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KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARDS MIGRAINE PREVENTION AMONG MEDICAL STUDENTS IN SIALKOT, PAKISTAN

Muhammad Farhan Saleem[*1], Momina Qaiser[2], Kiran Daud[3], Saima Saleem[4], Naqash Hussain[5], Abdul Faheem[6], Sidra Saleem[7] ,Tahmasip Tallal[8]

[1,*2,3,4,5,6]*Imran Idrees College of Pharmacy, Sialkot*

[1]saleem.farhansaleem57@gmail.com

[1]*ORCID ID:0009-0005-3104-7797*

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Corresponding Author: *
Muhammad Farhan Saleem

Abstract

Migraine is a major cause of disability in young adults, especially medical students, due to the academic stress and lifestyle-related factors. This study aims to assess knowledge, attitude, and practices regarding migraine prevention among medical students. A descriptive cross-sectional study was conducted using convenience sampling among 300 students at Sialkot Medical College between January 15 and March 15, 2026. Data was collected using a structured, pretested questionnaire and was analyzed using IBM SPSS Statistics version 27. The associations between demographics and KAP responses were assessed using Pearson's chi-square test. Awareness regarding hormonal risk factors (93.7%) and trigger avoidance (99.3%) was high, whereas knowledge of caffeine reduction (37.0%) and prophylactic medications (61.3%) was comparatively low. Although 94.3% showed willingness to adopt lifestyle modifications, 40.7% reported choosing paracetamol without medical consultation for recurrent headaches. The findings highlight gaps between migraine prevention knowledge and healthcare-seeking practices, emphasizing

the need for targeted educational interventions among medical students.

INTRODUCTION

Headache disorders are among the most prevalent neurological disorders worldwide and a major cause of years lived with disability (YLDs) [1]. According to the International Classification of Headache Disorders, 3rd edition (ICHD-3), primary headache disorders include migraine, tension-type headache, and cluster headache.Among these, migraine is a particularly significant neurological condition due to its high prevalence, recurrent nature, and considerable effect on quality of life.

Migraine is characterized by recurrent attacks of moderate to severe headache, that typically lasts for 4–72 hours. The pain is often unilateral and pulsating in nature, aggravated by routine physical activity, and frequently accompanied by nausea, vomiting, photophobia, and phonophobia. Approximately one-third of individuals with migraine experience aura. It pathophysiology involves complex neurological mechanisms, including activation of the trigeminovascular system, release of calcitonin gene-related peptide (CGRP), and cortical spreading depression.

Globally, migraine affects more than one billion individuals, accounting for approximately 14–15% of the population, and is among the leading causes of disability in individuals aged 15–49 years. Women are affected approximately three times more frequently than men, partly due to hormonal influences. Medical students represent a population particularly vulnerable to migraine because of academic stress, irregular sleep patterns, prolonged screen exposure, and lifestyle-related factors. Previous studies have reported a considerable prevalence of migraine among medical students, highlighting its potential impact on academic performance and overall well-being .

In Pakistan, migraine remains an important health concern and may be underrecognized among young adults. Understanding students' knowledge, attitudes, and practices (KAP) regarding migraine prevention is essential for identifying gaps in awareness, preventive behaviours, and appropriate healthcare-seeking practices. Medical students, as future healthcare professionals, require adequate knowledge of migraine risk factors, lifestyle modifications, and pharmacological prevention to support both personal health management and future patient counselling. Assessing these aspects can help identify areas requiring educational interventions and promote evidence-based approaches to migraine prevention. Therefore, this study aimed to assess knowledge, attitudes, and practices regarding migraine prevention among medical students at Sialkot Medical College, Sialkot, Pakistan.

METHODOLOGY

Ethical Approval

The study was approved by the Institutional Ethical Committee of Sialkot Medical College, Sialkot with the reference number **SMC/ERB-72**. Verbal informed consent was also obtained from all participants prior to data collection. Participation was voluntary, and confidentiality of all respondents was ensured throughout the study.

Study Design

A descriptive cross-sectional study was conducted among undergraduate medical students of Sialkot Medical College. The study was carried out over a period of approximately two months, from 15th January 2026 to 15th March 2026. Data were collected from medical students from 1st year to 5th year. The purpose of the study was to assess the knowledge, attitude, and practice regarding migraine treatment and prevention among medical students. All participants were informed about the objectives and importance of the study before participation.

