that it was intense or frequent. 64.2% reported that migraines limit their ability to work, study, do physical or intellectual activities, or do what they want to do for at least one day. This study shows a high prevalence of migraine among the studied sample compared to previously reported Saudi and worldwide figures. There was a significant association between migraine with nationality, university, and academic year of participants.

To Cite This Article: Shukri AKh, AlMalki N, AlZahrani Gh, AlHubayshi A, Malaka A, AlEdrisi A, et al. Migraine Prevalence and Its Impact on Academic Performance and Career Choices among Medical Students in KSA. Pharmacophore. 2023; 14(S1): e-723-8781

Introduction

Migraine is a common type of migraine that presents with specific characteristics, such as moderate to severe unilateral migraine that is throbbing in nature and is usually associated with nausea [1]. Patients also tend to have photophobia, and/or phonophobia increases its severity [2]. Acute attacks can sometimes be preceded by an aura [3]. University students are commonly affected by migraines and are hindered in their studies, ultimately weakening their academic performance and impeding their daily activities [4, 5]. The prevalence of migraine is about 11% in the general population, twice as or three times as common in women as in men; additionally, it is ranked as the seventh most disabling disease worldwide [6]. Particularly among medical students, the prevalence of migraines ranges from 11% to 40% globally [7]. A study conducted in 2016 among Chinese medical students showed that factors such as sleep deprivation, inconsistent sleeping schedules, and stress were common triggers [8]. Academic attendance could be affected, where around 41% of participants in a 2020 Indonesian study among medical students took sick leave for a day, and three others were given more than seven days of absences [9]. Based on previous studies, medical students appear to be at high risk of migraine due to their hectic schedule, study style, and clinical obligations, which may result in psychological and physical stressors that can increase their frequency

Corresponding Author: Khames AlZahrani; Saudi Board of Endodontic SR, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia. E-mail: Dr.khames.alzahrani@gmail.com.

[9, 10]. In 2021 a study was conducted among Egyptian medical students to determine the prevalence, characteristics, and level of disability of migraine [11]. Demonstrated that migraine was caused more disability and significantly more common among female students compared to males [11]. Additionally, it showed a notable positive correlation between migraine strength, frequency, and negative academic achievements [11]. In 2014 a study was done to assess the migraine influence on academic activities and career choices in the US. The results show that migraine was significantly common in medical students, especially in females. Migraine does not influence career choices [12]. Although migraine is a significant health issue, there needs to be more epidemiological research among medical students in Jeddah city assessing the migraine's prevalence and its effect on academic accomplishments. Therefore, there is a pressing need for such research. This study aims to determine the prevalence of migraine among medical students in Jeddah city and assess its impact on academic performance and career decisions. Although migraine is a significant health issue, there needs to be more epidemiological research among medical students in Jeddah city assessing the migraine's prevalence and its effect on academic accomplishments. Therefore, there is a pressing need for such research. This study aims to determine the prevalence of migraine among medical students in Jeddah city and assess its impact on academic performance and career decisions.

Literature Review

Based on previous studies, medical students appear to be at high risk of migraine due to their hectic schedule, study style, and clinical obligations, which may result in psychological and physical stressors that can increase their frequency [13, 14].

In 2022 a study was conducted among students on the University of Khartoum's medical campus to determine the prevalence of migraine headaches and their impact on their academic performance. Osman Ali MM, *et al* found that out of 318 participants, only 252 answered with "yes" when asked about having two or more attacks of headache in the previous three months, 12.69% (n= 32) and 87.3% (n=220) of which were males and females, respectively. This shows that female participants had considerably higher headache rates than male participants. However, 150 participants have mentioned the limitation caused by their headaches when relating to studying, working, or even enjoying daily activities. When assessing the severity of the headache, 11.9% experienced mild headache, 57.8% experienced moderate headache, and 30.3% experienced severe headache. When asked about triggers of headache, emotional stress, anxiety, fasting, eating habits, irregular sleep, menstruation, and smoking were reported as the commonest triggers. 28.4% of participants reported having members of their families diagnosed with migraine. Most participants continued attending their lectures despite experiencing a headache episode. Many stated that it had affected their ability to study and prepare for their tests, reduced their concentration levels, and caused them to feel tired and unable to continue working. Almost one-third of participants had to stop studying due to their headaches; some continued without medications, while others had to use them to continue studying [15].

