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The prevalence of migraine headache among students of Fakeeh College in Jeddah, Saudi Arabia

Mahdi Kanjo[1], Raghad H.Alsaati[2], Ohoud M.Jassomah[2], Sara H.Alhindi[2], Layal F.Jamjoom[2], Mashari A.Albogami[2]

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Author Affiliation:
[1]Dr. Soliman Fakeeh hospital, neurology department, Jeddah, Saudi Arabia
[2]Faculty of Medicine, Fakeeh College for medical sciences, Jeddah, Saudi Arabia

✉**Corresponding author**
Faculty of Medicine, Fakeeh College for medical sciences, Jeddah,
Saudi Arabia;
Email: raghadalsaati@gmail.com

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ABSTRACT

Background: Migraine headache is the most common health problem in the world that affects either one side or the whole head. It's usually felt as a pulsating pain, and could last up to 2-3 days; nausea, photophobia (sensitive to light) and phonophobia (sensitive to sound) are the associated symptom that comes with it. Due to the lack of studies done on migraine among medical field students in Saudi Arabia our aim was to measure the prevalence of migraine headache among students of Fakeeh College for medical sciences (FCMS) in Jeddah, Saudi Arabia. *Methods*: A cross sectional study was conducted randomly among Fakeeh college students, from June to September 2020. All academic years was included, the data were collected through a questionnaire entered to Excel, then in statistical analysis frequency test was used for all univariate questions except for age mean and standard deviation were used to analyze it and (chi-square) were used for all bivariate variables. *Results*: Out of 800 students 313 has completed the questionnaire, female participants were higher in number than males. The prevalence of migraine headache was (71.6%). Moderate migraine headache was reported the highest among these students, and our findings showed that migraine increased with higher levels of academic year. Also, it showed that the most trigger increases headache was irregular sleep. *Conclusion*: According to our findings the prevalence of migraine was high in percentage among Fakeeh college students, and it increased with higher levels of academic years. The most increasing headache trigger was irregular sleep.

Keywords: Migraine headache, Fakeeh College, students, Jeddah.

1. INTRODUCTION

Migraine headache is one of the primary chronic neuro-inflammatory disorders worldwide. It is the most common health problem in the world as it accounts for (1.4%) of all neurological disorders (Ibrahim et al., 2017). It mainly affects the nervous system (Almalki et al., 2018) and is often felt as a pulsating/ throbbing pain like sensation (Van Hemert et al., 2014). The headache attack may affect one side of the face, skull or whole head (Ibrahim

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et al., 2018). The period of the attack, if untreated, lasts between 4 hours and continues up to 2-3 days (Lipton et al., 2014). It's usually associated with nausea, vomiting, photophobia (sensitive to light) and phonophobia (sensitive to sound) (Lipton et al., 2001). Migraineurs have a strong family link, which suggests a large genetic component to migraine risk (Dzoljic et al., 2014; Hernandez-Latorre et al., 2000; Merikangas, 2013; Russell & Olesen, 1995). It can occur with aura (typical migraine) or without aura (classical migraine) (Loder et al., 2013). Common migraine triggers include prolonged fasting, sleep disturbance, stress, menstruation, and some medications (Hosomi et al., 2013). Migraine is considered a major health issue among students at universities. This is mainly due to its high prevalence, associated morbidity, disability, and reduced academic performance (Semiz et al., 2013).

There was a study reported among American female medical students with (35%) prevalence of migraine. A similar prevalence rate conducted on 599 female medical students, Al-Azhar University, Cairo, and according to the IHS classification (35.89%) was diagnosed by migraine (Tayel, 2008). Moving to Saudi Arabia, a study took place in Hail University which included medical and non-medical students, the prevalence of migraine represented (51.5%) of non-medical students and (12.7%) of medical (Abdulhadi et al., 2018). Another study conducted in Riyadh has selected a sample group of 523 females, (61.1%) of those students had no family history of migraine while (38.9%) did. Factors such as sleep quality, stress, and menstruation were evaluated in the study to prove what triggers migraine, (89.3%) of those students were lacking sleep, and (74.8%) had endured stress while menstruation showed (46,6%) overall (Gouhar et al., 2018). A different study was done in King Abdulaziz University (KAU), KSA. About 566 had completed the survey. Participants with a migraine family history were 3.64 times more likely to have migraine than others; also smokers were more likely to have migraines (Ibrahim et al., 2017).