Study Population

A total of 300 medical students from Sialkot Medical College participated in this study. Data was collected using a convenient sampling technique. Students from all academic years were included to obtain responses from different educational levels.

Data Collection

Data collection was conducted using a structured, pre-tested adapted questionnaire. The questionnaire was distributed among selected medical students of Sialkot Medical College. It consisted of five sections designed to assess different aspects related to migraine.

Section 1: Demographics included information on age, gender, marital status, year of study, and family history of migraine.

Section 2: Knowledge comprising of close-ended questions assessing participants' understanding of migraine, including its classification as a chronic neurological disorder, gender predisposition, causes, environmental and hereditary risk factors, lifestyle modification, preventive treatment, and medications used for both acute and chronic migraine.

Section 3: Attitude included questions evaluating participants' attitudes toward migraine, such as their response to recurrent headaches, willingness to adopt lifestyle modifications (including diet,sleep, and stress management), and their readiness to seek medical consultation and follow-up care.

Section 4: Practice assessed participants' practices related to migraine, including their personal history of migraine, approaches to treatment, use of medications, recommending medical consultation, and advising specific drugs to others suffering from migraine.

Section 5: Prevention included questions related to preventive measures, particularly focusing on lifestyle modifications such as maintaining a balanced diet, proper sleep patterns, stress management, and other strategies to reduce the frequency and severity of migraine attacks

Data Analysis

The collected data was entered and analyzed using SPSS (IBM version 27). Descriptive statistics was used to calculate frequencies and percentages. Associations between demographic variables (independent variables) and knowledge, attitude, and practice (dependent variables) responses were analyzed using Pearson's Chi-square test. A p-value of ≤0.05 was considered statistically significant.

Results

Demographic Characteristics of Participants

A total of 300 undergraduate medical students participated in the study. Of these, 194 (64.7%) were aged 20–25 years, 100 (33.3%) were aged 15–20 years, and 6 (2.0%) were aged 25–30 years. The majority of participants were female (268, 89.3%), while 32 (10.7%) were male. Most participants were single (284, 94.7%), whereas 16 (5.3%) were married. Regarding academic year, 87 (29.0%) were enrolled in the first year, 33 (11.0%) in the second year, 44 (14.7%) in the third year, 47 (15.7%) in the fourth year, and 89 (29.7%) in the fifth year. A family history of migraine was reported by 61 participants (20.3%), while 201 (67.0%) reported no family history and 38 (12.7%) were unsure or had missing responses (Table 1).

Knowledge Regarding Migraine

The assessment of migraine-related knowledge revealed that 231 participants (77.0%) recognized migraine as a chronic neurological disease. Awareness of hormonal risk factors was reported by 281 participants (93.7%), while 263 (87.7%) recognized the involvement of vascular disturbances and brain dysfunction. Additionally, 268 participants (89.3%) acknowledged hereditary and environmental predisposing factors. Most participants (270, 90.0%) recognized the role of lifestyle modifications and medications in reducing migraine episodes, while 279 (93.0%) identified headache severity as a factor influencing the need for prophylactic treatment.

Regarding medication knowledge, 124 participants (41.3%) identified paracetamol, while 131 (43.7%) identified propranolol. Incorrect responses included amoxicillin (38, 12.7%) and metformin (7, 2.3%). Knowledge of prophylactic treatment duration was limited, as only 69 participants (23.0%) selected the 6–12-month option, whereas 112 (37.3%) selected one month, 59 (19.7%) selected three months, and 60 (20.0%) selected lifelong treatment (Table 2).

Attitudes Towards Migraine Management

Regarding healthcare-seeking behaviour for recurrent headaches, 163 participants (54.3%) indicated that they would consult a doctor, while 15 (5.0%) would approach a pharmacist. However, 122 participants (40.7%) indicated that they would take paracetamol without medical consultation.

A positive attitude towards lifestyle modification was observed, with 283 participants (94.3%) expressing willingness to modify their diet, sleep patterns, and stress-management practices. Furthermore, 201 participants (67.0%) expressed willingness to attend follow-up appointments for several months, whereas 99 (33.0%) were unwilling to do so (Table 3).

