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ORIGINAL RESEARCH

Headache and Migraine Epidemiology and Functional Impairment among Undergraduate Nursing Students

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ABSTRACT

Background: Headaches frequently affect nursing students, fueled by intense academic demands and psychological stress. Among these, migraine—a severe form of headache characterized by pulsatile pain, nausea, and light or sound sensitivity—poses a notable public health concern, particularly for university populations vulnerable to stress-related triggers.

Objectives: This study aimed to assess the prevalence, clinical features, and daily impact of migraine among nursing students at the University of Sulaimani.

Methodology: A quantitative design, cross-sectional descriptive study was conducted among all stages of nursing students to assess prevalence, clinical features, and impact of migraine on daily functioning among nursing students at the University of Sulaimani from the period of 5th November 2023 to 15th June 2024 by using a standard tool based on the ICHD-3 criteria. Content validity was confirmed by five experts, and reliability was verified using split-half and Cronbach's alpha (r = 0.83). Data were analyzed using SPSS version 24 with results presented as frequencies and percentages. Out of 109 students reporting headaches, only 48 (44%) had migraine headaches.

Results: 109 students 54.1% female and 45.9% were male experienced headaches. Out of these 109 students 48 (44.0%), 58.3% female and 41.7% male of them had migraine according to the International Classification of Headache Disorders, 3rd edition criteria tool for migraine. The most frequently cited trigger was too little sleep (77.1%), and the leading self-care strategy was lying down or sleeping during attacks (82.6%). Unilateral head pain was the predominant symptom (68.8%), followed by phonophobia (56.9%) and pulsating quality (45.9%). Functionally, 62.4% missed 1–3 university days in the past three months due to headache, and 57.8% reported reduced study or work productivity on 1–3 days.

Conclusion: Headache is highly prevalent among nursing students, with nearly half of those affected meeting the criteria for migraine, and women disproportionately represented. Common triggers such as inadequate sleep and the widespread reliance on rest-based relief strategies emphasize key areas for targeted support. Migraines clearly impair academic performance especially study and work productivity and daily functioning.

Keywords: Migraine, Headache, Nursing students, Epidemiology, Functional impairment.

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INTRODUCTION

Migraine is a genetically influenced complex neurological disorder characterized by episodes of moderate-to-severe headaches, typically unilateral and frequently accompanied by nausea and heightened sensitivity to light and sound (Dodick, 2023). These episodes, known as migraine attacks, can last hours to days and significantly impact daily activities and the quality of life of individuals (Ashina et al., 2021). Historically, its characteristic symptoms have been recognized for millennia, meticulously described by ancient physicians such as Hippocrates and Avicenna, with documented attempts at relief in early civilizations including the Egyptians and Mesopotamians (Lance & Goadsby, 2017). This long-standing historical record underscores the enduring impact of migraine throughout human history.

Headache disorders collectively represent one of the most widespread neurological conditions globally, impacting over 50% of the adult population annually (Vos et al., 2020). Among these, migraine stands as a primary headache type, classically characterized by recurrent, moderate-to-severe unilateral pain often accompanied by hallmark symptoms such as nausea, photophobia (light sensitivity), and phonophobia (sound sensitivity) (Goadsby et al., 2023). The International Headache Society (IHS) provides a comprehensive classification of migraine, categorizing it into migraine without aura (the most common presentation, accounting for 75% of cases), migraine with aura (distinguished by transient neurological disturbances preceding or accompanying the headache), and chronic migraine (defined by headaches occurring on 15 or more days per month, with at least 8 of these days exhibiting typical migraine features) (Headache Classification Committee of the International Headache Society, 2018).

Potential complications associated with migraine can be severe and include status migrainosus (a debilitating attack lasting more than 72 hours), persistent aura without infarction (aura persisting over a week without brain ischemia), and migrainous infarction (aura symptoms with neuroimaging evidence of brain ischemia during an attack) (Goadsby, 2021). Additionally, related episodic syndromes predominantly observed in children, such as cyclic vomiting syndrome and benign paroxysmal vertigo, are recognized as migraine variants (Dodick, 2023). The etiology of migraine is strongly linked to genetic predisposition, with the risk in affected relatives being three times greater than in unaffected individuals, though its specific inheritance pattern remains complex and polygenic (Anttila & Wessman, 2020). Epidemiological data reveal that migraine affects approximately 12–15% of the global population, with a notable sex disparity—affecting 17% of women compared to 6% of men. Its prevalence significantly escalates in females post-puberty, reaching its peak between the ages of 35 and 39, and typically declines following menopause (Ferrari et al., 2020). Globally, migraine remains a leading cause of disability, particularly among those under age 50 (Vos et al., 2020), and accounts for a substantial number of emergency department visits annually (Ashina & Tvedskov, 2023). The economic burden of chronic migraine alone can be substantial, with direct medical costs significantly higher than episodic migraine (Ashina & Tvedskov, 2023). Despite its widespread prevalence and significant burden, migraine continues to be notably underdiagnosed and undertreated (Lipton et al., 2019). Definitive diagnosis relies on adherence to specific clinical criteria outlined by the International Classification of Headache Disorders, 3rd Edition (ICHD-3), including a history of at least five attacks lasting 4–72 hours, accompanied by features such as unilateral throbbing pain, nausea, and hypersensitivity to light and sound (Headache Classification Committee of the International Headache Society, 2018).