Another study was done on students from (KAU), Jeddah, about 304 students were evaluated for migraine, drug usage was different among them in such that, about (55.8%) the migraineurs used drugs; (14.4 %) of which had used prescribed medications, and (41.4%) used over the counter (OTC) drugs. However, (44.2%) did not use any medication. paracetamol was the most used medication giving a percentage of (69.4%) while others used Non-Steroidal Anti- Inflammatory Drugs (NSAIDs) at a rate of (3.2 %) (Ibrahim et al., 2018). To the best of our knowledge, there are limited studies done on migraine headache among students of private medical colleges in Saudi Arabia.

The aim of this study is to assess the prevalence of migraine headache among all academic years from the students of Fakeeh College for medical sciences (FCMS) in Jeddah, Saudi Arabia, 2020.

2. METHODOLOGY

This study was approved by Fakeeh College for medical sciences (FCMS) committee. A cross sectional study was conducted randomly among Fakeeh College students in Jeddah, Saudi Arabia from June to September 2020. All academic years were included in this study. The sample size was 313 which got calculated by Raosoft calculator. In this study, we used an online questionnaire that was validated and included the following 5 sections:

1st section: - demographic data: (Gender, age, discipline and academic year).
2nd section: - initial evaluation analyzed through 3 Yes/No question;

- Q1: Did you have two or more headaches in the last 3 months?
- Q2: Do you have headaches that limit your ability to study or enjoy life?
- Q3: Do you want to talk to your healthcare professional about your headaches?

-in order for the participant to be considered as having migraine headache, at least one answer must be positive.
3rd section: -ID- migraine during the last 3 months, this section included the following 3 Yes/No question:

- Q1: Did you feel nauseated or sick in your stomach with your headaches?
- Q2: Did the light bother you when you had a headache (a lot more than when you do not have headaches)?
- Q3: Did your headache limit your ability to work, study or do what you needed to do for at least 1 day?

-in order for the participant to be considered having migraine headache, at least two answers must be positive.
4th section: - Headache severity on a scale from 0-3 , participants should choose the severity of headache pain they have according to the following:
0-no headache,1=mild headache,2=moderate headache,3=severe headache.
5th section: -Triggers which included the following 11 Yes/No questions: (exposure to the sun, emotional stress or anxiety, noise, exams, reading hours, eating habits, fasting, menstruation, irregular sleep, physical activity, and smoking). All participants were notified about the study objectives and response confidentiality, and we took their consent.

Data analysis

The data were entered in Microsoft Office Excel 2016, and statistical analysis was performed by using Statistical Package for the Social Sciences (SPSS) version 25. We used frequency test for all univariate variables except age we used mean and standard deviation to analyze it. We used (chi-square) for all bivariate variables also for (headache severity with; discipline and gender except migraine with age. A p value less than 0.05 were considered significant.

3. RESULT

This study aimed to measure the prevalence of migraine headache among all students of all academic years at Fakeeh College for medical sciences in Jeddah, KSA, in 2020. Out of 800 students 313 has completed the questionnaire. The mean age was (22) SD (±2.595) and the number of females who participated were higher than males which were (80.2%) while males were (19.8%). According to the data analysis most of the participants were medical students (29.7%) and more than (25%) of the participants were in 4th year (Table 1).