A recent study was done by H. Yang *et al*. in 2022 among medical students at North Sichuan College in western China to assess the prevalence of migraine among Chinese medical college students and investigate its characteristics and common causes. The findings indicate that migraines are widespread among North Sichuan Medical College students. Students in lower grades, women, and people who have migraine in their family are more prone to develop it. Migraine relief may come from enhancing sleep and lowering stress levels [16].

Furthermore, in 2021 a systemic review study conducted by Quratulain Javaid, comprising 11 articles from around the world, showed a greater incidence of migraine among females in comparison to males. The articles chosen in this study were found on Google, Google Scholar, and PubMed and published between 2015 and 2020 in English; only those in English that include migraine prevalence and clinical presentation among university students were chosen. Multiple studies showed that a family history of migraine raises the likelihood of developing it, and those who have a positive family history are three times more likely to develop migraine compared to those who do not. According to the literature, those who suffer from migraine have difficulty concentrating on their studies due to the pain, which has also led to a decrease in academic performance and an inability to regularly attend their classes. One of the limitations of this study is that it only included articles in English, so other articles written in a non-English language were not included and could've provided some valuable results and findings [17].

In 2021 a descriptive cross-sectional study was conducted by M. Oraby, R. Soliman, M. Mahmoud, *et al*. incorporating the MIDAS test into the survey among 631 Egyptian medical students to determine the prevalence, characteristics, and level of migraine disability. Migraine prevalence among medical students was found to be 17.9%. Demonstrated that migraine caused more disability and was significantly more common among female students than males. Additionally, it showed a statistically significant association between migraine frequency, intensity, and poor academic performance. The study's main limitation is that it was only a single-center study. Although there were many students in the study, It still doesn't adequately reflect Egyptian medical students [11].

A study was performed by F. Anwar, A. Bilal Sheikh, T. Taher, *et al*. among Karachi medical students in 2021 to investigate the prevalence of migraine among students studying medicine and to figure out the causes, risk factors, and effects of migraine on these individuals [13]. The outcome displays that around 50% of the medical students had migraines, and most of them were female students. Lowering stress and getting more restful sleep may aid in fewer migraine attacks [13].

In 2020 a cross-sectional study done by M. Kanjo, R. Alsaati, O. Jassomah, *et al*. was conducted among Fakeeh college students to establish the prevalence of migraine headaches among students; all academic years were taken into consideration. Of 800 students, only 313 have completed the questionnaire. The study showed the high prevalence of migraine among Fakeeh college students, which increased with higher levels of academic years. Irregular sleep was the most triggering headache factor.

The study has some limitations, such as it has few males who completed the questionnaire and the answers were from the first to the fourth year because medicine is a new major in Fakeeh College [18].
A. Akour, W. Shabi, A. Ageeli, *et al*. published a cross-sectional study in 2018 performed during the 2016-2017 academic year at Jazan University. They aimed to know the frequency of migraine headaches among medical students at Jazan University and to determine how it affects their day-to-day activities. There were 260 students tested. The study showed that 5% of the students had migraine headaches with not much of a difference between males and females according to the p-value. However, there were notable differences in the number of years spent in college, with the prevalence rising. All of the participants claimed that their regular activities were being impaired by the headache [19].
In addition, two cross-sectional studies were done at King Abdulaziz University [10, 14]. The first study was conducted by N. Ibrahim, M. Wakid, A. Alqarni, *et al*. in 2018 at the Faculty of Applied Medical Sciences, and the result showed that the prevalence of migraine headaches was 36.5%. Based on MIDAS, 29.7% of migraineurs suffer from severe headache disability. Sleep disturbance and stress were the common triggers of migraine [10]. The second study was conducted by N. Ibrahim, A. Alotaibi, A. Alhazmi, *et al*. in 2017 among medical students and interns and it concluded that the migraine prevalence was 26.3%. Regarding migraine triggers, exam stress and sleep disturbances were the commonest. Most participants reported that their ability to attend sessions and academic performance were reduced during migraine attacks.
In 2014 a cross-sectional study was performed by Heidi Johnson *et al*. to assess the migraine influence on academic activities and career choices of 359 medical students in the US through a 23-item questionnaire, and the symptoms mentioned fulfilling the International Headache Society (IHS) diagnostic criteria. The results show that migraine was significantly common in medical students, especially in females. Migraine does not influence career choices. Unfortunately, some limitations that this study faced were a small number of participants from one medical school, dependence on self-diagnosis of migraine, and other subjective variables [12].