Contemporary understanding posits migraine as a complex brain-based disorder characterized by aberrant neuronal activity and neuroinflammation, moving beyond earlier vascular theories (Goadsby et al., 2023; Ashina & Tvedskov, 2023). Activation of the trigeminovascular system leads to the release of inflammatory neuropeptides, most notably calcitonin gene-related peptide (CGRP) (Ashina & Tvedskov, 2023). Furthermore, cortical spreading depression (CSD) is now widely accepted as the underlying neurophysiological mechanism responsible for aura symptoms, with emerging evidence suggesting a critical role for neural changes in subcortical sites in migraine generation. Clinically, migraine typically manifests as a unilateral, pulsating headache exacerbated by physical activity, frequently accompanied by nausea, vomiting, and profound hypersensitivity to light (photophobia) and sound (phonophobia). A distinct subset of patients experiences aura symptoms, which may include transient visual disturbances (e.g., flashing lights, zigzags), sensory alterations (e.g., tingling, numbness), or temporary speech difficulties (Goadsby, 2021).

Psychological comorbidities such as anxiety and depression are commonly observed in individuals with migraine and may worsen symptom severity and attack frequency, particularly in adolescents and young adults. These conditions often exhibit a bidirectional relationship with migraine, highlighting the multifaceted nature of the condition. Numerous modifiable lifestyle factors are implicated in triggering migraine attacks and contributing to disease progression. These include irregular sleep, dehydration, missed meals, excessive caffeine, emotional stress, and tobacco use (Seng & Lipton, 2022). Females exhibit a heightened vulnerability to migraine, primarily due to hormonal fluctuations. Migraine symptoms often worsen during perimenstrual periods and may decrease after menopause. Some evidence suggests that targeted hormonal therapies may benefit certain women (Russo et al., 2022).

While a definitive cure for migraine remains elusive, effective management strategies encompass both non-pharmacologic and pharmacologic interventions. Non-pharmacologic approaches emphasize lifestyle modifications, including establishing regular sleep patterns, ensuring adequate hydration, engaging in consistent physical exercise, implementing stress reduction techniques, and practicing mindfulness (Malik & Gelfand, 2021). Pharmacologic treatments for acute migraine episodes include non-steroidal anti-inflammatory drugs (NSAIDs), migraine-specific triptans, and anti-nausea medications (Dodick, 2023). Preventive options involve a diverse range of agents, such as beta-blockers, antiepileptic drugs, certain antidepressants, OnabotulinumtoxinA (Botox), and newly approved calcitonin gene-related peptide (CGRP) or receptor-targeted monoclonal antibodies (Ashina et al., 2021). Crucially, diligent care must be taken to prevent medication overuse headache (MOH), which can paradoxically increase headache frequency (Ferrari et al., 2020). Although migraine is a chronic condition, a significant proportion of individuals experience improvement in frequency and severity over time, with some achieving sustained symptom-free periods (Lange et al., 2020). Effective management of migraine involves comprehensive care strategies, encompassing various interventions that require a multidisciplinary approach, including the vital role of nursing in patient education, trigger identification, and symptom management (Silberstein et al., 2020).

Medical students, in particular, face unique and significant stressors, including rigorous examinations, demanding study schedules, and immense academic pressures (ElMetwally et al., 2020). These factors significantly elevate migraine risk, interfering with cognitive performance, mood, and long-term well-being, impacting their overall academic continuity and professional development (AlHussain et al., 2017).

The specific objectives of this study were to:

1. Determine the prevalence of migraine among undergraduate nursing students at the University of Sulaimani using ICHD-3 diagnostic criteria.
2. Identify the socio-demographic and clinical characteristics associated with migraine in this population.
3. Describe the common triggering factors of migraine attacks among nursing students.
4. Assess the functional impact of migraine on academic performance, social activities, and daily life functioning.
5. Identify the most commonly used self-management or coping strategies during headache and migraine episodes.

This study aimed to answer the following research questions:

1. What is the prevalence of migraine among undergraduate nursing students?
2. What socio-demographic and clinical factors are associated with migraine in this group?
3. What are the most common triggers of migraine attacks among nursing students?
4. How does migraine affect students' academic functioning, productivity, and daily life activities?
5. What self-care or relief strategies do students commonly use during migraine episodes?

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METHODOLOGY

- Study Design

A quantitative design, cross-sectional descriptive study has been conducted to assess prevalence, clinical features, and impact of migraine on daily functioning among nursing students at the University of Sulaimani during the period of 5th November 2023 to 15th June 2024.

- Administrative Approvals

The ethical committee of the University of Sulaimani / College of Nursing was accepted by the Council of the College of Nursing. Written consent was obtained from all participants after they were informed about the study.

- Setting of the Study

The study was conducted at the University of Sulaimani College of Nursing.

- Sample of the Study

A non-probability (purposive) sample included 109 nursing students in all stages (1,2,3,4) from the Nursing college at the University of Sulaimani. The total number of undergraduate nursing students enrolled in the college during the 2023–2024 academic year was approximately 350 students, from which 109 agreed to participate in the study.

