

## **RESEARCH ARTICLE**

# CORRELATION BETWEEN EXAMS AND MIGRAINE AMONG MEDICAL STUDENTS IN MADINAH, SAUDI ARABIA

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..... Manuscript Info Abstract ..... ..... Manuscript History Background: The migraine headache is a common and potentially Received: 26 April 2023 debilitating disorder often treated by family physicians; the student's Final Accepted: 31 May 2023 lately is suffering inexam time with migraine headache. Published: June 2023 Objective: To determine migraine prevalence, prediction, triggers and effects during examinations among medical students in Al Rayan Key words:college, Madinah, Saudi Arabia, 2022-2023. Migraine, Headache, Madinah, Medical Methods: A cross-sectional study well be used. The date collection Student, Al-Rayan Colleges method is done by sending an online questionnaire to students in Al Madinah Will be validated. The simple size was 343 students in Al -Rayan College, Madinah, Saudi Arabia 2022-2023. Data will be analysed by Microsoft Excel and SPSS. Results: Our study included 345 medical students, whose study years ranged from the fifth year, the sixth year, and the internship year, the prevalence of migraine was (28.7%). More than half of the participants were females, 212 (61.2%), and 134 (38.8%) % were male. In bi variate analysis, migraine was associated with gender (female), family history, and chronic diseases, namely irritable bowel syndrome (IBS), asthma and hypertension. The most frequently reported triggers of migraine were sleep disturbance (76.8%) and stress (61.2%). Photophobia and difficulty in concentration were the commonest associated symptoms. Conclusion: Participants in the current study showed a relatively high prevalence of headaches and migraines. Female gender in the sixth academic year and irritable bowel syndrome enrolment were predictors of migraine. Stress and sleep disturbances are the most common

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## Introduction:-

The headache is involved in many diseases like Sinusitis, Covid-19, Meningitis and HIV. Headache is considered one of the mostcommon disabling diseases worldwide. Migraines are a strong headache that often comes with nausea, vomiting, and sensitivity to light. It can last hours or days. Migraine headaches are symptoms of a condition known as migraine. Doctors don't know the exact cause of migraine headaches, although they seem to be related to changes in your brain and to your genes [1]

It was reported that the estimated lifetime prevalence of migraine ranged from 12%-18% [2].

triggers.

**Corresponding Author:- Osman Suleiman** Address:- College of Medicine, Al-Rayan Colleges, Madinah, Saudi Arabia. There are multiple studies about the Migraine headache, but we choose the latest studies, the first studies the Migraine headache at King Abdelaziz University. Migraine represents an important public health problem among students enrolled in the Faculty of Applied Medical Sciences. About 30% of migraines suffer from a severe headache disability. Family history of migraine and the presence of chronic diseases were migraine predictors Sleep disturbance was the most frequent migraine trigger while practicing exercise was the commonest alleviating factor. Screening and providing medical care to students who have migraine is recommended. Awareness campaigns and stress management courses are needed [3]

Another study in DAU University is the prevalence of migraine among the participants was 15%. Migrainehas a severenegative impact on patients' quality of life, academic performance, and work productivity. Themostcommonmigraine triggers among the participants were long hours of computer work, lack of sleep, insufficient caffeinated foods, and exercise. [4]

The aim of this study isto determine migraine prevalence, prediction, triggers and effects on exams among medical students in Al Rayan college, Madinah, Saudi Arabia, 2022-2023.

## Methods:-

## Study design and setting:

The study was a cross-sectional (survey) design. The study area of research is Al Rayan and Taibah medical colleges, Madinah, Saudi Arabia . The period of the research was from July 2022 to May 2023.

#### Study population and sampling technique:

The Study population Medical students who completed the freshman year (5th – 6th year), and interns, both genders at Al Rayan college in Madinah, Saudi Arabia. Simple size is 343 Sample.We used the convenient sampling technique. The reasons for choosing this sample technique are the simplicity of sampling, the ease of research and data collection can be facilitated in short duration of time.

#### Data collation tools and procedures:

We used a validated online questionnaire that included the following seven sections:

#### Section one:

Demographic data: (gender, age, university, academic year). Section Two: Analyse the initial assessment through 2 yes/no questions;

- Q1: Did you suffer from one or more headache attacks in the past three months?
- Q2: Do you suffer from headaches that limit your ability to study or enjoy life? If yes, since when

## Section Three:

What are the symptoms associated with the disease?

The fourth section: It consists of questions about the state of headache,

- •Q1: The severity of the headache?
- •Q2: headache duration?

•Q3:Is the headache usually? Before the exam, after the exam, during the exam, it has nothing to do with the exam. Section Five: It consists of two questions:

•Q1:What are the reasons for the increase in the headache?

