Knowledge, Attitudes, and Practices Toward Migraine among University Students in Bangladesh: A Cross-Sectional Survey

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ABSTRACT

Background: Migraine is a prevalent neurological disorder among young adults, yet knowledge, attitudes, and preventive practices (KAP) remain under-explored in Bangladeshi university students. This study aimed to assess KAP toward migraine and examine associations with socio-demographic factors.

Methods: A cross-sectional survey was conducted among 528 university students using a structured online questionnaire. Data on demographics, headache history, migraine knowledge, attitudes, and preventive practices were collected. Knowledge and practice levels were calculated and categorized as poor, moderate, or good, while attitudes were classified as negative, neutral, or positive. Associations with socio-demographic characteristics were analyzed using chi-square tests.

Results: Recurrent headaches were reported by 84.7% of students, with 54.7% previously diagnosed with migraine and 63.4% reporting a family history. Most participants correctly identified migraine as a neurological disorder (78.8%) and recognized common symptoms such as light/sound sensitivity (74.8%) and nausea/vomiting (66.1%). Awareness of triggers and preventive strategies ranged from 57% to 77%, but misconceptions persisted, with only 40.2% correctly noting antibiotics are ineffective. Knowledge levels were significantly associated with gender, faculty, academic year, and residence type ($p < 0.05$). Attitudes were mixed; approximately half acknowledged the academic impact of migraine and the value of professional care, with positive attitudes more prevalent among male students, higher-year students, and those living with family or in shared rentals ($p < 0.001$). Preventive practices were generally suboptimal: only 42.2% consistently maintained hydration, 31.6% controlled screen time, and 30.1% sought professional advice during severe episodes. Practice levels were associated with gender, university type, faculty, academic year, and residence ($p < 0.05$).

Conclusion: While Bangladeshi university students demonstrate moderate migraine knowledge, attitudes and preventive practices remain insufficient. Socio-demographic factors influence KAP outcomes, underscoring the need for targeted, campus-based educational interventions and promotion of evidence-based migraine management strategies.

Keywords: Migraine; Knowledge; Attitude; Practices; University students.

INTRODUCTION

Migraine is a prevalent and debilitating neurological disorder, ranked globally as the second leading cause of years lived with disability, particularly among young adults (Steiner et al., 2020). Characterized by recurrent attacks of moderate-to-severe pulsating headache, often accompanied by photophobia, phonophobia, nausea, and vomiting, migraine imposes a substantial burden on individuals' academic performance, professional productivity, and overall quality of life (Axiotidou, Proios, et al., 2025; Raggi et al., 2024). Despite its high

prevalence and significant socio-economic impact, migraine remains under-diagnosed, under-treated, and widely misunderstood, often stigmatized as a mere "headache" rather than a legitimate chronic neurological condition (Casas-Limón et al., 2024).

The South Asian region, with its unique socio-cultural and healthcare delivery landscapes, presents a distinct profile of migraine burden. Studies from India, Pakistan, and Nepal indicate a high prevalence of migraine, especially among young and female populations, coupled with alarmingly low consultation rates and widespread reliance on over-the-counter analgesics (Choudhary, 2024; Dhungel et al., 2023; Zahid et al., 2014). Barriers to effective management in this region are multifaceted, encompassing limited public awareness, scarcity of specialist neurological care, cultural normalization of pain, and significant treatment gaps (Lanteri-Minet et al., 2024). These factors contribute to a cycle of chronicity and disability that remains largely unaddressed at the public health level.

In Bangladesh, the situation is particularly concerning but critically under-researched. As a densely populated low- and middle-income country (LMIC) with a significant youth demographic, Bangladesh faces a dual challenge: a likely high burden of migraine among its young population and a severe lack of targeted awareness and management frameworks (Shahriar, 2021). University students represent a crucial at-risk group, navigating a phase of life marked by academic stress, irregular sleep, and dietary habits—all recognized potential migraine triggers (Samir et al., 2025). However, there is a profound dearth of data concerning their knowledge, health-seeking attitudes, and management practices related to migraine. Understanding these dimensions is the first essential step in mitigating the academic and personal toll of this disabling condition.