- Inclusion Criteria

- Male and female undergraduate students enrolled in the Nursing Department, Faculty of Medical Sciences, at the University of Sulaimani during the 2023–2024 academic year.
- Willingness to provide written informed consent to participate in the study.

- Exclusion Criteria

- Students enrolled in academic departments or faculties outside the Nursing Department of Medical Sciences.
- Postgraduate students (e.g., Master's, PhD candidates).
- Individuals with a pre-existing clinical diagnosis of primary headache disorders other than migraine (e.g., Cluster Headache, Tension-Type Headache), as reported by the participant.

Students who declined to provide written informed consent or expressed unwillingness to participate.

- Study Instrument

The diagnostic tool used in this study was the International Classification of Headache Disorders, 3rd edition (ICHD-3), developed by the Headache Classification Committee of the International Headache Society. The final version of the ICHD-3 was published in 2018.The questionnaire consist of two main sections, first section describes socio-demographic and clinical characteristics such as (age, gender, marital status, academic stage, and clinical characteristics such as headache frequency

per month, intensity, and triggering factors, and family history of migraine, history of cigarette smoking and drinking alcohol). Second section dealt with diagnosing migraine headache with a standard tool of the International Headache Society guidelines and criteria for the diagnosis of migraine and other headache types. The international headache society (IHS) allows free use of the ichd-3 for scientific and educational purposes; thus, citation and ethical approval were sufficient for its use in this study.

The standard questionnaire adhered to the International Headache Society guidelines and criteria for the diagnosis of migraine and other headache types.

Migraine diagnosis was based on the ICHD-3 Diagnostic Criteria for Migraine [6]:

- A history of experiencing at least five headache episodes lasting between 4 and 72 hours each.
- During these headaches, participants reported at least two of the following characteristics:
- Unilateral location (pain concentrated on one side of the head).
- Pulsating quality (throbbing or pulsing pain sensation).
- Moderate or severe intensity of pain.
- Worsening of pain with routine physical activity.
- Additionally, at least one of the following symptoms was experienced:
- Nausea or vomiting.
- OR Both photophobia (light sensitivity) and phonophobia (sound sensitivity).

Participants who did not fulfill these criteria were categorized as experiencing headaches but not diagnosed with migraines.

- Validity

Content validity was established by five experts who checked the questionnaire of this study and gave us their opinions, resulting in modifications for clarity and relevance. The final instrument was deemed valid for data collection.

- Pilot Study

A pilot study was conducted with 10 nursing students from the main study sample in 15th November, 2023.

- Reliability

The reliability done regarding headache and it was determined through the use of the internal consistency (split-half) approach and the Cronbach Alpha Correlation Coefficient. Yielding a high correlation coefficient (r = 0.83).

- Methods of Data Collection

The study selected all males and females nursing students in all academic stages at university of Sulaimani, collage of Nursing, but only 109 students agreed to participate in our study. Data were collected through a direct interview. The collection period started from 20th November 2023 to 15th June 2024. The questionnaire, covering demographic data and trigger, clinical manifestation of headache and impact of migraine of daily activity of the nursing students. It took approximately 5-10 minutes for each participant.

- Statistical Analysis

The data were organized and coded into computer files using the statistical package of social science (SPSS), version 24. The data were analyzed through the computation of frequency and percentage, and inferential data analysis.

RESULTS

Table 1 presents the socio-demographic characteristics of the 109 nursing students included in the study. The majority were female (54.1%), while males made up 45.9% of the sample. Regarding age, more than half (64.2%) of the participants were between 20 and 22 years, and just over one-third (35.8%) were aged 23 to 25 years. An overwhelming majority (96.3%) of the students were single, with only 3.7% reporting being married. In terms of academic stage, the largest proportion (36.7%) were in the 2nd stage, followed by 27.5% in the 1st stage, 18.3% in the 3rd stage, and 17.4% in the 4th stage.

Concerning lifestyle behaviors, less than one-fifth (18.3%) had a history of smoking, while a small minority (14.7%) reported alcohol consumption. When asked about family history, almost one-third (32.1%) indicated a positive family history of migraine, whereas the majority (67.9%) reported no such history.

Table 2 outlines the clinical characteristics of the 109 participants diagnosed with migraine. All participants (100%) reported having experienced a headache within the past 12 months not caused by flu, cold, or head injury. Regarding headache frequency in the past 3 months, less than half (44.0%) had five or more attacks, over one-third (36.7%) had fewer than two attacks, and less than one-fifth (19.3%) reported 2–4 attacks. The most common duration of headache episodes was 4–12 hours (41.3%), closely followed by less than 4 hours (39.4%). A smaller percentage (13.8%) reported attacks lasting 12 hours to 3 days, while only 5.5% experienced headaches lasting more than 3 days. Only 17.4% of students had been hospitalized for headaches, while the vast majority (82.6%) had not. In terms of missed academic days, nearly two-thirds (62.4%) reported missing 1–3 days, while almost one-fourth (23.9%) missed no days. A small portion missed 4–9 days (8.3%) or more than 9 days (5.5%). Regarding reduced ability to work or study, more than half (57.8%) experienced reduced function for 1–3 days, 23.9% for more than 9 days, 14.7% for 4–9 days, and only 3.7% reported no reduction. Social, family, or leisure activities were impacted in more than half (57.8%) of students for 1–3 days, while 21.1% were affected for 4–9 days, 7.3% for more than 9 days, and 13.8% reported no impact. Lastly, nearly two-thirds (62.4%) of participants reported using medication during headache attacks, while more than one-third (37.6%) did not.