Table 1 Distribution of demographic variables

Table 1 Demographics		Total
Number of participants	Male	62 (19.8%)
	Female	251 (80.2%)
Discipline	Medicine	199 (63.6%)
	Nursing	71 (22.7%)
	Medical Laboratory Sciences (MLS)	37 (11.8%)
	Pharm D	6 (1.9%)
Academic years	1st year	39 (12.5%)
	2nd year	48 (15.3%)
	3rd year	88 (28.1%)
	4th year	93 (29.7%)
	5th year	7 (2.2%)

Out of 313 students, about 263 students had felt headache in the last 3 months whereas 50 students did not experience any headaches as shown in (figure 1). The prevalence of migraine headache among these students marked about 136 (71.6%) as expressed in (figure 2). The participants in this study were also asked about family history. About 74 (38.9%) had family history of migraine while 116 (61.1%) did not have family history of migraine (figure 3). A total of 117(37.4%) students experienced aura (knew when the attack will occur). Headaches among students seemed to come as an attack at a rate of 121 (38.7%).

The severity of headache pain was given the following three levels (Mild, moderate, and severe) for those suffering from headaches. The values marked represented that about 31(9.9%) students suffered from mild headache followed by 108 (34.5%) of moderate headaches and finally, 47 (15%) students had severe headaches as shown in (figure 4). About 4 (1.3%) had no migraine at all. Migraine triggers such as (exposure to sunlight, emotional stress, noise, exams, reading hours, eating habits, fasting, menstruation, irregular sleep, physical activity, and smoking) were also evaluated as expressed in (Table 2).

According to triggers irregular sleep was the most trigger that increases migraine headache which represented about (54.6%), followed by noise (51.1%), then emotional stress/anxiety (47.6%). The rest of triggers are mentioned in (Table 2). About 128 (40.9%) out of 190 students had experienced a migraine that is pulsating in nature. Students were also asked about whether simple analgesia had improved their headaches, and a total of 120 (38.3%) students out of 190 (60.7%) had confirmed that their headaches

were improved by analgesics. Moving on to relations; There was a significant relation between discipline and headache severity of (P-value= 0.01), also between migraine and aura of (P-value= 0.004), and there was a significant difference between migraine and irregular sleep (P-value= 0.000141). The rest of significant differences and also non-significant differences are listed in (Table 3).

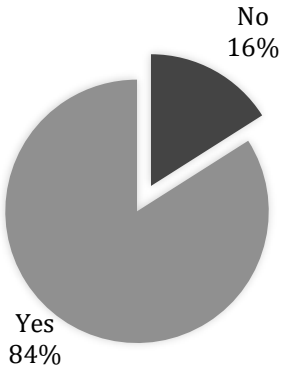

Figure 1 Percentage of the prevalence of general headache.