Practices Related to Migraine

Regarding personal migraine history, 132 participants (44.0%) reported having experienced migraine, while 168 (56.0%) reported no such history. Most participants (273, 91.0%) considered lifestyle modification combined with acute medication an appropriate approach to migraine management. Furthermore, 256 participants (85.3%) indicated that they would recommend consulting a doctor to a friend or relative experiencing migraine. However, 162 participants (54.0%) reported that they would suggest specific medications to someone with migraine, while 138 (46.0%) would not recommend specific drugs (Table 4).

Knowledge Regarding Migraine Prevention and Associations with Demographic Characteristics

Knowledge regarding preventive measures was generally high. A total of 298 participants (99.3%) recognized that avoiding migraine triggers could help prevent attacks, while 295 (98.3%) acknowledged the importance of regular sleep. Similarly, 284 participants (94.7%) recognized stress management as a measure that could reduce migraine frequency. However, only 111 participants (37.0%) recognized the potential benefit of caffeine reduction, and 184 (61.3%) identified prophylactic medications as a means of reducing migraine frequency (Table 5).

Chi-square analysis demonstrated statistically significant associations between age and knowledge of drug choice ($p = 0.001$), prophylaxis duration ($p < 0.001$), and self-reported migraine history ($p = 0.009$). Gender was significantly associated with recommending medical consultation for migraine ($p = 0.005$) and awareness of hormonal risk factors ($p < 0.001$). No statistically significant associations were observed between age or gender and the other preventive knowledge items reported in Table 5 ($p > 0.05$).

DISCUSSION

Migraine is a common neurological disorder that significantly affects the academic performance and quality of life of students. The present study assessed the knowledge, attitude, practice, and preventive awareness regarding migraine among medical students at Sialkot Medical College. The findings showed that most participants had satisfactory knowledge regarding migraine. A majority correctly identified migraine as a chronic neurological disorder and recognized the influence of hereditary, environmental, and hormonal factors in its development. These findings are consistent with previous studies that describe migraine as a multifactorial neurological condition influenced by genetic predisposition and lifestyle-related triggers.

Regarding attitude, more than half of the participants preferred consulting a doctor for recurrent headaches, while a considerable proportion reported self-medication. Although most respondents expressed willingness to adopt lifestyle modifications and attend follow-up consultations, the practice of self-medication remains a concern. Similar observations have been reported in student populations where headache disorders are often managed without professional consultation.

Practice-related findings were encouraging, with most respondents supporting the use of lifestyle modifications alongside medication and recommending medical consultation for individuals suffering

from migraine. Nevertheless, more than half were willing to suggest medications to others, which may promote inappropriate self-treatment and should be discouraged.

Awareness regarding migraine prevention was generally high. Most participants recognized the importance of trigger avoidance, regular sleep, and stress management in reducing migraine frequency. These findings support existing evidence that behavioural and lifestyle modifications are effective preventive measures for migraine management. However, awareness regarding caffeine reduction and prophylactic therapy was comparatively lower, indicating areas where additional educational interventions may be beneficial.

Statistically significant associations were observed between age and certain knowledge variables, as well as between gender and migraine-related awareness and healthcare-seeking behaviour. These findings may reflect differences in educational exposure and the established higher prevalence of migraine among females which is consistent with to previous studies. Overall, the study demonstrates satisfactory awareness regarding migraine among medical students while highlighting the need for further education on appropriate treatment practices and preventive strategies.

CONCLUSION

This study demonstrates that medical students possess a generally good level of knowledge and positive attitudes regarding migraine and its management. A majority of participants were aware of common triggers, treatment options, and the importance of lifestyle modifications in preventing migraine attacks. However, despite adequate knowledge, gaps were observed in practical application and certain preventive aspects, indicating a disconnect between knowledge and practice.

The findings highlight that knowledge alone is not sufficient to ensure appropriate health behaviours. Issues such as self-medication, incomplete understanding of preventive strategies, and variability in applying learned concepts suggest the need for more practical, behaviour-oriented education. Strengthening medical curriculum with a focus on applied learning, patient counselling, and preventive strategies may help bridge this gap. There is still need to continue focussing on various public health awareness campaigns through different social media platforms & conducting seminars, arranging workshops and highlighting role of triggering factors in migraine relating management.