Therefore, this study aims to assess the knowledge, attitudes, and practices (KAP) toward migraine among university students in Bangladesh. By identifying specific knowledge gaps, prevalent misconceptions, and current management patterns, the findings will provide foundational evidence to inform the development of targeted educational interventions, improve healthcare-seeking behavior, and advocate for the integration of headache disorder management into university health services and national neurological health strategies.

MATERIALS AND METHODS

Study Design and Setting

The study was carried out using an online self-administered questionnaire distributed through university student forums, and social media platforms (Facebook, WhatsApp) between October, 2025, and December, 2025. Participation was voluntary, and respondents were students enrolled in various public and private universities across Bangladesh.

Study Population and Sample Size

The target population was university students enrolled in undergraduate or postgraduate programs, aged 18 years and above, of any gender residing in Bangladesh. A convenience sampling technique was employed to recruit participants. Inclusion criteria were: (1) current enrollment in a recognized university in Bangladesh, and (2) willingness to participate. Students with a self-reported prior clinical diagnosis of other chronic neurological or psychiatric disorders that could confound headache reporting were excluded from participation. Responses with incomplete data or duplicates were excluded from the final analysis.

The sample size was calculated using the single population proportion formula:

$$\mathbf{n} = \frac{[(\boldsymbol{Z}^2 * \boldsymbol{p} * (\mathbf{1} - \boldsymbol{p})]}{\boldsymbol{d}^2}$$

Where:
Z = 1.96 (corresponding to a 95% confidence level); p = 0.5 (expected proportion of adequate knowledge, assumed due to lack of prior studies); d = 0.05 (margin of error). This yielded a minimum sample size of 385. Accounting for a potential non-response rate of 10%, the final target sample size was 425 participants.

Questionnaire Development

A structured questionnaire was developed following an extensive review of relevant literature, including previously published KAP survey instruments and migraine-specific clinical guidelines (Al-quliti et al., 2024; Kumar et al., 2025; Rafi et al., 2022; Rustom et al., 2022; Tzankova et al., 2023). Content validity was ensured through consultation with experts in public health and epidemiology. The questionnaire was originally prepared in English and then translated into Bengali. A back-translation process was conducted to verify conceptual equivalence and cultural suitability. The finalized bilingual version was designed to enhance clarity and facilitate accurate understanding among participants.

The final questionnaire consisted of four main sections:

Socio-demographic profile: This section collected participants' background characteristics, including age, gender, year of study, academic discipline, type of university (public, private, or affiliated), residence status, and family history of migraine.

Headache/Migraine Background: Background information was assessed using items exploring participants' personal experience with recurrent headaches, prior medical diagnosis of migraine by a healthcare professional, family history of migraine, and the average number of headache days per month. Additional items evaluated the usual duration of headache episodes and the extent of functional impairment, including missed classes or work and reduced academic productivity during headache attacks.

Knowledge of migraine: Knowledge was assessed using items evaluating awareness of migraine as a neurological disorder, recognition of common clinical features (e.g., unilateral headache, aura, nausea, and sensitivity to light or sound), identification of triggers, preventive strategies, and treatment-related misconceptions. Responses were recorded as "True", "False" or "Don't know".

Attitudes toward migraine: This section examined participants' perceptions regarding migraine severity, its impact on academic performance, perceived stigma, the need for medical consultation, and the effectiveness of lifestyle modification and professional treatment. Attitude items were measured using a 5-point Likert scale ranging from "Strongly agree" to "Strongly disagree".

Practices related to migraine management: Practice items assessed behaviors during migraine or headache episodes, including hydration practices, screen-time control, use of over-the-counter and prescription medications, consultation with healthcare providers, use of non-pharmacological measures (e.g., rest and stress management), and adoption of preventive lifestyle practices. Responses were recorded using frequency-based options: "Never", "Rarely", "Sometimes", and "Always".

Data Collection Procedure

The finalized questionnaire was converted into an online format using Google Forms, and the survey link was disseminated widely across student networks and academic groups. Participants were informed about the study objectives, confidentiality, and voluntary nature of participation before providing electronic consent. No personally identifiable information was collected to ensure anonymity.

Ethical Considerations

The study adhered to the ethical principles outlined in the Declaration of Helsinki. Ethical approval was obtained from the Department of Pharmacy Ethical Committee of University of Information Technology and Sciences [UITS/PHARM/PEC/2025/23] prior to data collection. Electronic informed consent was obtained from all participants, and data were used solely for research purposes.