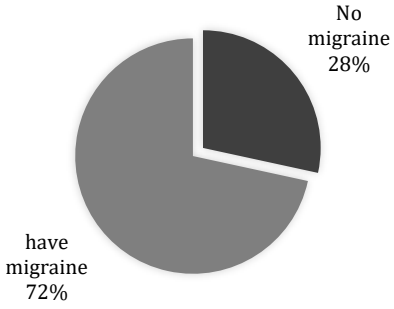

Figure 2 Percentage of the prevalence of migraine

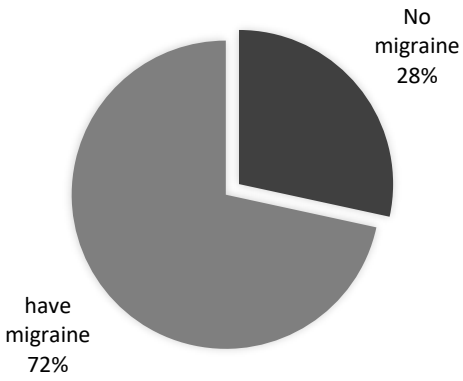

Figure 3 Percentage of family history for migraine

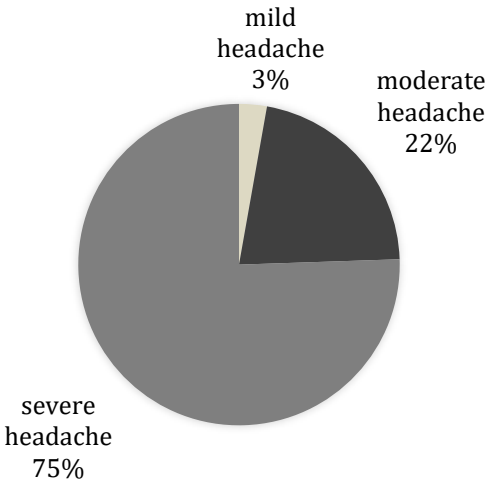

Figure 4 Percentage of severity of migraine headache

Table 2 Triggers of migraine

Triggers of migraine	Yes / No	Frequency
Does exposure to sun increase your headache	Yes No	126(66.3%) 64(33.7%)
Does emotional stress or anxiety increase your headache	Yes No	149(78.4%) 41(21.6%)
Does exams increase your headache	Yes No	142(74.7%) 48(25.3%)
Does reading hours increase your headache	Yes No	130(68.4%) 60(31.6%)
Does eating habits increase your headache	Yes No	52(27.4%) 138(72.6%)
Does fasting increase your headache	Yes No	103(54.2%) 87(45.8%)
Does menstruation increase your headache	Yes No	109(57.4%) 81(42.6%)
Does irregular sleep increase your headache	Yes No	171(90%) 19(10%)
Does physical activity increase your headache	Yes No	79(41.6%) 111(61.6%)
Does smoking increase your headache	Yes No	73(38.4%) 117(61.6%)

Table 3 Relations of migraine headache

Relations of migraine headache with triggers	significance
Relation between migraine headache and exposure to sun	(P value = 0.005)
Relation between migraine headache and emotional stress or anxiety	(P value = 0.266)
Relation between migraine headache and noise	(P value = 0.190)
Relation between migraine headache and exams	(P value = 0.001)
Relation between migraine headache and reading hours	(P value = 0.233)
Relation between migraine and eating habits	(P value= 0.001)
Relation between migraine headache and fasting	(P value = 0.62)
Relation between migraine headache and menstruation	(P value = 0.613)
Relation between migraine headache and irregular sleep	(P value = 0.000141)
Relation between migraine headache and physical activity	(P value = 0.052)
Relation between migraine headache and smoking	(P value = 0.457)
Relations of migraine headache with other things than triggers:	
Relation between migraine headache and academic year	(P value = 0.787)
Relation between migraine headache and pulsating	(P value = 0.018)
Relation between migraine headache and attack	(P value = 0.049)
Relation between migraine headache and simple analgesia usage	(P value = 0.229)
Relation between migraine headache and age	(P value = 0.789)

4. DISCUSSION

The aim of this study is to determine the prevalence of migraine headache among students of Fakeeh College for medical sciences (FCMS) in Jeddah, KSA in 2020. In this study Females participants are higher than males by being (80.2%) while males are (19.8%), and the prevalence of migraine marked about 136 (71.6%). A similar result to ours was InJazan University, (76.9%) had migraine headache (Akour et al., 2018). Another study inHail University, the prevalence of migraine was (35.4%) (Abdulhadi et al., 2018). A similar result was found in King Abdulaziz University (KAU) Jeddah, their migraine prevalence among the participants was 36.5% out of 304 students (Ibrahim et al., 2018). Moreover, Princess Nourah University (PNU) in Riyadh, 523 female students out of 234 had a migraine at a rate of (44.74%) (Gouhar et al., 2018). We think that prevalence of migraine was high in our study due to exams stress and long hours of studying which could affect the student's performance. There seemed to be high rates of migraine among medical students at other universities as discussed before, in Jazan, Hail, Jeddah, and Riyadh. They all shared incidence of migraine proving that medical students are subjected to migraine associated with chronic stress and anxiety (Ibrahim et al., 2018; Gouhar et al., 2018; Akour et al., 2018; Abdulhadi et al., 2018). We believe that this is a disadvantage for medical universities as it might have a bad impact on student's ability to cope with daily work. It will also affect patient care in the future if it is not dealt with properly.

