

Prevalence of Migraine among Medical Students of King Saud Bin Abdulaziz University for Health Sciences

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Abstract: ***Background:** Headache disorders have been underestimated, under treated, and under-recognized by health care providers. Migraine is episodic brain disorder characterized by attacks of a pulsating headache that varies in intensity. Due to the lack of studies aimed at Saudi medical students and the lifestyle they lead, which consist of multiple stressors and irregular sleep patterns that can put them at high risk. We believe it is very important to investigate the prevalence of migraine and its association with deferent triggering factors. **Aim & Objective:** This study aims to determine the prevalence of migraine among all medical students of all academic years, both genders in King Saud bin Abdulaziz University for Health Sciences and its association with deferent triggering factors in the Academic year 2016-2017. **Methods:** A cross-sectional observational study using a validated and reliable test, the quick screening tool ID Migraine™. By using Raosoft website, the sample size calculated was 270 with confidence level of 95% and 5% margin of error. This sample was distributed amongst the study population using quota sampling based on the percentage of the students in respective years. For participants' selection, convenience sampling was used. **Results:** Migraine was identified in 23.7% of students using ID-Migraine™. Migraine prevalence in females was significantly higher (34.1%) compared to males (18.6%) $p < 0.00$. Migraine prevalence was found highest in the fifth grade (28.1%) and followed by the third grade (20.3%). Stress (31.2%) irregular sleep (23.4%) Not eating (21.8%) were the most common triggers according to students. **Conclusions:** Medical students in King Saud bin Abdulaziz University for Health Sciences showed a higher prevalence of migraine than other studies, with increased in frequency and severity in female students compared to male students.*

Keywords: Migraine, medical students

1. Introduction

Headache disorders have been underestimated, under treated, and under-recognized even though they are known to belong to the most common disorders of the nervous system. Thus a vast number of people who suffer from headache disorders would be under-recognized by a health care provider and only a lucky few would be properly diagnosed. Many different underlying etiologies, as well as primary headache disorders, can manifest as headache. Primary headache disorders including tension-type headache, cluster headache, and migraine headache all have a great burden and impact upon the population. Migraine is episodic brain disorder characterized by attacks of a pulsating headache that varies in intensity from moderate to severe, lasting from mere hours to 2-3 days, usually one-sided and aggravated by physical activity.¹

Photophobia, phonophobia, nausea, and vomiting all can accompany migraine. A transient neurological symptom that includes visual, sensory and/or aphasic features known as aura can precede migraine attacks and usually last between 5 to 60 minutes.² Attacks tend to be of a shorter duration in children and abdominal symptoms are more common.² Migraine usually manifests itself early in puberty and predominantly affects those between the age of 35 and 45 and mainly affects women due to hormonal influences.¹ Environmental and genetic factors are believed to play a major role in migraine.³ Pain, however, is a manifestation to the involvement of the blood vessels and nerves of the brain. Clinical judgment is the mainstay of diagnosis. Neuro

imaging, however, is used in some cases to exclude secondary causes.⁴

The prevalence of headache disorder among adults (symptomatic at least once within the last year) is about 50%. Half to three-quarters of adults aged 18–65 years in the world have had a headache in the last year and, among those individuals, 30% or more have reported migraine.¹ A 2008 study concluded that 47% of adult population suffer from headache disorder, in general, 38% for a tension-type headache, 10% for migraine, and 3% for a chronic headache that lasts for more than 15 days per month.⁵

Stress is a major medical condition that affects a vast number of the population. Medical students, in particular, are vulnerable candidates to stress. During various stages of the MBBS course, it is not uncommon for medical students to suffer from overwhelming stress.⁶ College students, who are in a phase of transition from adolescence to adulthood, are in the most challenging phase of life. Some students are away from home, others trying to adjust to new environments and anxious enough for their future.⁷ Medical students showed significantly higher levels of stress depression, and anxiety compared to other two streams participants, engineering and art students.⁸ Another study revealed that prevalence of stress has been reported to vary from 54% to 74% in Indian medical students.⁹

In a study conducted in Saudi Arabia in 1999, the prevalence of migraine and tension headache was found to be around 4.7-5.3%.¹⁰ furthermore, another study was done on medical students in Kuwait university showed a significant number

of subjects who suffer from migraine 27.9%.¹¹ Due to lack of studies aimed at Saudi college students and medical students and lifestyle medical students lead, which consist of stressors and irregular sleep patterns that can trigger migraine, All these factors put Saudi medical students at high risk, thus we believe it is very important to investigate the prevalence of migraine among medical students in KSAU-HS and its association with migraine triggers.