Data Analysis

Data were exported to Microsoft Excel for initial cleaning and subsequently analyzed using IBM SPSS Statistics version 27.0. Descriptive statistics, including frequencies and percentages, were used to summarize the survey responses. Knowledge and practice scores were calculated and classified as poor, moderate, or good using a 33% cutoff. Attitude levels were categorized as negative, neutral, or positive based on the same cutoff criterion. Inferential analysis was conducted using chi-square tests to examine associations between sociodemographic variables and KAP outcomes. A p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 528 university students participated in this cross-sectional study. The following sections present the findings on demographics, headache/migraine background, and the knowledge, attitudes, and practices (KAP) toward migraine among the respondents.

Demographic Characteristics

The demographic profile of the participants is summarized in **Table 1**. Most respondents were male (63.3%), followed by female students (32.6%). Participants were enrolled in national university–affiliated colleges (37.1%), public universities (34.8%), and private universities (28.0%). Students represented diverse academic disciplines, with the largest proportion from science and engineering backgrounds (31.4%), followed by pharmacy and health sciences (24.6%), business studies (24.1%), and arts and social sciences (19.9%). Most participants were in their third academic year (33.9%) and resided with their families (47.5%).

Table 1. Socio-demographic characteristics of the study participants (N = 528).

Questions	Frequency, n (%)
1. Gender	
Male	334 (63.3)
Female	172 (32.6)
Prefer not to say	22 (4.2)
2. University type	
Public	184 (34.8)
Private	148 (28)
National University (affiliated college)	196 (37.1)
Other	0 (0)
3. Faculty	
Pharmacy/Health	130 (24.6)
Science/Engineering	166 (31.4)
Business	127 (24.1)
Arts/Social Science	105 (19.9)
Other	0 (0)
4. Currently studying in	
1st	61 (11.6)
2nd	123 (23.3)
3rd	179 (33.9)
4th	103 (19.5)
5th+ / Postgrad	51 (9.7)
5. Residence type	
Hall/Hostel	139 (26.3)
With family	251 (47.5)
Shared rental	123 (23.3)
Other	15 (2.8)

Headache and Migraine Background

Table 2 describes the headache and migraine history of the participants. A large majority of respondents (84.7%) reported experiencing recurrent headaches (≥5 episodes in the past year). More than half (54.7%) had previously been diagnosed with migraine by a healthcare professional, and 63.4% reported a positive family history of migraine. Regarding headache frequency, 39.2% experienced 1–3 headache days per month, while 23.7% reported 4–7 days. Headache duration varied, with 38.8% reporting episodes lasting less than one hour. Academic productivity was affected to varying degrees, with 39.4% reporting sometimes to always missing classes or experiencing reduced performance due to headaches.

Table 2. Headache and migraine-related characteristics among university students.

Question	Frequency, n (%)
1. Have you ever experienced recurrent headaches (≥5 episodes in the last year)?	
Yes	447 (84.7)
No	81 (15.3)
2. Have you ever been told by a healthcare professional that you have migraine?	
Yes	289 (54.7)
No	239 (45.3)
3. Do you have a close family member with migraine?	
Yes	335 (63.4)
No	193 (36.6)
4. On average, how many headache days do you have per month?	
Not Sure	117 (22.2)
1–3	207 (39.2)
4–7	125 (23.7)
8–14	65 (12.3)
≥15	14 (2.7)
5. How long stay your headache each time?	
<1	205 (38.8)
1-3 hours	113 (21.4)
4-12 hours	57 (10.8)
12-24 hours	19 (3.6)
24-72 hours	3 (0.6)
Not Sure	131 (24.8)
6. During headache attacks, how often do you miss classes/work or have reduced academic productivity?	
Never	196 (37.1)
Rarely	124 (23.5)
Sometimes	120 (22.7)
Often	41 (7.8)
Always	47 (8.9)

Knowledge Regarding Migraine and Its Association with Socio-Demographic Characteristics