While awareness regarding migraine is satisfactory among medical students, targeted interventions are required to improve practical implementation and promote effective preventive practices. Enhancing both theoretical understanding and real-world application can ultimately contribute to better personal health management and improved patient care in future clinical practice.

Tables

Table 1: Demographic Characteristics of Participants (n=300)

Variable	Category	Frequency (n)	Percentage (%)
Age	15-20 years	100	33.3
	20-25 years	194	64.7
	25-30 years	6	2.0
Gender	Male	32	10.7
	Female	268	89.3
Marital Status	Single	284	94.7
	Married	16	5.3
Year of Study	1st year	87	29.0
	2nd year	33	11.0
	3rd year	44	14.7
	4th year	47	15.7
	5th year	89	29.7
Family history of migraine	Yes	61	20.3
	No	201	67.0
	Not sure/Missing*	38	12.7

Table 2: Knowledge Regarding Migraine (n=300)

Knowledge Item	Response	n	%
Is migraine a chronic neurological disease?	Yes	231	77.0
	No	69	23.0
Do women have higher risk due to hormonal changes?	Yes	281	93.7
	No	19	6.3
Is migraine caused by vascular disturbances & brain dysfunction?	Yes	263	87.7
	No	37	12.3
Does migraine have predisposing factors (environmental/heredity)?	Yes	268	89.3

	No	32	10.7
Can episodes be reduced by lifestyle modification & drugs?	Yes	270	90.0
	No	30	10.0
Does severity decide need for prophylactics?	Yes	279	93.0
	No	21	7.0
Name two drugs for acute & chronic migraine	Paracetamol	124	41.3
	Propranolol	131	43.7
	Amoxicillin (incorrect)	38	12.7
	Metformin (incorrect)	7	2.3
Duration of prophylactic drugs without missing doses	1 Month	112	37.3
	3 Months	59	19.7
	6-12 Months (correct)	69	23.0
	Lifelong	60	20.0

Table 3: Attitude Towards Migraine Management (n=300)

Attitude Item	Response	n	%
If recurrent headache, what would you do?	Consult a doctor	163	54.3
	Go to pharmacist	15	5.0
	Take paracetamol without consultation	122	40.7
Will you modify lifestyle (diet, sleep, stress)?	Yes	283	94.3
	No	17	5.7

Will you go for follow-up for several months?	Yes	201	67.0
	No	99	33.0

Table 4: Practice Related to Migraine (n=300)

Practice Item	Response	n	%
Have you ever suffered from migraine?	Yes	132	44.0
	No	168	56.0
Are lifestyle modification & acute medication best approach?	Yes	273	91.0
	No	27	9.0
Recommend consulting doctor to friend/relative?	Yes	256	85.3
	No	44	14.7
Suggest specific drugs to friend with migraine?	Yes	162	54.0
	No	138	46.0

Table 5: Prevention Knowledge and Associations (n=300)

Prevention Item / Association	Response	n	%	Chi-square p-value
Can avoiding triggers prevent attacks?	Yes	298	99.3	Age: p=0.872 / Gender: p=0.071
	No	2	0.7	
Is regular sleep important in	Yes	295	98.3	Age: p=0.435 / Gender: p=0.436

preventing migraines?				
	No	5	1.7	
Can stress management reduce frequency?	Yes	284	94.7	Age: p=0.267 / Gender: p=0.155
	No	16	5.3	
Is caffeine reduction helpful?	Yes	111	37.0	Age: p=0.946 / Gender: p=0.403
	No	189	63.0	
Are prophylactic meds used to reduce frequency?	Yes	184	61.3	Age: p=0.452 / Gender: p=0.886
	No	116	38.7	
Association: Age vs Drug choice	Paracetamol/Propranolol vs others	-	-	p=0.001* (significant)
Association: Age vs Prophylaxis duration	1mo vs 3mo vs 6-12mo vs lifelong	-	-	p=0.000* (significant)
Association: Age vs History of migraine	Yes/No	-	-	p=0.009* (significant)
Association: Gender vs Recommend doctor	Yes/No	-	-	p=0.005* (significant)
Association: Gender vs Hormonal risk knowledge	Yes/No	-	-	p=0.000* (significant)

Association: Gender vs Hereditary risk	Yes/No	-	-	p=0.005* (significant)