Figure 1 illustrates the distribution of headache status and the gender breakdown of migraine cases among students reporting headache (n=109). Non-migraine headaches accounted for 61/109 (56.0%) participants. Migraine, diagnosed according to the International Classification of Headache Disorders, 3rd edition (ICHD-3), occurred in 48/109 (44.0%); within this migraine subgroup, 28/48 (58.3%) were female and 20/48 (41.7%) were male.

Figure 2 illustrates the self-reported strategies used by participants to alleviate headache symptoms. The most commonly reported strategy was lying down or sleeping, practiced by a vast majority (82.6%) of students. Over half of the participants (53.2%) found relief by being in a dark, quiet room, while 45.0% reported that massaging the head was helpful. Less commonly used strategies included tying something around the head (22.0%), applying a cold pack on the head or neck (13.8%), pacing back-and-forth (11.0%), keeping physically active (9.2%), and using a hot pack on the head or neck (6.4%). These findings indicate a strong preference for rest-based and sensory-reducing methods, while thermal and physical movement-based strategies were used by a minority of participants.

Figure 3 presents the ten most frequently reported triggers of migraine attacks among the participants. The leading trigger was too little sleep, identified by a large majority (77.1%) of students. This was followed by fatigue (52.3%), stressful times (45.0%), loud sounds (40.4%), and phone use (39.4%). Hunger or skipping meals was reported by 37.6% of participants. Less common but still notable triggers included not getting enough caffeine (27.5%), not drinking enough water (26.6%), exposure to bright lights or sun (22.9%), and too much sleep (22.0%). These findings demonstrate that sleep disturbances, emotional stress, and environmental stimuli are key migraine-provoking factors, while hydration, diet, and screen use also play a significant role in triggering episodes for a considerable portion of students.

Figure 4 displays the symptoms most commonly experienced during headache attacks by participants. The most frequently reported symptom was headache localized to one side of the head, experienced by 68.8% of students. Phonophobia

(sound sensitivity) was the next most common symptom, reported by 56.9%, followed by pulsating pain (45.9%), photophobia (light sensitivity, 45%), and aggravation by routine physical activity (45%). Nausea was noted by 35.8%, while vomiting was the least reported symptom, affecting only 11% of participants. These results highlight the presence of classical migraine features, with a significant portion of students experiencing multiple sensory and physical disturbances during attacks.

DISCUSSION:

This cross-sectional study investigated the prevalence and characteristics of migraine among nursing students and statistically assessed its impact on their daily activities at Sulaimani University. The study found a high migraine prevalence, with 44.0%, and analyses focused on the 48 students meeting ICHD-3 criteria. These rates exceed the global migraine prevalence of approximately 11% reported by the GBD 2016 Headache Collaborators (GBD 2016 Headache Collaborators, 2018) and are also higher than those observed in previous studies of medical students in Saudi Arabia (Ibrahim et al., 2017; AlHashel et al., 2014). The elevated prevalence in our study may reflect increased academic stress, lifestyle irregularities, and limited awareness or treatment-seeking behavior among nursing students. The elevated prevalence observed in this nursing student cohort aligns with prior research indicating that university students, especially those in health-related disciplines, are at increased risk of migraine (AlHashel et al., 2014; FerrideBarros et al., 2011; Menon & Kinnera, 2013; Noor et al., 2016). This is commonly attributed to academic pressure, emotional stress, and lifestyle disruptions faced by this population (AlHashel et al., 2014). This higher prevalence may also indicate that students at the university of sulaimani face unique combinations of academic load, psychological pressure, and possible under diagnosis, which together can contribute to a greater burden of migraine compared to other regions.

Although our study did not perform statistical tests on gender differences, the observed pattern—where female students with migraine outnumbered males—aligns with established research. Elgendy et al. (2023) reported that female university students were nearly three times more likely to experience migraine than their male counterparts. Albalawi et al. (2023) also found higher migraine rates in women, attributing this to hormonal fluctuations, increased stress sensitivity, and greater susceptibility to sensory triggers. Moreover, Flynn et al. (2023) and Alotaibi et al. (2021) documented a consistent global trend of higher migraine prevalence among female students. These converging findings validate our gender distribution and underscore the need for gender-sensitive strategies in migraine education and management for nursing students. The gender imbalance noted in present study may also reflect cultural and social factors that influence how female students experience, perceive, or report migraine symptoms, suggesting that targeted support programs for female students could be particularly beneficial.

In our sample, the largest share of participants with migraine were aged 20–22 and enrolled in their first or second year. This demographic profile aligns with Flynn et al. (2023), who reported that migraine prevalence peaks between 18 and 25 years as students face intense academic demands and routine disruptions. Similarly, Alotaibi et al. (2021) found higher migraine rates among unmarried, early-year health students, which they linked to poor sleep, irregular meals, and heavy coursework. These patterns suggest that younger, early-stage nursing students—especially females—represent a vulnerable group in need of tailored stress-reduction and wellness initiatives. The high migraine burden in early-year students in current study may indicate that the transition into demanding academic routines is a

particularly sensitive period, where early intervention could prevent long-term headache problems.