Materials and Methods

Study Design

A cross-sectional study was conducted during 2023. This study was conducted at the University of Jeddah's College of Medicine, King Saud bin Abdulaziz University for Health Sciences, King Abdulaziz University, Fakeeh College of Medical Sciences, Batterjee Medical College, and Ibn Sina National College, Jeddah, Kingdom of Saudi Arabia. Jeddah is the second-largest city in Saudi Arabia, it is on the western side of the kingdom and has a population of approximately 3,400,000. Jeddah is also the main entry point by air and sea for pilgrims heading to the sacred cities of Makkah and Medina to perform Hajj pilgrimage. The historic Jeddah has been inscribed to the World Heritage list since 2014 [20].

Population and Sampling

Our study's population will consist of medical students at the University of Jeddah, King Saud bin Abdulaziz University for Health Sciences, King Abdulaziz University, Fakeeh College of Medical Sciences, Batterjee Medical College, and Ibn Sina National College for Medical Studies. We will target medical students in the 2nd, 3rd, 4th, 5th, and 6th years who are registered in the College of Medicine at the mentioned universities for the scholar year 2022-2023, including both genders in basic and clinical years. The study will exclude non-medical students such as applied sciences, dental, pharmacology students, and nurses. Doctors and medical interns will also be excluded, as well as participants who did not agree to the terms mentioned in the electronic consent form which was presented at the beginning of the questionnaire, and those who did not complete the questionnaire will be excluded from the analysis.

Sampling Method

The sample size was calculated by (Raosoft, Inc., Seattle, WA, USA) (22) at 384 individuals using the following formula and applying means and standard deviation. Considering the standard deviation (=1.96) for a 95% Confidence interval and the maximum acceptable error (=0.05). Therefore, the calculated minimum sample size required for this study is n= (1.96)^2X 0.50X 0.50/ (0.50)^2= 384 participants.

$$= \frac{Z^2 p(1-p)}{d^2} \quad (1)$$

Method for Data Collection and Instrument (Data Collection Technique and Tools)

A questionnaire was constructed based on our objectives and the previous two studies. Part of the questionnaire was driven from "Prevalence of migraine migraines and their impact on the academic performance of Sudanese medical students using ID-Migraine test as a screening tool: A cross-sectional study" published by Wiley Periodicals LLC and we got the permission to use the questionnaire. In addition, the last two questions were extracted from "Migraine in Students of a US Medical School" to evaluate the migraine's impact on career choices.
The data in the questionnaire covered areas of demographic information, MS-Q (Migraine Specific Quality of Life), three items of the ID-Migraine test, academic performance evaluation, and the impact on career choices. The questionnaire is in

English, concise, easy to understand, and designed using Google Forms. It was distributed through social media platforms, with the survey objectives, the target population, and a request to participate voluntarily.

Pilot Study

A pilot study was conducted on a randomly selected group of 20 medical students in order to assess the clarity of questionnaire items and estimate the actual time required to complete the questionnaire. Additionally, the results of the pilot study were used to test the reliability of certain sections of the questionnaire. It is important to note that the data collected during the pilot study was excluded from the final data analysis of our study.

Analyzes and Entry Method

The data was collected using Microsoft Excel and analyzed using the statistical package for the social sciences (SPSS) version 28 (IBM Crop., Armonk, NY, USA). The qualitative data was represented using percentages and frequencies, while the quantitative variables were calculated by mean, median, and standard deviation. To compare between groups, a chi-square test was used for categorical variables and an independent t-test for continuous variables. A statistical value of $p<0.05$ was considered significant.