•Q2: What are the causes of relief headache?

Section Six:Have you taken medication to relieve headaches? If yes, what are they? Section Seven:

•Q1: Have you ever been diagnosed with any chronic disease?

•Q2: Do you have a family history of migraines?

•Q3: Do you smoke?

#### Data Analysis:

Data will be analysis using the Statistical Package for Social Studies Program(SPSS, V. 21.0. IBM: Chicago) Data obtained from this study were analysed by using statistical package for social science software (SPSS v.22). A value of 0.05 will be considered the value of statistical significance for all statistical tests in the present study.

## **Rustle:**

Our study included 345 medical students, whose study years ranged from the fifth year, the sixth year, and the internship year. The prevalence of migraine was (28.7%). More than half of the participants were females, 212 (61.2%), and 134 (38.8%) were male. The comparison was between three academic years, the fifth year, the sixth year and the internship year. In the results, it was found that the sixth academic year had more effect on migraine than the fifth academic year and internship year. The prevalence of the fifth academic year was 91 (26.1%), the sixth academic year 144 (41.7%), and the internship year 110 (32.2%).(Table1)

The participants in this study were also asked about family history. About 128 (36.8%) had family history of migraine while 217 (63.2%) did not have family history of migraine (Table1)

The participants were also asked about smoking, and we found that the rates of smokers are relatively high(45.4%), On the other hand, non-smokers it was (44.6%) (Table1)

	Ν	% study participation
Male	134	38.8%
Female	212	61.2%
5 Year	91	26.1%
6 Year	144	41.7%
Intern	110	32.1%
Family history	128	36.8%
Smoking	177	45.4%

Table 1:- Personal Data of medical students.

The comparison between the number of study hours The number of study hours ranged between two to three hours 77 (22.3%), followed by the number of hours between 3 and 4 hours, with an average of 108 (31.3%). The number of hours is between 4 and 5 hours, on average 94 (26.1%). The number of hours ranged from 5 to 6 hours, and the prevalence ranged 70 (20.3%) (Table2).

	Ν	% study participation
2-3 hours	77	22.3%
3-4 hours	108	31.3%
4-5 hours	94	26.1%
5-6 hours	70	20.3%

 Table 2:- Comparison between the number of study hours.

The commonest symptoms associated with migraine were difficulty in concentration (61%), photophobia (52%), nausea and vomiting (51.1%). Heavy in the head (47.5%) and pain and stiffness in the neck (17.7%) were the least associated symptoms. (Figure 3)



Figure 3:- Commonest Symptoms associated with Migraine headache.

The migraine headache in 137 students was frequently not associated with the exam (39.6%) and were (25.7%) before the exam with 89 students and after the exam with 70 students (20.2%) Some students suffered with migraine during the exam were 50 students (14.5%). (Figure4)





The average migraine headache lasts hours 202 (58.3%), minutes 106 (30.7%), and days 38 (11%), according to our study, which involved 345 medical students.(Table 5)

Duration	N	% study participation
Minutes	106	30.7%
Hours	202	58.3%
24 h or more	38	11%

 Table 5:- Duration three levels of headache intensity were used for comparison.

Three levels of headache intensity were used for comparison: mild, moderate, and severe. The prevalence of moderate 226 (65.3%) severe 82 (23.7%) mild 37 (11%) is found in the findings.(Table6)

Table 6:- Duration three levels of headache intensity were used for comparis
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Level	Ν	% study participation
Mild	38	11%
Moratory	226	65.5%
Sever	82	23.5%

For terms of medication, 283 (82%) of migraine sufferers take medication and 62 (18%) did not use any migraine medications. Was paracetamol, the most frequently used drug category (59.6%), followed byNSAIDs, paracetamol and anti-inflammatory drugs combined (0.3%), NSAIDs by themselves (0.3%), NSAIDs (43.8%), and caffeine-containing analgesics (6.6%) Other medications (0.3%).

The most common migraine relief factor among study participants was rest (76.2%), coffee and tea (48.1%), and exercise (20.9%).(Table7)

#### Table 7:- Common relief factors.

	Ν	% study participation
Reset	266	76.2%
Coffee	173	48.1%
Exercise	47	20.9 %

The most frequent migraine triggers among the study participants were sleep disturbances 265 (76.8%), Being stressed 211 (61.2%), prolonged reading for hours 146 (42.3%), Anxiety 122 (35.4%), Hunger 88 (25.5%), Menstrual changes in women 48 (13.9%), exposure to light 34 (9.9%), smoker 19 (5.5%).

 Table 8: Triggers factors.