2. Materials and Methods

After obtaining the IRB approval; a cross-sectional observational study was conducted among all medical students of King Saud bin Abdulaziz University for Health Sciences from the first year till the fifth year of the college. This study was approved by the ethical committee of a local institutional review board. All subjects were anonymous and all data was kept in secure location and was accessible only for investigators for confidentiality purposes. Data collection form was designed to include age, age of onset, frequency, duration of migraine and a validated and reliable test, the quick screening tool ID Migraine™ test a three-item screening test. Using The ID Migraine™ test questions are: During the last 3 months, 1. Did you feel nauseated or sick in your stomach with your headaches? 2. Did light bother you when you had a headache (a lot more than when you do not have headaches)? 3. Did your headache limit your ability to work, study or do what you needed to do for at least 1 day?¹² A test-diagnosis of migraine headache required at least two positive responses. In addition to administration by an interviewer, the questions could also be answered by self-report. The results of validity testing of The ID Migraine™ test in primary health care show that compared to clinical diagnosis The ID Migraine™ test is highly sensitive (81%) with specificity of (75%) in identifying migraine cases.¹³ Common triggers of migraine such as emotional stress or anxiety, noise, irregular sleep, physical activity, exposure to sun and smoking will be included in the questionnaire. Headache severity will be measured with a four point scale where 0 no headache; 1 = mild headache; 2 = moderate headache; 3 = severe headache. The International Headache Society has recorded the use of this scale for research purposes.¹⁴ After obtaining informed consent from study participants; Questionnaires were distributed as hard copies after lectures throughout weekdays in lecture halls. Students were given 15 minutes to fill them up and then we collected the questionnaires immediately after filling; we confirmed the completeness of all items of the questionnaire before the student left.

3. Statistical Analysis

The collected data for all questions in the questionnaire were coded and entered into the computer through statistical package for social sciences (SPSS) version 22.

The following statistical methods were used:

- Frequencies and percentage for the description of the prevalence of migraine and triggers of migraine among all college of medicine students.
- Independent t test was used to compare numeric variables

- Chi-square test was used to assess the relationship between non-numeric variables

4. Results

270 students were included in the study. The number of male participants was 182 (67.4%) and 88 were females (32.5%). The distribution of male participants in all grades were (17%, 18.6%, 22.5%, 20.8%, 20.8%) respectively. The most male participants were from the third grade with 41 male participants (22.5%) followed by the fifth and fourth grade with 38 male participants (20.8%). Female participants distribution from all grade were (14.7%, 22.7%, 18.1%, 19.3%, 25%) respectively. Fifth grade showed the highest number of female participants with 22 female participants (25%) followed by second grade with 20 female participants (22.7%). In this study 64 students were identified to have migraine (23.7%) using ID Migraine™ test. Thirty-four were male (18.6%) and 30 were female (34.1%). The mean age was 22.51 ± 1.61 years and age of onset of migraine was 16.70 ± 2.12 years. There was a significant increase in the prevalence of migraine among female when compared to male ($p < 0.000$). On the other hand, age, age of onset, frequency and duration of migraine showed to be more frequent in deference between female and male, but Severity of the headache showed an increased in female students with (26.6%) of females complaining of severe headache compared to (11.7%) in males. Most of those who had migraine were from fifth grade with 18 students (28.1%) followed by third grade with 13 students (20.3%) then fourth grade with 12 students (18.7%) and second grade with 12 students (18.7%) then first grade with 9 students (14%). There is a significant increase in the prevalence of migraine in the fifth and third grades when compared to other grades ($p < 0.00$). The most common Triggers of migraine in this study were found to be stress in 20 students (31.2%) irregular sleep in 15 students (23.4%) Not eating in 14 students (21.8%) Noise in 8 students (12.5%) Smoking in 6 students (9.3%) physical activity in 4 students (6.2%) in exposure to sun 2 students (3.1%). Clinical characteristics and demographic of headache in this study are displayed in Table 1.

