Original Article

Prevalence and Pain Intensity of Migraine among Medical and Non-Medical University Students in Karachi: A Cross-Sectional Study

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ABSTRACT

Background: Headache is one of the most common complaints in patients and affects students at the University in multiple ways, including impairing efficiency, social functioning, and overall quality of life. This study aimed at identifying the migraine conditions in undergraduate medical and non-medical students.

Methods: A cross-sectional study was conducted, including 377 undergraduates, on the basis of non-probability convenience sampling techniques. Those who had migraines were included in the study. ID questionnaire and Numeric Pain Rating Scale (NPRS) were distributed in different medical and non-medical universities in Karachi, Pakistan. The analysis was conducted with the SPSS Version 23.0 package that presents data in frequencies and percentages.

Results: A total of 57.3% participants complained of nausea at the time of headache, while 56.8% of cases reported moderate pain.

Conclusion: The study highlighted a relatively greater prevalence of migraine headaches among female students compared to their male counterparts. It further established that participants experienced a significant reduction in their capacity to accomplish their daily work and study while suffering from migraine episodes. Thus, it suggests the need to address migraine-related concerns among students, particularly in the academic environment, to improve the well-being and performance of students as a whole.

Keywords: Headache, Migraine, Pain.

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INTRODUCTION

Migraine is a neurological disorder and the seventh leading cause of disability[1]. According to estimates from The Global Burden of Disease Study, the annual incidence rate and age-standardized point prevalence of migraine in 2019 were 14,107.3 and 1142.5 per 100,000, respectively[2]. However, a study conducted in 2019 stated that migraines had an overall age-standardized point prevalence of 14,107.3 per 100,000 as of 2019, marking an increase of 1.7% compared to 1990[3]. Global estimation for this year's disease burden is 5.1%, contributing to 1.4% of global YLDs[4]. Currently, migraine is the second most disabling disease[5]. Its prevalence is about 5-8% in men and 11-16% in women, with the highest incidence occurring between 25 and 55 years[1], affecting their quality of life[6].

Migraine is expected to be the most prevalent headache across the world. It can be described as recurrent attacks, lasting between four and seventy-two hours without any treatment, among diverse forms of the migraine, which is typically characterized by a painful headache, nausea, and occasionally visual or sensory problems[7-8]. Studies estimate that the US loses about 112 million work or school days annually as a result of a headache, particularly migraine and that the UK would lose about 25 million days per year due to headaches[1]. The lowest migraine prevalence was seen among African and European students, respectively. The most significant rates of migraine prevalence (21%) and (16%), respectively, were among American and Asian students[9].

Pharmacological therapy is the most common option for migraine treatment; however, occasionally, it is unsuccessful or has adverse effects[10]. Thirty percent of primary care doctors recommend migraine patients to physiotherapy because it is effective in reducing headache frequency[11]. Manual treatment can decrease migraine discomfort intensity, frequency, and duration[12]. Consequently, joint mobilization may reduce the frequency and intensity of migraine[13]. According to a study accomplished in Bangladesh, the rate of migraine involving Bangladeshi medical students is exceptionally high. The migraine episodes' frequency, along with the severe headaches, makes the sufferers substantially disabled[14]. A 2021 survey indicated that 17.9% of the Egyptian medical students reported having migraines, while 35.4% of the reporting students have sought medical attention[15]. A previously executed systematic review claimed that 16.1% of the university students reported experiencing migraines[9]. Therefore, this study is undertaken to identify migraines among the undergraduate medical and non-medical students. This study provides new insights into migraine in medical and non-medical students, which has not been conducted in Pakistan.

METHODOLOGY

Study Design and Setting

This cross-sectional survey was conducted at Dow University of Health Sciences, Isra University, and the University of Karachi in Pakistan. Three seventy-seven medical and non-medical students were included in this study, with the sample size calculated by Rao software at the 95% Confidence Interval and 5% margin of error. Participants were selected using a non-probability convenience sampling method.

Sample Selection

The study included individuals between 18 and 24 years of age with migraine; undergraduate students with either a medical or non-medical degree were included. Exclusion was made if medical residents, house officers, and individuals had a documented history of depression, anxiety, or any medical illness such as hypertension, hearing problems and smoking.

Data Collection Tool

- ID Migraine- a three-item questionnaire assessing headache-related disability, photophobia, and nausea-may be self-administered to identify migraine headaches in patients[14]. It showed validity and reliability values of 0.77[16] when tested.