Several studies present demographic findings that contrast with our results. Unlike our predominantly younger (20–22 years), single, early-stage student cohort, Chahine et al. (2022) found that migraine prevalence among Lebanese medical students was significantly higher in older students—primarily those aged 22 to 28 and in final academic years. Additionally, a large cross-sectional study of Bangladeshi university students (Islam et al., 2022) reported higher migraine rates in married students and those in later years of study, suggesting that life stage and familial responsibilities may influence migraine risk differently in that context. These differences suggest that migraine risk is shaped by local academic structure and social expectations, and our findings may reflect the specific demands and cultural context of students at our university.

In this study, a relatively small proportion of participants reported smoking or alcohol consumption, which is consistent with prior research among health science students in culturally conservative contexts. For example, Alotaibi et al. (2021) and FerrideBarros et al. (2011) both reported low rates of substance use in similar student populations and found no significant association between these behaviors and migraine occurrence. While smoking has been explored as a potential migraine trigger in some populations, most studies in university cohorts report weak or no correlation. In contrast, the observation that approximately one-third of participants had a family history of migraine aligns with well-established genetic patterns. Woldeamanuel and Cowan (2017) noted that individuals with a positive family history are two to four times more likely to experience migraine, and Flynn et al. (2023) emphasized that familial clustering is a reliable predictor in student-based epidemiological studies. These findings underscore the importance of considering genetic predisposition alongside lifestyle factors in assessing migraine risk. The relatively strong role of family history in this study population suggests that genetic factors may outweigh lifestyle habits such as smoking or alcohol consumption in influencing migraine risk.

Nursing students in the present study migraines that often caused missed classes and reduced productivity. Axiotidou et al. (2025) found that stress, poor sleep, and fasting trigger migraines in most university students and lead many to miss school (over 50% reduced productivity; nearly 50% absences). Similarly, Ahsan et al. (2024) showed that Saudi medical students commonly used rest and medication to cope, yet still experienced at least one day of disruption per episode, with worse attacks during exams. Together, these studies confirm that migraines in student populations cause frequent, prolonged attacks and significant academic and social challenges—highlighting the need for campus health services to provide stress management, flexible deadlines, and migraine support programs Within this student population, the pattern of missed classes and reduced productivity may reflect the high academic pressure placed on nursing students, where even mild migraine episodes can substantially disrupt their ability to attend practical sessions and maintain consistent study routines.

The self-care behaviors reported by participants in our study reflect broader patterns documented in current clinical guidance and research on migraine management. A recent report by the American Academy of Sleep Medicine (2025) emphasized that rest-based strategies, such as lying down in a dark, quiet environment and prioritizing sleep, are effective in managing headache symptoms, particularly among young adults. This aligns closely with our findings, in which students commonly reported using similar passive techniques during headache episodes.

The strategies used by participants in our study to reduce migraine symptoms — especially lying down or sleeping, being in a dark, quiet room, and massaging the head — are strongly supported by

current literature. A recent study (Ali et al., 2023) found that the most common self-care behavior among university students with migraine was resting in a dark, quiet place, which helped reduce sensory overload and promote faster recovery. This is closely aligned with our finding that over 80% of students relied on lying down or sleeping to relieve their headaches.

In addition, ElSayed et al. (2022) reported that massage, cold packs, and sensory isolation were among the top preferred non-pharmacological strategies for headache relief in young adults. The use of cold packs, head wrapping, and pacing, although reported by fewer students in our sample, also matches with results from Hasanpour et al. (2024), who noted that these methods are often used by individuals trying to avoid medication or during severe pain episodes.

Together, these findings support the idea that rest, reduced stimulation, and light physical touch are commonly trusted by students to manage migraine episodes. These simple, low-cost strategies may also reflect a desire to avoid side effects of medication or the limited access to professional care during student life. In this study group, the strong preference for rest-based and non-pharmacological strategies may indicate both a high level of symptom sensitivity and a limited reliance on medical intervention, suggesting that many students manage migraine episodes privately rather than seeking formal clinical care.

In this study, too little sleep emerged as the most commonly reported migraine trigger, which is consistent with findings from Axiotidou et al. (2025) and FerrideBarros et al. (2011), where poor sleep quality and short sleep duration were identified as principal migraine-inducing factors among university students. Similarly, fatigue and stressful times were frequently cited in our data and are well-supported in previous literature, particularly in high-stress academic settings like nursing and medical schools (AlHashel et al., 2014; Menon & Kinnera, 2013).

The trigger of loud sounds was also commonly reported in our cohort and generally aligns with the findings of Martínez et al. (2025), who identified environmental noise as a moderate but notable trigger in younger populations. Additionally, phone use as a migraine-provoking factor is supported by Ahsan et al. (2024), who observed that prolonged screen exposure significantly increased migraine frequency and severity in medical students.

Hunger or skipping meals, as identified by over one-third of our participants, is consistent with dietary-related triggers in several reviews (Martínez et al., 2025), while not getting enough caffeine and not drinking enough water are generally in agreement with emerging findings that link hydration status and caffeine withdrawal to episodic migraines.