Results and Discussion

The study included 761 participants, 65.8% of them were females and 34.2% were males. 83.4% of participants were 20- 25 years old while 13% were less than 20 years old. 87.6% were Saudi. 25.1% of participants were in the third academic year, 23.1% in the second year and 19.4% in the 6th year as illustrated in **Table 1**.

Table 1. Sociodemographic characteristics of participants (n=761)

Parameter		No.	%
Age	less than 20	99	13.0
	20 - 25	635	83.4
	26 -30	27	3.5
Gender	Male.	260	34.2
	Female.	501	65.8
Nationality	Saudi.	667	87.6
	Non-Saudi.	94	12.4
University	Batterjee Medical College.	147	19.3
	Fakeeh College of Medical Sciences.	30	3.9
	Ibn Sina National College for Medical Studies	78	10.2
	King Abdulaziz University.	218	28.6
	King Saud bin Abdulaziz University for Health Sciences	80	10.5
	University of Jeddah.	208	27.3
Academic year	2nd year	176	23.1
	3rd year	191	25.1
	4th year	119	15.6
	5th year	127	16.7
	6th year	148	19.4

Figure 1 shows that 33.5% of participants show a score of migraine according to the ID-Migraine test and 65.5% don't have migraine.

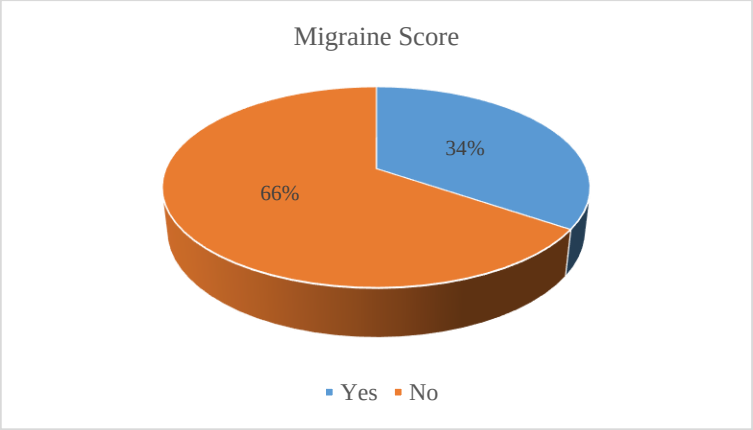

Figure 1. Prevalence of migraine according to ID-Migraine test scores

As illustrated in **Table 2**, 531 (69.8%) of participants had a history of two or more episodes of migraine in the last 3 months. Of participants who have migraine, 61.2% of participants reported that it was intense or frequent. 46.3% reported that episodes usually last more than 4 hours. As for attached symptoms, 42.6% felt nauseated or sick to the stomach, 59.3% reported that light or noise bothered them, and 64.2% reported that migraines limit their ability to work, study, do physical or intellectual activities or do what they want to do for at least one day.

Table 2. Determinants of migraine among study participants (n=531)

Parameter		No.	%
Episodes frequent and/or intense	Yes.	325	61.2
	No.	206	38.8
Episodes usually last more than 4 hours	Yes.	246	46.3
	No.	285	53.7
During the last 3 months, did you have any of the following with your migraines (Bias risk)	Felt nauseated or sick to your stomach.	226	42.6
	Light or noise bothered them	315	59.3
	Migraines limit the ability to work, study, and do physical or intellectual activities for at least one day.	341	64.2
Did you tick at least two of the above?	Yes.	308	58.0
	No.	223	42.0

Table 3 shows that 73.7% of participants continue attending lectures while experiencing episodes of migraine. 92.9% reported that migraine affect concentration at the lectures. 89.3% reported that migraine affects studying for tests and or exams. 92.5% feel too tired to continue working or studying while experiencing a migraine episode.