Overall, participants demonstrated a moderate to good level of knowledge regarding migraine. Most respondents correctly identified migraine as a neurological disorder (78.8%) and recognized common symptoms such as light or sound sensitivity (74.8%) and nausea or vomiting (66.1%). Awareness of migraine triggers, including skipped meals, dehydration, excessive screen time, and poor sleep, was reported by more than two-thirds of participants. However, misconceptions remained; only 40.2% correctly identified that antibiotics are not effective for migraine treatment. Knowledge regarding preventive medications and lifestyle management strategies was reported by approximately 58–71% of participants (**Table 3**). Knowledge levels were significantly associated with gender, faculty, academic year, and residence type ($p < 0.05$). Male students and those from pharmacy/health sciences and business faculties were more likely to have good knowledge levels. Higher academic year was positively associated with better knowledge, with third- and fourth-year students demonstrating higher proportions of good knowledge compared to first-year students. Students residing in shared rental accommodations showed a higher proportion of good knowledge compared to those living in halls or hostels (**Table 4**).

Table 3. Knowledge responses regarding migraine, symptoms, triggers, and management.

Question	Frequency, n (%)
1. Migraine is a neurological disorder, not just a “bad headache.”	

True	416 (78.8)
False	66 (12.5)
Don't know	46 (8.7)
2. Sensitivity to light or sound is commonly associated with migraine attacks.	
True	395 (74.8)
False	78 (14.8)
Don't know	55 (10.4)
3. Nausea and/or vomiting can occur during migraine.	
True	349 (66.1)
False	81 (15.3)
Don't know	98 (18.6)
4. Aura (e.g., visual disturbances) can precede some migraine attacks.	
True	351 (66.5)
False	77 (14.6)
Don't know	100 (18.9)
5. Skipping meals and dehydration can trigger migraine in some people.	
True	353 (66.9)
False	77 (14.6)
Don't know	98 (18.6)
6. Excessive screen time and poor sleep can trigger or worsen migraine.	
True	407 (77.1)
False	62 (11.7)
Don't know	59 (11.2)
7. Overuse of pain medicines (e.g., using them very frequently) can worsen headaches over time.	
True	312 (59.1)
False	94 (17.8)
Don't know	122 (23.1)
8. Antibiotics are effective treatments for migraine attacks.	
True	154 (23.2)
False	212 (40.2)
Don't know	162 (30.7)
9. Caffeine can both help and trigger migraine depending on use patterns.	
True	303 (57.4)
False	87 (16.5)
Don't know	138 (26.1)
10. Preventive (prophylactic) medicines exist to reduce migraine frequency for frequent sufferers.	
True	308 (58.3)
False	79 (15)
Don't know	141 (26.7)
11. Mental stress management and regular sleep can help prevent migraine attacks.	
True	376 (71.2)
False	73 (13.8)
Don't know	79 (15)
12. In case of migraine, the primary approach should be to a neurologist.	
True	395 (74.8)
False	56 (10.6)
Don't know	77 (14.6)

Table 4. Association between socio-demographic characteristics and migraine knowledge level.

Characteristic	Overall N = 528[1]	Poor N = 173[1]	Moderate N = 145[1]	Good N = 210[1]	p-value[2]
Gender					**<0.001**
Female	172 (33%)	61 (35%)	46 (32%)	65 (31%)	
Male	334 (63%)	96 (55%)	96 (66%)	142 (68%)	
Prefer not to say	22 (4.2%)	16 (9.2%)	3 (2.1%)	3 (1.4%)	
University Type					0.3
National university / Affiliated college	195 (37%)	60 (35%)	53 (37%)	82 (39%)	
Private university	148 (28%)	53 (31%)	47 (32%)	48 (23%)	
Public university	185 (35%)	60 (35%)	45 (31%)	80 (38%)	
Faculty					**<0.001**
Arts / Social Science	105 (20%)	33 (19%)	22 (15%)	50 (24%)	
Business	127 (24%)	33 (19%)	33 (23%)	61 (29%)	
Engineering / Science background	166 (31%)	72 (42%)	55 (38%)	39 (19%)	
Pharmacy / Health Science	130 (25%)	35 (20%)	35 (24%)	60 (29%)	
Academic Year					**<0.001**
1st Year	61 (12%)	15 (8.7%)	18 (12%)	28 (13%)	
2nd Year	123 (23%)	40 (23%)	41 (28%)	42 (20%)	
3rd Year	179 (34%)	46 (27%)	52 (36%)	81 (39%)	
4th Year	103 (20%)	34 (20%)	18 (12%)	51 (24%)	
5th Year	11 (2.1%)	10 (5.8%)	1 (0.7%)	0 (0%)	
Postgrad	51 (9.7%)	28 (16%)	15 (10%)	8 (3.8%)	
Residence Type					**0.024**
Hall/Hostel	139 (26%)	50 (29%)	39 (27%)	50 (24%)	
Others	15 (2.8%)	8 (4.6%)	3 (2.1%)	4 (1.9%)	
Shared rental	123 (23%)	43 (25%)	21 (14%)	59 (28%)	
With Family	251 (48%)	72 (42%)	82 (57%)	97 (46%)	