- The Numeric Pain Rating Scale (NPRS) was used to assess the subject's perception of pain[17]. It is a four-item questionnaire in which 11 responses are given, with '0' at one extreme of pain and '10' at the opposite[18]. The NPRS was reliable (0.67 [0.27 to 0.84])[19].

Data Collection Procedure

The researcher approached the participants by surveying different universities in Karachi. Those participants who met the inclusion criteria were included in the study. The specifics of the study were explained, and those participants were willing to participate; written informed consent was acquired from interested participants. Interested individuals filled out the NPRS and ID migraine questionnaires in 10 to 15 minutes.

Data Analysis

The data was analyzed using SPSS version 23. The demographic information was presented in terms of frequencies and percentages. The descriptive statistics were applied to ID migraine and numeric pain rating scales.

RESULTS

The 377 participants included a minimum age of 17 years (3%) with a frequency of 1, while the maximum was 20 years (21.8%) with a frequency of 82. Male participants contributed 31.85 % (119), while females accounted for 68.18 % (257).

The frequency and percentage of professions were covered in six medical and non-medical fields, such as MBBS, nursing, medical technology, law, criminology, physiology, engineering, and BDS students, covering 31 cases (8.2%). Math, DPT, biotechnology, and chemistry accounted for 32 cases (8.5%). All the participants filled in the questionnaire for the symptoms of migraine as follows:

Table-1 Responses of participants on ID-Migraine questionnaire

Questions	n (%)
Did you feel nauseous or experience an upset stomach?	
No	161 (42.7%)
Yes	216 (57.3%)
Were you more sensitive to light than usual during your headache?	
Yes	147 (39%)
No	230 (61%)
Did your headache interfere with your ability to work, study, or complete daily tasks?	
No	105 (27.9%)
Yes	272 (72.1%)

Table-2 represents participants' frequency and percentage responses to the question: How much pain, on a scale from 0 (no pain) to 10 (the worst pain imaginable), did you feel in the last 7 days? Most of the participants were above average and suffering from moderate imagination. Most of the time, pain levels in the previous week were normal. Rate your best level of pain and rate your worst degree of pain.

Table-2 Responses of participants on NPRS scale

Intensity	Pain imagination	Rate your usual level of pain during the last week	Rate your best level of pain during the last week	Rate your worst degree of pain from the previous week
	n (%)	*n (%)*	*n (%)*	*n (%)*
No Pain	82	46	61	42
Moderate	246	277	251	225
Worst Pain	49	54	65	110

DISCUSSION

The study consisted of n=377 participants and confirmed migraine among undergraduate students enrolled in medicine and non-medicine courses. Of the study participants, 68.18% were females compared to the male participants. In 2016, a study was carried out on the prevalence and associated factors of headaches, and it was concluded that females were found to have about 60% more prevailing complaints[20]. According to this study, half the individuals experienced nausea when a headache occurred. This is very similar to the findings of research done in 2017, where half of the respondents experienced nausea during migraine headaches[21].

The participants have little trouble in this study, significantly more than headache[21]. On the other hand, the present study shows that headache was limited to their mode of work, study, or daily activities. Compared to previous studies, they have similar results of the majority of the student's reduced ability to attend classes and not performing well in their studies due to migraine headache[21]. In a recent study, participants showed a higher rate of moderate pain of headaches in comparison to another study that also had similar results in their medical students who have also had higher rates of headaches in their students[22]. Another study published in 2022 found that migraines were prevalent at the university where the students were being studied[1]. Moreover, another study reported that most of the students found migraine with aura[22]. In contrast, the current study concluded that most students reported migraine limited their ability to do work.

Recommendations

The following are the recommendations of the study:

- For future studies, identify the cause of migraine.
- The study should be conducted on different population.
- The study was only conducted in different universities in Karachi, Pakistan; there will be different results when the study is conducted throughout Pakistan.

CONCLUSION

This study concluded that most participants reported that they reduced their ability to perform their work and study in daily routines due to headaches. However, most of the participants reported that they had minimal pain in their imagination.

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Author Contributions

Ulfat Munaf conceptualized the study, designed the methodology, conducted data analysis, and wrote the manuscript. **Fouzia Hussain** assisted in study design, data collection, and revised the manuscript. **Saman Habib** contributed to data collection, literature review, and manuscript writing. **Ahad Hasan** conducted data analysis, contributed to writing, and revised the manuscript. **Nisha Rafique** assisted in data collection and manuscript preparation. **Abid Gill** contributed to the study design, data interpretation, and manuscript revisions.

Ethical Approval

This study received approval from the Institutional Ethical Review Committee (IERC/IIRS-IU-KC/21) of Isra University.

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None.

Conflict of Interests

None.

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