In contrast, the triggers exposure to bright lights or sun and too much sleep were reported less frequently in our sample compared to studies from Montel et al. (2023) and Rocha et al. (2022), where these environmental and sleep-related factors were more dominant. This difference may reflect geographical and cultural variability, as well as individual differences in migraine sensitivity. The overall pattern of triggers in present study suggests that migraine episodes among these students are more strongly influenced by modifiable behavioral and academic stressors than by environmental factors, indicating that targeted lifestyle interventions could significantly reduce attack frequency in this population.

The symptoms found in the present study — especially unilateral head pain, photophobia (sensitivity to light), phonophobia (sensitivity to sound), and pulsating pain — are strongly supported by other recent studies. For example, Axiotidou et al. (2025) found that most university students with migraine had light and sound sensitivity, and pain on one side of the head. These findings are closely aligned with the current results. Additionally, a study from University of King Khalid (2025) confirmed that photophobia and poor sleep were common symptoms

among students with migraine, which is consistent with the observed data. These findings suggest that the migraine presentation in current student population is dominated by sensory triggers and environmental sensitivities, likely reflecting the high level of screen use, artificial light exposure, and stressful study environments common in university settings.

Another study by Pearl et al. (2025) used brain scans and found that people with migraine — particularly those with visual symptoms — had strong reactions to light, supporting the high percentage of photophobia found in this analysis. These studies collectively demonstrate that the main symptoms reported by students in this study are commonly seen in other student populations, especially in stressful academic environments. The consistency between the current findings and neuroimaging studies indicates that the symptoms reported by our students likely reflect underlying neural hypersensitivity, which may be amplified by the intense visual and cognitive demands of nursing education.

However, not all symptoms received equal support. In the current study, some students experienced vomiting, but this symptom was reported less frequently than others. This aligns with a study by Silberstein et al. (2024), which showed that vomiting occurs in fewer individuals with migraine, while light and sound sensitivity are much more common. Similarly, Patel et al. (2023) found that nausea was frequent, but vomiting was rare among Canadian students. Therefore, although vomiting was observed, existing studies indicate that it is less prevalent, making this finding partially divergent from certain previous research. These symptom patterns among the students surveyed suggest that their migraine episodes are predominantly sensory in nature rather than gastrointestinal, which may reflect both the intensity of their triggers—such as light, sound, and sleep disturbances—and the tendency of students to report symptoms that interfere most with academic functioning.

CONCLUSIONS:

This study demonstrates that headaches are a common and significant health concern among nursing students, with almost half of those experiencing headaches meeting diagnostic criteria for migraine. The predominance of migraine among female students, as well as the high prevalence of modifiable triggers such as insufficient sleep, stress, and prolonged screen exposure, highlight important opportunities for prevention and targeted education. The most frequent coping strategies reported—resting or sleeping and reducing sensory stimuli—suggest a reliance on passive, symptom-focused management rather than proactive prevention. Given the observed functional impacts, including reduced academic productivity and missed university days, comprehensive strategies that address lifestyle modification, trigger management, and gender-sensitive health education are needed. Integrating these approaches within university health programs could reduce migraine-related disability and improve overall student well-being.

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TABLES:

Table (1): Socio-demographic and clinical characteristics of the study sample

Variables		Frequency	%
Gender	Male	50	45.9
	Female	59	54.1
Age (years)	20-22 years	70	64.2
	23-25 years	39	35.8
Marital status	Single	105	96.3
	Married	4	3.7
Academic stage	1st stage	30	27.5
	2nd stage	40	36.7
	3rd stage	20	18.3
	4th stage	19	17.4
History of smoking	Yes	20	18.3
	No	89	81.7
History of alcohol consumption	Yes	16	14.7
	No	93	85.3
Do you have a family history of migraine?	Yes	35	32.1
	No	74	67.9
Total		**109**	**100**

Table (2): Clinical manifestation and functional impact of headache on Daily Life with migraine

Variables		Frequency	%
1. **Have you had a headache in the past 12 months not caused by flu, cold, or head injury?**	Yes	109	100.0
	No	0	0.0
2. **How many headaches have you had in the past 3 months?**	Less than 2 attacks	40	36.7
	2-4 attacks	21	19.3
	5 attacks or more	48	44.0
3. **How long did the headache attack last?**	Less than 4 hours	43	39.4
	4-12 hours	45	41.3
	12 hr-3 days	15	13.8
	More than 3 days	6	5.5
4. **Have you been hospitalized for a headache?**	Yes	19	17.4
	No	90	82.6
5. **Days missed from university due to headache (last 3 months)?**	1-3 days	68	62.4
	4-9 days	9	8.3
	>9 days	6	5.5
	None	26	23.9
6. **In the past 3 months, how many days did headaches reduce your work or study by half or more?**	1-3 days	63	57.8
	4-9 days	16	14.7
	>9 days	26	32.9
	None	4	3.7
7. **In the past 3 months, on how many days did headaches stop you from social, family, or leisure activities?**	1-3 days	63	57.8
	4-9 days	23	21.1
	>9 days	8	7.3
	None	15	13.8
8. **Do you take any medication during the headache attack?**	Yes	68	62.4
	No	41	37.6
Total		**109**	**100**