	Ν	% study participation
Sleep disturbance	265	76.8%
Stress	211	61.2%
Prolonged reading	146	42.3%
Anxiety	122	35.4%
Hungry	88	25.5%
Menstrual changes	48	13.9%
Exposure to light	34	9.9%
Smoking	19	5.5%

## **Discussion:-**

The aim of this study is to determine migraine prevalence, prediction, triggers and effects on exams among medical students in Al Rayan college, Madinah, Saudi Arabia, 2022-2023. In this study, Females participants are higher than males by being (61.2%) while males are (38.8%), and the prevalence of migraine marked about(28.7%). Was much less than Jazan University, (76.9%) had migraine headache [5].

In another study in Hail University, the prevalence of migraine was (35.4%) [6].

Similarresultswerefound at King Abdulaziz University (KAU) in Jeddah, whereparticipantshad a migraineprevalence of 36.5% of 304 students[7].

Also, at PrincessNouraUniversity (PNU) in Riyadh, 523 out of 234 femalestudentssufferedfrommigraine, a prevalence of 44.74%.[8]

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 had an incidence of migraines, demonstrating that medical students suffer from migraines associated with chronic stress and anxiety. [5,6,7 and 8].

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 (65.5%) of the cases have moderate headache compared to a study done in (KAU) in Saudi Arabia (41.6%) had severe headache [9].

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 (36.8%). Comparing to other studies, in China, (8.8%) of the participants reported a positive family history of migraine [10].

Another study in Riyadh showed that about (38.9%) migraine patients had afamily history of migraine while (61.1%) had no family history [8].

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 5th and Intern year. At Jazan University, prevalence increased as the study years progressed, with twice as many patients in Years 6 and 5 as in Year [5]

Our study's findings correlate with other studies in such that the highest academic year accommodates the majority of migraines. This is probably due to excessive working/studying hours. Although we looked at triggers for migraines, sleep disturbances werethenumberonetrigger for migraines (90%).(76.9%) [5].

There is a huge difference between these two results which proves that in our study, aura was a rare condition in Al-Rayan College when compared to Jazan University .Although we looked at triggers for migraines, sleep disturbances were the number one trigger for migraines (90%).. In Riyadh, the most common factor was lack of sleep which represented (89.3%) [8].

Which was similar to our study. Anotherstudywasconducted at theKingSaudbin Abdulaziz University (KSAU) in Riyadh. Stresswasthemostcommontrigger (31.2%), followed by irregular sleep [11].

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 [7]

Moving to a study was done in china, Stress has contributed (93.6%) being the most reported trigger factor [10].

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. This study shows that academic achievement and the ability to attend education are impaired to some extent in most migraine during migraines attacks. These results are consistent with those of a study in the United States [12]).

The commonest accompanying symptoms of migraine in our study were difficulty in concentration and photophobia. Similarly, results from the Indian study reported that photophobia was the commonest manifestation [13].)

Paracetamol was the most frequently used analgesic for migraine in the current study. NSAIDs, on theotherhand, werethemostcommonly used by American students. Thisdiscrepancymay be due to thewidespread use of acetaminophen in Saudi Arabia. [12]

## Limitation:

Oursamplesizelimited ourstudy to the point that we had to include more men as women make up the most at Al-Rayan colleges

## **Conclusion:-**

Participants in the current study showed a relatively high prevalence of headaches and migraines. Female gender, sixth academic year and irritable bowel syndrome or asthma enrolment were predictors of migraines. Stress and sleep disturbances are the most common triggers. Similar studies are needed among all undergraduates. There is a need for a migraine screening program and the referral and treatment of confirmed cases among medical students. The need for relaxation programs, stress management classes and guidance on how to avoid stress. Special educational programs are needed to raise awareness about migraine.

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## **Author Contributions:**

Osman Suleiman supervised the research and reviewed the final paper. AsayilAljohaniI participated in the abstract and conclusion, collected data, analysed data, and organised the references part and arranged the final paper. ShahadAljohani , HamidahAlmghsal , MajidahAlhelali participated equally in writing the introduction, result and discussion.

#### Informed consent:

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

## Ethical approval:

The protocol of the study will be approved by the Al-Rayan Institutional Review Board (HA-03-M- 122). Confidentiality and privacy will be maintained by encoding data and eliminating personally identifiable information. The researchers will have a laptop computer for data collection and all data will be stored on the password-protected laptop. The data will be stored for three years after data collection. The participant's consent will be obtained on the form.

## Funding:

Thisstudyreceived no external funding.

## **Conflicts of interest:**

The authors declares that no conflict of interest exists .

## Data andmaterial availability:

Data sets generated within the framework of the current study are available from the relevant authors upon reasonable request.

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