Table 3. Effect of migraine on academic performance of participants (n=308)

Parameter		No.	%
Continue attending lectures while experiencing episodes of migraine	Yes.	227	73.7
	No.	81	26.3
migraine affects concentration at lectures	Yes.	286	92.9
	No	22	7.1
migraine affect studying for tests and or exams	Yes.	275	89.3
	No.	33	10.7
Feel too tired to continue working or studying while experiencing a migraine episode	Yes.	285	92.5
	No.	23	7.5

As in **Table 4**, 62.7% experience a migraine that is more intense than usual while studying for tests or exams. 84.4% reported altered seeping patterns alter during tests or exam periods. 47.1% study for a long period without taking regular breaks. 73.7% consume beverages to help sustain concentration for a longer period. 44.2% reported that they missed didactics last semester. 40.3% missed clinical duties due to migraines. 80.5% attended educational activities despite symptoms because obligated to attend. 19.8% reported that migraine influences the choice of medical school. 19.2% reported that migraine influences the choice of residency programs.

Table 4. Triggers of Migraine among study participants (n=308)

Parameter		No.	%
Experience a migraine that is more intense than usual while studying for tests or exams	Yes.	193	62.7
	No.	115	37.3
When you experience a migraine episode:	Continue studying with the use of medications	184	59.7
	Continue without the use of medications	48	15.6
	Stop studying due to the migraine	76	24.7
Sleeping pattern alters during tests or exam periods	Yes.	260	84.4
	No.	48	15.6
Study for a long period without taking regular breaks	Yes.	145	47.1
	No.	163	52.9
Consume beverages such as caffeinated energy drinks, chocolate, or coffee to help sustain concentration for a longer period	Yes.	227	73.7
	No.	81	26.3
Lighting in the study area is adequate and does not affect the studying	Yes.	238	77.3
	No.	70	22.7
Missed didactics last semester	Yes.	136	44.2
	No.	172	55.8
Missed clinical duties due to migraines (Clinical years students)	Yes.	124	40.3
	No.	184	59.7
Attended educational activities despite symptoms because obligated to attend	Yes.	248	80.5
	No.	60	19.5
Migraine influences the choice of medical school	Yes.	61	19.8
	No.	247	80.2
Migraine influences the choice of residency programs	Yes.	59	19.2
	No.	249	80.8

Figure 2 shows that 59.7% of participants did not miss clinical duties due to migraines (Clinical years students) and 40.3% missed clinical duties due to migraines (Clinical years students).

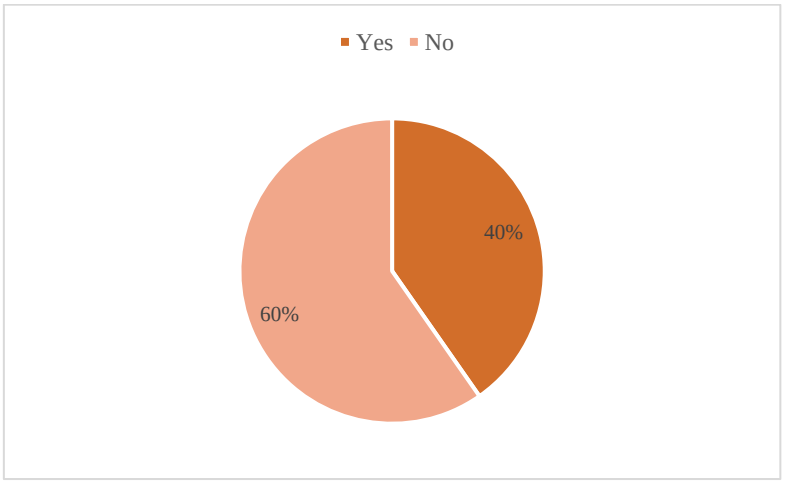

Figure 2. Prevalence of migraine according to ID-Migraine test scores

Table 5 shows an association between migraine test scores with nationality, university, and academic year of participants (P< 0.05).