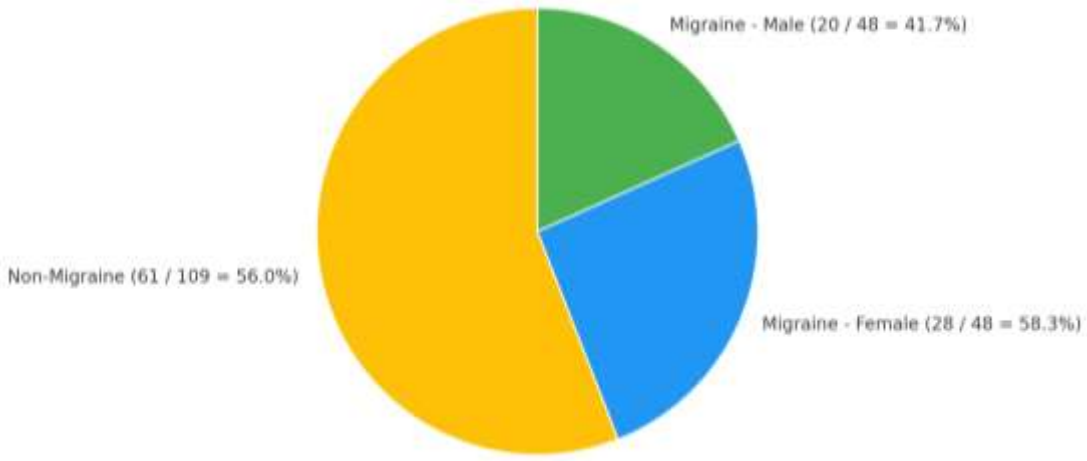

Figure (1): Headache Status with Migraine Gender Breakdown (n=109)

(Migraine diagnosis was based on the ICHD-3 Diagnostic Criteria for Migraine)

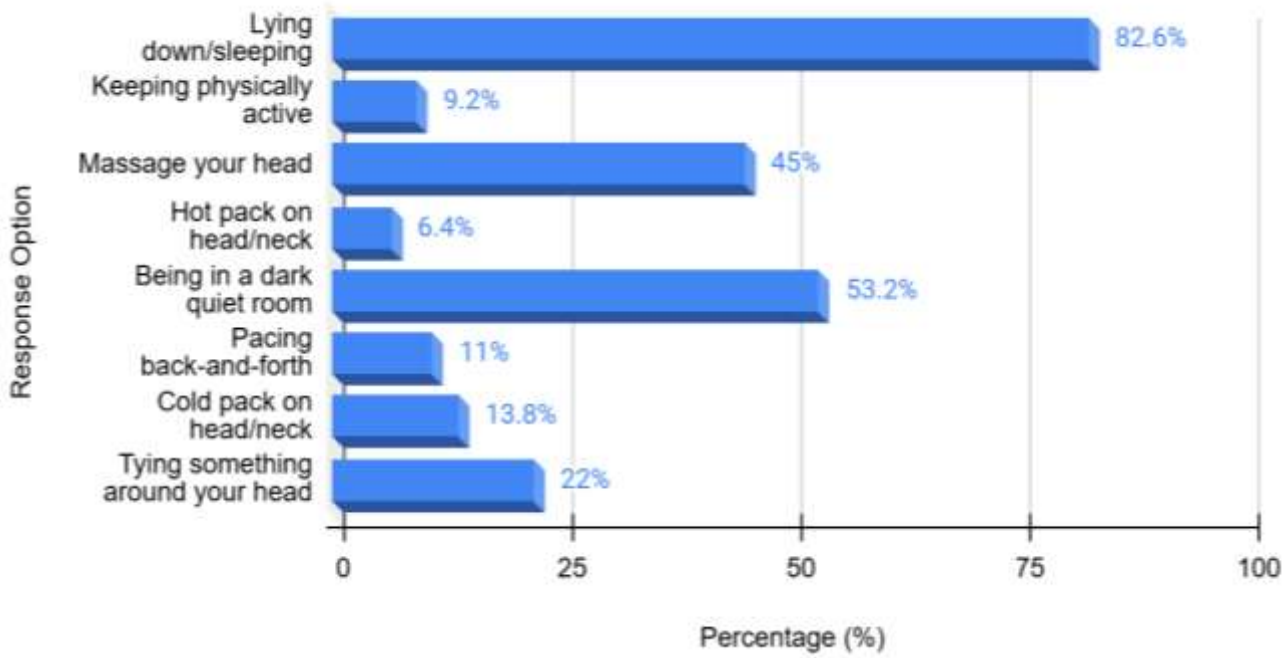

Figure (2): Self-Reported Helpful Strategies During Headache Attacks Among Participants

Notes: participants can select more than one choice.