5. Discussion

This study aim was to estimate the prevalence of migraine among medical students at King Saud bin Abdulaziz University for Health sciences in Riyadh the capital of Saudi Arabia. We conducted this study during 2016 to 2017. The results showed migraine prevalence among King Saud bin Abdulaziz University for Health sciences was 23.7%. The prevalence of migraine in males was less than females (34/188 Males = 18.6%, 30/82 Females = 34.1%). Compared to Brazil (12%)¹⁹, Nigeria (14.1%)¹⁵, Turkey (12.6%)²⁰, and Oman (12.2%)¹⁶ our study showed increase in prevalence of migraine (23.7%). On the other hand, our study showed a lesser prevalence when compared to Nairobi (33.8%)²¹ or Kuwait (27.9%)¹¹ studies.

Most of the participants in our study were males that can explain the lower frequency of migraine when compared to Nairobi (33.8%)²¹ and Kuwait (27.9%)¹¹ studies. Only 88 female participants were in our study compared to 182

participants, but females had much higher prevalence (34.1%) once compared to males (18.6%). The predominance of females in our study showed an agreement with previous studies and literatures.^{15,16,17,18} There were some factors which could impacted our study to be higher than some other countries' studies. such as, vacation days, length of screening time, number of females in our study, screening during exams periods, exams, grades and duration of studying.

Another aspect in this study is the prevalence of migraine across gender, and the result showed that females were more prone to have migraine than males which was similar with other studies done worldwide.^{15,16,17,18} However, the age of onset, frequency, and duration of headache were not significantly deferent comparing males and females. This could be attributed to the fact that medical students of both gender are exposed to the same triggers such as, frequent exams, long periods of studying, sleep irregularity. In our study the frequency of attacks per month were 2.9, which is lower in compassion with other studies. In Kuwait, the mean frequency of attacks per month was 4.2¹¹. Also in Turkey, the frequency was 5 attacks per month among medical students.²²

The distribution of migraine among different grades in our study showed a higher frequency of migraine in the fifth grade (29.1%). This could be explained by the increased emotional stress and difficulties those students face. At the fifth grade medical students start their internship in multiple and deferent medical hospitals and cities. Internship is a difficult and pivotal time for medical students for that they have to integrate working at hospitals and medical cities and studying for the Saudi medical license exam (SMLE) in a very tight time. Also, only a few of those medical students will be eligible to join residency programs due to the limited residency programs spots. Fierce competition for residency programs spots, SMLE, working at new environments, and choosing career paths all proved to impact medical students lives and could increase frequency and severity of migraine.

We distributed a list of common triggers of migraine attached with each questionnaire, each participants can chose more than a single trigger. The most common Triggers of migraine in this study were found to be stress in 20 students (31.2%) irregular sleep in 15 students (23.4%) Not eating in 14 students (21.8%) Noise in 8 students (12.5%) Smoking in 6 students (9.3%) physical activity in 4 students (6.2%) in exposure to sun 2 students (3.1%). Our results correlate with previous studies regarding stress as the most common trigger of migraine.^{11,23,24}

6. Limitation of this Study

Participants were not interviewed by experts in the field and some participants took a self-administered questionnaire which could have led to misunderstanding of some questions.

7. Conclusion

Medical students in King Saud bin Abdulaziz University for Health Sciences showed a higher prevalence of migraine

than other studies, with more frequency in female students. Fifth grade showed increased severity, frequency of migraine and episodes of headache attacks. Stress was found to be the most common trigger of migraine.