Attitudes Toward Migraine and Its Association with Socio-Demographic Characteristics

Attitudinal responses indicated mixed perceptions. Approximately half of the respondents agreed or strongly agreed that migraine is a serious health condition affecting academic performance. While many participants supported lifestyle modification and medical consultation for migraine management, a substantial proportion remained neutral or disagreed regarding stigma and the effectiveness of professional care. Notably, most respondents disagreed with the belief that traditional remedies are always superior to modern medicine (**Table 5**). Attitude levels showed significant associations with gender, university type, faculty, academic year, and residence type (all $p < 0.001$). Positive attitudes were more prevalent among male students, business and arts students, and those in higher academic years. Students living with family or in shared rental housing demonstrated more positive attitudes compared to those residing in halls or hostels (**Table 6**).

Table 5. Attitudes of university students toward migraine and its management.

Question	Frequency, n (%)
1. Migraine is a serious health problem that can affect academic performance.	
Strongly disagree	151 (28.6)
Disagree	61 (11.6)
Neutral	46 (8.7)
Agree	134 (25.4)
Strongly Agree	136 (25.8)
2. People with migraine often face misunderstanding or stigma.	

Strongly disagree	135 (25.6)
Disagree	96 (18.2)
Neutral	135 (25.6)
Agree	100 (18.9)
Strongly Agree	62 (11.7)
3. It is appropriate to seek medical care for frequent or disabling headaches.	
Strongly disagree	133 (25.2)
Disagree	66 (12.5)
Neutral	49 (9.3)
Agree	133 (25.2)
Strongly agree	147 (28)
4. Lifestyle changes (sleep, hydration, stress control) are worth trying for migraine prevention.	
Strongly disagree	145 (27.5)
Disagree	52 (9.8)
Neutral	55 (10.4)
Agree	121 (22.9)
Strongly agree	155 (29.4)
5. Using painkillers without medical advice is safe for frequent headaches.	
Strongly disagree	225 (42.6)
Disagree	128 (24.2)
Neutral	76 (14.4)
Agree	69 (13.1)
Strongly agree	30 (5.7)
6. Students should receive campus-based education on headache/migraine management	
Strongly disagree	111 (21)
Disagree	75 (14.2)
Neutral	140 (26.5)
Agree	115 (21.8)
Strongly agree	87 (16.5)
7. I feel confident I could recognize migraine symptoms in myself or peers	
Strongly disagree	110 (20.8)
Disagree	72 (13.6)
Neutral	137 (25.9)
Agree	123 (23.3)
Strongly agree	86 (16.3)
8. Traditional/home remedies are always better than modern medicine for migraine	
Strongly disagree	217 (41.1)
Disagree	104 (19.7)
Neutral	115 (21.8)
Agree	72 (13.6)
Strongly agree	20 (3.8)

Table 6. Factors associated with attitude levels toward migraine.

Characteristic	**Overall** N = 528[1]	**Negative** N = 177[1]	**Neutral** N = 178[1]	**Positive** N = 173[1]	**p-value**
Gender					**<0.001**
Female	172 (33%)	71 (40%)	58 (33%)	43 (25%)	