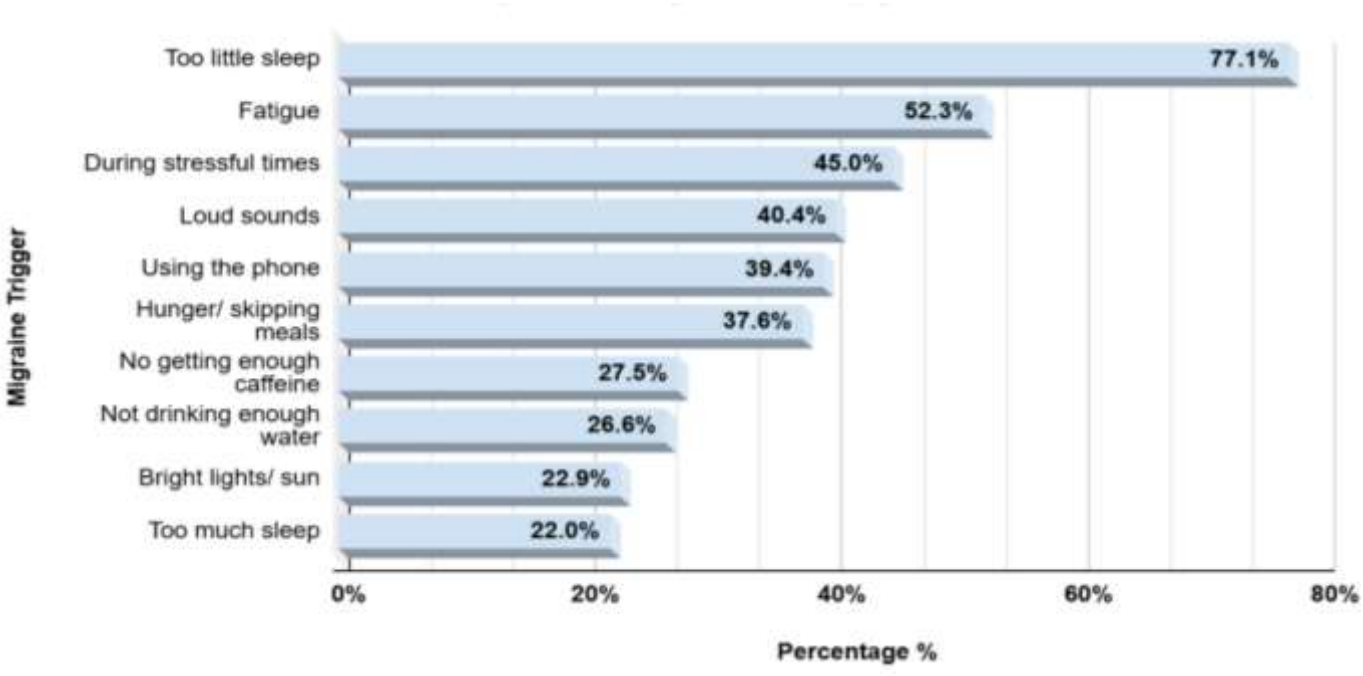

Figure (3): The ten most common migraine attack triggers in the study sample

Notes: participants can select more than one choice.

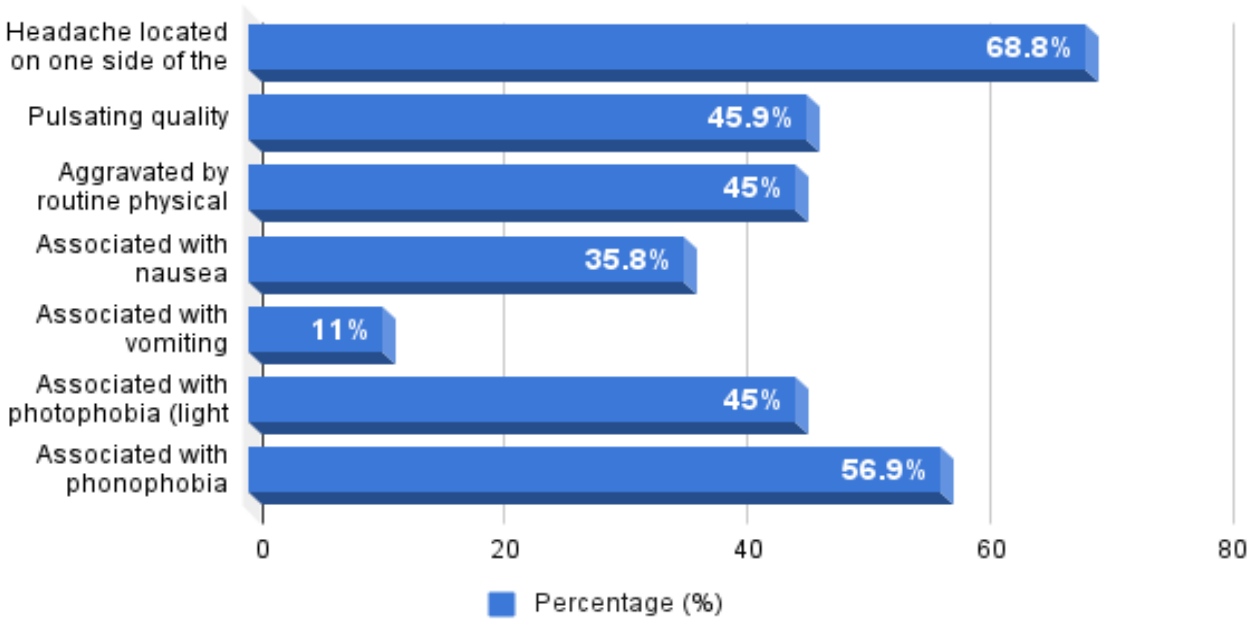

Figure (4): Symptoms During Headache Attacks,
(Notes: participants can select more than one choice.)