8. Recommendation

As Saudi Medical students are borne to multiple migraine triggers and high prevalence of migraine due to the lifestyle they lead. Those students need early screening and management to improve their academic performance.

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Tables

Table1: Characteristics of migraine and demographics among students

Variables	Total (n = 64)	Males (n = 34)	Females (n = 30)	P
Prevalence of migraine	64/270	34/182	30/88	0.00
N (%)	(23.7%)	(18.6%)	(34.1%)	
Age in years (M ± SD)	22.51 ± 1.61	22.61 ± 1.72	22.4 ± 1.49	0.60
Range	20-27	20-27	20-25	
Age at onset in years (M + SD)	16.70 ± 2.12	16.17 ± 1.89	16.8 ± 1.74	0.17
Range	12-23	13-19	14-18	
Duration of migraine in years (M + SD)	6.04 ± 2.34	6.52 ± 2.32	5.5 ± 2.28	0.08
Range	2-11	3-11	2-10	
Severity of headache				
Mild	17 (26.5%)	12 (35.2%)	5 (16.6%)	
Moderate	35 (54.6%)	18 (52.9%)	17 (56.6%)	
Severe	12 (18.7%)	4 (11.7%)	8 (26.6%)	

Table 2: Distribution of migraine among deferent grades

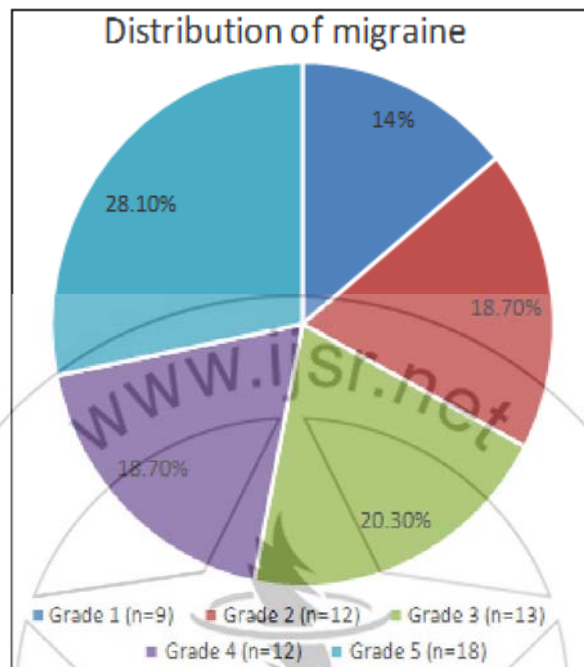
Variables	Grade 1 (n = 9)	Grade 2 (n = 12)	Grade 3 (n = 13)	Grade 4 (n = 12)	Grade 5 (n = 18)
Prevalence No (%)	9/64 (14%)	12/64 (18.7%)	13/64 (20.3%)	12/64 (18.7%)	18/64 (28.1%)

Table 3: Comparison of migraine among deferent grades

Variables	Grade 1 (n = 9)	Grade 2 (n = 12)	Grade 3 (n = 13)	Grade 4 (n = 12)	Grade 5 (n = 18)
Frequency of headache (per month)	2.22 ± 1.30	2.75 ± 1.13	3.15 ± 1.51	2.83 ± 1.4	3.94 ± 1.47
Range	1-5	2-5	1-6	1-5	2-7
Severity of headache					
Mild	3 (33.3%)	4 (33.3%)	2 (15.3%)	3 (25%)	5 (27.7%)
Moderate	5 (55.5%)	7 (58.3%)	8 (61.5%)	6 (50%)	9 (50%)
Severe	1 (11.1%)	1 (8.3%)	3 (23%)	3 (25%)	4 (22.2%)

Table 4: Triggers of migraine among students

<i>Migraine triggers</i>	<i>No</i>	<i>(%)</i>
Stress	20	31.20%
Irregular sleep	15	23.40%
Not eating	14	21.80%
Noise	8	12.50%
Smoking	6	9.30%
Physical activity	4	6.20%
Exposure to sun	2	3.10%



Graph 1: Distribution of migraine among deferent grades