Male	334 (63%)	93 (53%)	111 (62%)	130 (75%)	
Prefer not to say	22 (4.2%)	13 (7.3%)	9 (5.1%)	0 (0%)	
University Type					**<0.001**
National university / Affiliated college	195 (37%)	52 (29%)	71 (40%)	72 (42%)	
Private university	148 (28%)	39 (22%)	64 (36%)	45 (26%)	
Public university	185 (35%)	86 (49%)	43 (24%)	56 (32%)	
Faculty					**<0.001**
Arts / Social Science	105 (20%)	31 (18%)	31 (17%)	43 (25%)	
Business	127 (24%)	30 (17%)	39 (22%)	58 (34%)	
Engineering / Science background	166 (31%)	65 (37%)	68 (38%)	33 (19%)	
Pharmacy / Health Science	130 (25%)	51 (29%)	40 (22%)	39 (23%)	
Academic Year					**<0.001**
1st Year	61 (12%)	25 (14%)	18 (10%)	18 (10%)	
2nd Year	123 (23%)	50 (28%)	47 (26%)	26 (15%)	
3rd Year	179 (34%)	52 (29%)	55 (31%)	72 (42%)	
4th Year	103 (20%)	19 (11%)	37 (21%)	47 (27%)	
5th Year	11 (2.1%)	3 (1.7%)	7 (3.9%)	1 (0.6%)	
Postgrad	51 (9.7%)	28 (16%)	14 (7.9%)	9 (5.2%)	
Residence Type					**<0.001**
Hall/Hostel	139 (26%)	77 (44%)	40 (22%)	22 (13%)	
Others	15 (2.8%)	5 (2.8%)	7 (3.9%)	3 (1.7%)	
Shared rental	123 (23%)	28 (16%)	37 (21%)	58 (34%)	
With Family	251 (48%)	67 (38%)	94 (53%)	90 (52%)	

Preventive Practices Related to Migraine and Its Association with Socio-Demographic Characteristics

Preventive practices were suboptimal overall. Although 42.2% reported always drinking adequate water and 31.6% consistently limited screen time, headache tracking behaviors were uncommon, with 64.0% reporting never tracking headache episodes or triggers. Healthcare-seeking behavior was inconsistent, with only 30.1% always seeking professional advice for frequent or severe headaches (**Table 7**). Practice levels were significantly associated with gender, university type, faculty, academic year, and residence type ($p < 0.05$). Male students and those enrolled in national university–affiliated colleges demonstrated better preventive practices. Students in business disciplines and those living with family or in shared rentals showed relatively better practice scores. Overall, only a small proportion of participants demonstrated good preventive practices, indicating a gap between knowledge and behavior (**Table 8**). Overall, knowledge, attitude and preventive practice levels of the participants were represented in **Figure 1**.

Table 7. Preventive practices related to migraine among study participants.

Questions	Frequency, n (%)
1. I drink adequate water daily (≥6–8 glasses or as advised)	
Never	112 (21.2)
Rarely	100 (18.9)
Sometimes	93 (17.6)
Always	223 (42.2)
2. I limit screen time/take breaks to prevent or reduce headaches	
Never	126 (23.9)
Rarely	134 (25.4)
Sometimes	101 (19.1)
Always	167 (31.6)
3. I track headache episodes or triggers (e.g., diary/app).	
Never	338 (64)

Rarely	113 (21.4)
Sometimes	54 (10.2)
Always	23 (4.4)
4. If I have frequent or severe headaches seek professional advice (doctor/pharmacist) when headaches are frequent or disabling.	
Never	158 (29.9)
Rarely	109 (20.6)
Sometimes	102 (19.3)
Always	159 (30.1)

Table 8. Association between socio-demographic characteristics and migraine preventive practice levels.