Table 5. Association between migraine test scores with sociodemographic characteristics of participants

		score		Total (N=531)	P value
		Migraine	No migraine		
Age	less than 20	24	47	71	0.600

		4.5%	8.9%	13.4%	
	20 25	152	293	445	
		28.6%	55.2%	83.8%	
	26 30	7	8	15	
		1.3%	1.5%	2.8%	
Nationality	Saudi	151	309	460	0.043
		28.4%	58.2%	86.6%	
	Non -Saudi	32	39	71	
		6.0%	7.3%	13.4%	
Gender	Male	50	120	170	0.093
		9.4%	22.6%	32.0%	
	Female	133	228	361	
		25.0%	42.9%	68.0%	
University	Batterjee Medical College.	51	64	115	0.006
		9.6%	12.1%	21.7%	
	Fakeeh College of Medical Sciences.	11	14	25	
		2.1%	2.6%	4.7%	
	Ibn Sina National College for Medical Studies	14	12	26	
		2.6%	2.3%	4.9%	
	King Abdulaziz University.	42	119	161	
		7.9%	22.4%	30.3%	
	King Saud bin Abdulaziz University for Health Sciences.	21	38	59	
		4.0%	7.2%	11.1%	
	University of Jeddah.	44	101	145	
		8.3%	19.0%	27.3%	
Academic year	2nd year	56	81	137	0.015
		10.5%	15.3%	25.8%	
	3rd year	53	96	149	
		10.0%	18.1%	28.1%	
	4th year	32	43	75	
		6.0%	8.1%	14.1%	
	5th year	19	65	84	
		3.6%	12.2%	15.8%	
	6th year	23	63	86	
		4.3%	11.9%	16.2%	

Based on previous studies, medical students appear to be at high risk of migraine due to their hectic schedule, study style, and clinical obligations, which may result in psychological and physical stressors that can increase their frequency [13, 14].

In a similar study performed in Khartoum by Osman Ali MM, *et al* found that 97.2 % had two or more episodes of migraine in the last three months [15]. In 2021 a descriptive cross-sectional study was conducted and reported that, the prevalence of migraine among medical students was found to be 17.9% [11]. Compared to our findings, the prevalence of migraine among Jazan University's medical students in Saudi Arabia was substantially lower at 5% [19]. However, compared to medical students at Kuwait University who had a migraine prevalence of 27.9% [21], participants in a Nigeria study had a prevalence of 24.5% [22]. Previous studies with findings that were comparable to ours found that 13.1% of medical students in Southeast Nigeria [23], 12.6% in Turkey [2], and 12.2% in Oman [24] had migraines.

In the current study, 64.2% of participants reported that migraines limit their ability to work, study, do physical or intellectual activities, or do what they want to do for at least one day. 92.9% reported that migraine affect concentration at the lectures. 89.3% reported that migraine affects studying for tests and or exams. 92.5% feel too tired to continue working or studying while experiencing a migraine episode. In a previous study, most participants continued attending their lectures despite experiencing a migraine episode. Many stated that it had affected their ability to study and prepare for their tests, reduced their concentration levels, and caused them to feel tired and unable to continue working. Almost one-third of participants had to stop studying due to their migraine; some continued without medications, while others had to use them to continue studying