In this study when students were asked about headache severity (57%) of the cases have moderate headache Compared to a study done in (KAU) in Saudi Arabia (41.6%) had severe headache (Ibrahim et al., 2017). We think that the reason why our study has moderate headache being the most chosen answer and (KAU) had severe headache. In this current study, family history seemed to have an impact on migraine attacks at a rate of (38.9%). Comparing to other studies, in china, (8.8%) of the participants reported a positive family history of migraine (Gu & Xie, 2018). Another study in Riyadh showed that about (38.9%) migraine patients had a

family history of migraine while (61.1%) had no family history (Gouhar et al., 2018). This might be due to genetic similarities among the Saudi society. Also, marriages among relatives might have an impact on passing migraines to their children.

It is also noteworthy to mention that in our study, higher grades students were more subjected to migraines. When comparing those in 4th and 1st year, students in 4th year seem to be doubled the number of those in 1st year. In Jazan University, the prevalence increased by advancing in the studying years as 6th and 5th year had double the number of those in the 1st year (Akour et al., 2018). Our study's findings correlate with other studies in such that the highest academic year accommodates the majority of migraineurs. This is probably due to excessive working/studying hours. It is reported in our study that most of the students have experienced aura by a rate of (37.4%) which showed a significant difference (P-value= 0.004). In Jazan University, migraine with aura represented (76.9%) (Akour et al., 2018). There is a huge difference between these two results which proves that in our study, aura was a rare condition in Fakeeh College when compared to Jazan University.

While we assessed migraine triggers, irregular sleep is the most factor causing migraine at a rate of (90%). In Riyadh, the most common factor was lack of sleep which represented (89.3%), (Gouhar et al., 2018) which was similar to our study. Another study was done at King Saud bin Abdulaziz University (KSAU) in Riyadh, stress was the most common trigger (31.2%) followed by irregular sleep (21.8%), (Chowdhury & Chakraborty pratim, 2017). Another similar results to (KSAU) were obtained from (KAU) which had exams, stress and sleep disturbances being the most common triggers which in both studies differs to ours (Ibrahim et al., 2018). Moving to a study was done in china, Stress has contributed (93.6%) being the most reported trigger factor (Gu & Xie, 2018). This indicates that irregular sleep is a common issue among students in Saudi Arabia. We think that this is probably due to habits of sleeping late and excessive caffeine consumption unlike china's cultural habits.

Limitation

Our sample size has limited our study in such that we needed more males to be included, as females shaped the majority of Fakeeh College. Also, as medicine is a new major in Fakeeh College, students were evaluated from all academic years up till the 4th year being the last one.

5. CONCLUSION

The aim of this study was to determine the prevalence of migraine headache among students of Fakeeh College for medical sciences (FCMS) in Jeddah, Saudi Arabia in 2020. Our results found that the prevalence of migraine headache among Fakeeh students was (71.6%). Also, we found that moderate headache pain was the highest among students compared to the percentage of severe and mild headaches, and we found that the most trigger that increases headache among students was irregular sleep, which had a significant relation with migraine (P-value= 0.000141). We also found a relation between severity of migraine headache and discipline (P-value= 0.01). At last it is important to recommend medical universities to help their students through counseling to decrease stress levels. Students could be assessed weekly by their coordinators for any signs of irregular sleep, eating habits and emotional stress as they are believed to trigger migraines.

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Conflicts of interest

The authors declare that there are no conflicts of interests.

Author's contributions

Mahdi kanjo supervised on the research and reviewed the final paper. Raghad H.Alsaati was participated the abstract and conclusion, collected data, analyzed data, and organized the references part and arranged the final paper. Ohoud M.Jassomah, Sara H.Alhindi, Layal F.Jamjoom, Mashari A.Albogami were participated equally in writing the introduction, result and discussion.

Informed consent

Written informed consent was obtained from all individual participants included in the study.

Ethics

The study was approved by the medical ethics committee of Fakeeh College, Jeddah, Saudi Arabia (ethical approval code: 110/IRB/2020).

Data availability

The datasets generated during the current study are available from the corresponding author on reasonable request.

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