Characteristic	**Overall** N = 528	**Poor** N = 309	**Moderate** N = 185	**Good** N = 34	**p-value**
Gender					**0.006**
Female	172 (33%)	112 (36%)	55 (30%)	5 (15%)	
Male	334 (63%)	179 (58%)	128 (69%)	27 (79%)	
Prefer not to say	22 (4.2%)	18 (5.8%)	2 (1.1%)	2 (5.9%)	
University Type					**<0.001**
National university / Affiliated college	195 (37%)	87 (28%)	89 (48%)	19 (56%)	
Private university	148 (28%)	110 (36%)	35 (19%)	3 (8.8%)	
Public university	185 (35%)	112 (36%)	61 (33%)	12 (35%)	
Faculty					**<0.001**
Arts / Social Science	105 (20%)	49 (16%)	49 (26%)	7 (21%)	
Business	127 (24%)	51 (17%)	63 (34%)	13 (38%)	
Engineering / Science background	166 (31%)	115 (37%)	41 (22%)	10 (29%)	
Pharmacy / Health Science	130 (25%)	94 (30%)	32 (17%)	4 (12%)	
Academic Year					**0.003**
1st Year	61 (12%)	42 (14%)	16 (8.6%)	3 (8.8%)	
2nd Year	123 (23%)	81 (26%)	30 (16%)	12 (35%)	
3rd Year	179 (34%)	87 (28%)	82 (44%)	10 (29%)	
4th Year	103 (20%)	56 (18%)	43 (23%)	4 (12%)	
5th Year	11 (2.1%)	9 (2.9%)	2 (1.1%)	0 (0%)	
Postgrad	51 (9.7%)	34 (11%)	12 (6.5%)	5 (15%)	
Residence Type					**<0.001**
Hall/Hostel	139 (26%)	99 (32%)	35 (19%)	5 (15%)	
Others	15 (2.8%)	13 (4.2%)	2 (1.1%)	0 (0%)	
Shared rental	123 (23%)	51 (17%)	61 (33%)	11 (32%)	
With Family	251	146	87 (47%)	18	

	(48%)	(47%)		(53%)	

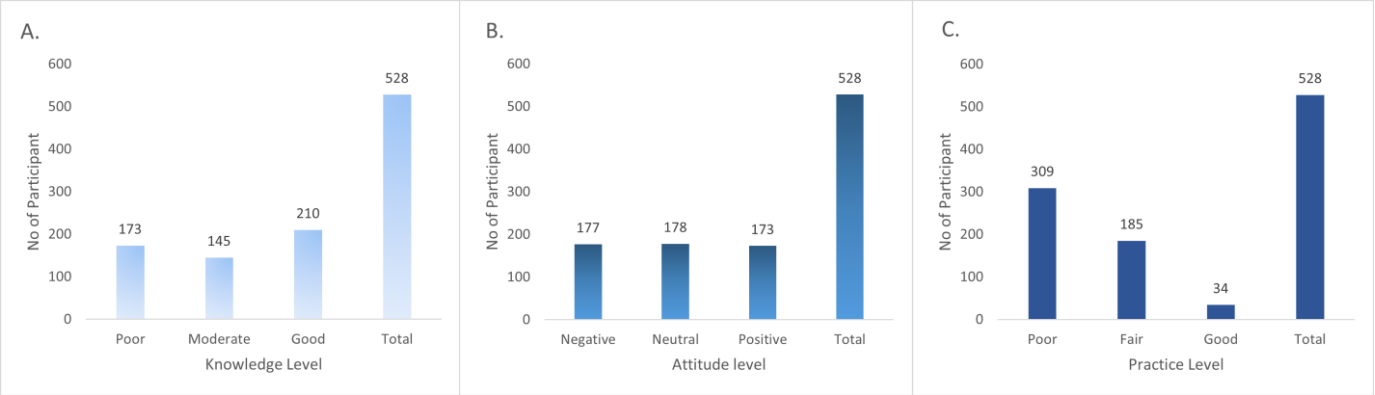

Figure 1. Distribution of participants according to knowledge, attitude, and practice levels (A–C), showing the number of respondents in each category (total N = 528).

DISCUSSION

This study provides important insights into the knowledge, attitudes, and preventive practices related to migraine among university students in Bangladesh, a population that remains underrepresented in headache research despite being at high risk. Overall, the findings indicate that while general awareness of migraine as a neurological condition is relatively satisfactory, significant gaps persist in attitudes and day-to-day management practices. This disconnects between knowledge and behavior highlights a critical challenge for migraine prevention and control in young adult populations.

The moderate level of migraine knowledge observed among students is consistent with findings from other South Asian countries, where basic recognition of migraine symptoms and triggers is increasingly common, particularly among educated youth (Axiotidou, Koutroulou, et al., 2025; Ching et al., 2024). Similar studies from India, Pakistan, and Saudi-Arab have reported growing awareness of migraine as a medical condition rather than a simple headache, likely reflecting greater exposure to digital health information and social media–based health content (Joshi et al., 2025; Labban et al., 2025; Rustom et al., 2022). However, misconceptions regarding appropriate treatment options, including uncertainty about medication use and preventive strategies, continue to be widely reported across the region. These misconceptions may contribute to delayed diagnosis, inappropriate self-medication, and progression toward chronic headache patterns.