[15]. More than 80% of participants in a US research who experienced migraines reported lower productivity, yet 76% felt compelled to participate in educational activities despite their symptoms [12].
As for the attached symptoms, 42.6% felt nauseated or sick in the stomach, and 59.3% reported sensitivity to light or noise. Photophobia, phonophobia, nausea, and vomiting were the most prevalent secondary symptoms previously documented, according to a prior study carried out in Pakistan [25]. Allodynia, neck stiffness, and dizziness were other symptoms that were described. These additional symptoms make the patient more disabled and might occasionally be more uncomfortable for the patient. If other symptoms known as migraine variants are more noticeable than the headache itself, the diagnosis may be challenging, delaying the start of therapy. 15% of medical students may have neck discomfort due to bad posture. This causes therapy to be delayed, which increases the amount of discomfort.
Patients with migraine frequently experience triggers. Numerous stressors affect the population under study, and identifying triggers will result in headache remission in the vast majority of students. It is well-recognized that stress can set off migraine attacks, creating a vicious cycle. Medical students have reported that stress is a known migraine headache trigger. The stressful environment of medical school has a greater impact on people with migraine headaches than on people without migraines. However, in our study, the perceived stress levels were comparable for the two groups, showing that they had experienced comparable amounts of stress.
In a previous Saudi study, 29.7% of migraineurs suffer from severe migraine disability. Sleep disturbance and stress were the common triggers of migraine [10]. Another Saudi study showed that most participants reported that their ability to attend sessions and academic performance were reduced during migraine attacks [14]. Another study results in the US show that migraine was significantly common in medical students, especially in females [12].
According to our study results, there was no correlation between gender and the prevalence of migraine. This was contrary to previous studies showing that female participants had considerably higher migraine rates than male participants [15]. However, our study shows an association between the prevalence of migraine during the academic year. A recent study in China indicated that migraines are widespread among North Sichuan Medical College students. Students in lower grades, women, and those with a family history of migraine are more prone to have it [16]. Additionally, A statistically significant positive association between migraine frequency, intensity, and inadequate academic performance was discovered in another study conducted in Egypt. The study's main limitation is that it is a single-center study [11]. A different study discovered that Fakeeh college students had a high incidence of migraines and that this prevalence increased as the academic years increased [18]. A cross-sectional study at Jazan University showed no significant difference between males and females. However, there were notable differences in the academic year, with the prevalence rising. All participants claimed that their regular activities were being impaired by the migraine [19].
The current study offers background data on the prevalence, contributing factors, and daily effects of migraine among Saudi medical students. The study was limited in that it only looked at how migraines affected academic performance and job choices; additional factors still need to be investigated. On the other hand, students were not examined by a neurologist to diagnose migraine, and the self-administered questionnaire is insufficient to differentiate between the different types of migraines, leading to an exaggerated prevalence value. Furthermore, our study only focused on medical students from the universities located in Jeddah which could be considered too restricted in terms of representation of the general population of Saudi Arabia.

Conclusion

This research shows a high prevalence of migraine among the studied sample compared to previously reported Saudi and worldwide figures. Significant correlations were found between individuals' country, university, educational year, and migraine incidence. By addressing patient education in this demographic and assisting patients in effectively managing their headaches, this study will support primary care professionals in their work. To learn more deeply about migraine in the student population, more research should be planned in the future.

Acknowledgments: We appreciate everyone who participated and provided samples for research.

Conflict of interest: None

Financial support: None

Ethics statement: The University of Jeddah’s research ethics commission provided ethical approval. Application number: (UJ-REC-093). An informed consent was obtained from each participant after explaining the study in full and clarifying that participation is voluntary. Data collected were securely saved and used for research purposes only.
All individuals who took part in the study gave their written, informed consent.

References

1. Gupta J, Gaurkar SS. Migraine: An Underestimated Neurological Condition Affecting Billions. Cureus. 2022;14(8):e28347. doi:10.7759/cureus.28347