Despite reasonable awareness, attitudes toward migraine were mixed, suggesting that knowledge alone does not necessarily translate into positive perceptions or proactive health behavior. A substantial proportion of students appeared uncertain about the seriousness of migraine and the value of seeking professional care. This pattern mirrors observations from other low- and middle-income South Asian settings, where cultural normalization of pain, stigma surrounding neurological conditions, and limited access to specialist services often reduce motivation for formal healthcare utilization (Health, 2025; Uwishema, 2025). In university environments, academic pressure and fear of appearing weak or unproductive may further discourage students from acknowledging migraine as a legitimate health concern requiring attention (Axiotidou, Proios, et al., 2025).

Preventive practices were notably suboptimal, revealing a pronounced gap between what students know and what they actually do to manage migraine. Lifestyle-based preventive behaviors, such as regular hydration, screen-time moderation, and stress management, were inconsistently practiced, and structured approaches like headache tracking were rarely adopted. Similar practice gaps have been documented among university students in Sri Lanka and Saudi Arabia, where reliance on episodic pain relief and informal coping strategies remains common (Peiris et al., 2021; Raucci et al., 2020). Limited engagement with healthcare professionals suggests that many students manage migraine reactively rather than preventively, increasing the risk of recurrent attacks and academic impairment.

The observed associations between socio-demographic factors and KAP outcomes suggest underlying structural and contextual influences. Better knowledge, attitudes, and practices among senior students may reflect cumulative exposure to health information and greater autonomy in healthcare decision-making. Differences by academic discipline could be related to varying levels of health literacy, while residence type may influence daily routines, stress levels, and access to family support. These findings emphasize that migraine education and intervention strategies should be tailored rather than uniform, taking into account students' living conditions and academic environments.

From a public health perspective, the results underscore the need for targeted, campus-based migraine education programs that go beyond symptom recognition. Interventions should focus on correcting treatment misconceptions, promoting preventive behaviors, and normalizing healthcare-seeking for recurrent headaches. Integrating migraine awareness into university health services, student orientation programs, or digital health platforms could be a practical and cost-effective approach in resource-limited settings like Bangladesh. Pharmacists and primary care providers may also play a key role in guiding appropriate medication use and preventing harmful self-medication practices.

Limitations of the study

This study has several limitations. The cross-sectional design limits causal inference, and the use of self-reported data may introduce recall or reporting bias. Online convenience sampling may have excluded students with limited internet access, potentially affecting generalizability. Nevertheless, the study's strengths include a large and diverse sample drawn from multiple university types and disciplines, as well as the use of a structured, bilingual questionnaire tailored to the local context.

CONCLUSION

This study highlights that migraine is a common and impactful health problem among university students in Bangladesh, with participants demonstrating moderate levels of knowledge but suboptimal attitudes and preventive practices. The findings reveal a clear gap between awareness and effective migraine management, reflected in inconsistent healthcare-seeking behavior and limited adoption of preventive lifestyle strategies. Socio-demographic differences in knowledge, attitudes, and practices suggest the need for targeted rather than uniform interventions. Strengthening campus-based migraine education, improving access to professional guidance, and promoting evidence-based self-management strategies may help reduce the academic and quality-of-life burden of migraine among university students. Future research should focus on intervention-based and longitudinal studies to support sustainable migraine prevention and management in university settings.

Conflict of Interest

The authors declare no conflict of interest.

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Ethics approval and consent to participate:

The study was approved by the Department of Pharmacy Ethical Committee of University of Information Technology and Sciences [UITS/PHARM/PEC/2025/23]. Informed consent was obtained from all participants who agreed to participate in the study. Confidentiality was maintained, and data were used solely for research purposes.

Data availability statement

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

Authors' Contribution:

Md. Al Amin: Project administration; conceptualization; methodology; writing—original draft, review and

editing; investigation; data curation; validation; visualization; supervision; resources; and formal analysis; correspondence; **Md. Mashfiqur Rahman, Md. Mehedi Hasan, Tanjimul Kalam, and Md. Nayeem Chowdhury:** Investigation, Data Collection, Data analysis, and manuscript editing;

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During the preparation of this work, the author(s) used ChatGPT to improve the readability of the article. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

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