2. Theis J. Differential diagnosis and theories of pathophysiology of post-traumatic photophobia: A review. Neuro Rehabil. 2022;50(3):309-19.
3. Mehnert J, Fischer-Schulte L, May A. Aura phenomena do not initiate migraine attacks-Findings from neuroimaging. Headache. 2023;63(8):1040-4.
4. Gouhar GK, Tamimm RE, AlMahri SM, Almogati AL, Alsaeed HM, Almuryidi MS, et al. Migraine among Princess Nourah BInt. Abdulrahman University students in Riyadh, Saudi Arabia. Int J Med Dev Ctries. 2018;2:103-8.
5. Mubarak AS, Alzahrani AM, Alamri RD, Asiri AA, Alzahrani SA, Alwadai FY, et al. The impact of physical activity and meditation to reduce stress and anxiety during covid-19 pandemic: Knowledge and awareness assessment. Med Sci. 2022;26(ms211):e2325.
6. Alharbi AA, Alharbi SH, Albalawi AM, Alshdokhi AM, Alanazi WA, Alsiraa MN, et al. Migraine among medical and non-medical students of Hail University. Egypt J Hosp Med. 2018;71(6):3343-50.
7. Rafi A, Islam S, Hasan MT, Hossain G. Prevalence and impact of migraine among university students in Bangladesh: findings from a cross-sectional survey. BMC Neurol. 2022;22(1):68.
8. Gu X, Xie YJ. Migraine attacks among medical students in Soochow University, Southeast China: a cross-sectional study. J Pain Res. 2018;11:771-81.
9. Adnyana IM. Prevalence of headache among medical students in Universitas Udayana, Denpasar, Bali-Indonesia. IJBS. 2020;14(1):26-31.
10. Khamis Ibrahim N, Wakid MH, Kamel Alqarni A, Mohammad Bajaba R, Mohammad Aljuhani F, Mulla Bally A, et al. Migraine among Students from the Faculty Migraine among Students from the Faculty of Applied Medical Sciences, King Abdulaziz University, Jeddah, Saudi Arabia. J Adv Med Med Res. 2018;27(11):45089.
11. Oraby MI, Soliman RH, Mahmoud MA, Elfar E, Abd ElMonem NA. Migraine prevalence, clinical characteristics, and healthcare-seeking practice in a sample of medical students in Egypt. Egypt J Neurol Psychiatry Neurosurg. 2021;57(1):1-9.
12. Johnson H, Guhl G, Arora J WA. Migraine in Students of a US Medical School. Fam Med. 2014;46(8):615-9.
13. Anwar F, Bilal Sheikh A, Taher T, Iqbal Khan M, Masoom A, Khursheed A, et al. Prevalence and predictors of migraine among medical students in Karachi. J Bas Res Med Sci. 2021;8(1):19-27.
14. Ibrahim NK, Alotaibi AK, Alhazmi AM, Alshehri RZ, Saimaldaher RN, Murad MA. Prevalence, predictors, and triggers of migraine headache among medical students and interns in King Abdulaziz University, Jeddah, Saudi Arabia. Pakistan J Med Sci. 2017;33(2):270-5.
15. Osman Ali MM, Abbasher Hussien Mohamed Ahmed K, Omer MEA. Prevalence of migraine headaches and their impact on the academic performance of Sudanese medical students using ID-Migraine test as a screening tool: A cross-sectional study. Brain Behav. 2022;12(5):e2588.
16. Yang H, Pu S, Lu Y, Luo W, Zhao J, Liu E, et al. Migraine among students of a medical college in western China: a cross-sectional study. Eur J Med Res. 2022;27(1):1-11.
17. Javaid Q. Prevalence, triggers and presentation of migraine among the college and university students: Review of the available literature. J Pak Med Assoc. 2021;71(11):2617-22.
18. Kanjo M, Alsaati RH, Jasoomah OM, Alhindi SH, Jamjoom LF, Albogami MA. The prevalence of migraine headache among students of Fakeeh College in Jeddah, Saudi Arabia. Med Sci. 2021;25:320-7.
19. Shabi W, Akour A, Ageeli A, Najmi K, Hassan Y. Prevalence of Migraine among Medical Students in Jazan University and Its Impact on Their Daily Activities. Egypt J Hosp Med. 2018;70(5):872-6.
20. Jeddah – Travel guide at Wikivoyage.
21. Ojini F, Okubadejo N, Danesi M. Prevalence and clinical characteristics of headache in medical students of the University of Lagos, Nigeria. Cephalalgia. 2009;29(4):472-7.
22. Ezeala-Adikai BA, Ekenze OS, Onwuekwe IO. Frequency and pattern of migraine among medical and nursing students at Enugu, South East Nigeria. J Headache Pain. 2013;14(1):1.
23. Deleu D, Khan MA, Humaidan H, Al Mantheri Z, Al Hashami S. Prevalence and clinical characteristics of headache in medical students in Oman. Headache. 2001;41(8):798-804.
24. Bokhari FA, Sami W, Shakoori TA, Ali SA, Qureshi GA. Clinical characteristics of 226 college-going female migraineurs in Lahore, Pakistan - putting ICHD-2 to the road test. Neuro Endocrinol Lett. 2008;29(6):965-70.
25. Calhoun AH, Ford S, Pruitt AP. Presence of neck pain may delay migraine treatment. Postgrad Med. 2011;123(2):163-8.