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ISSN: 2663-9491 e-ISSN: 2789-6897

ORIGINAL ARTICLE

Prevalence and Patterns of Migraine among Adults Attending Tertiary Hospitals in Bangladesh

DOI: 10.5281/zenodo.17586873

Mahabubur Rahman[1], Mohammad Masudur Rahman[2], Pallab Kanti Saha[3], Paresh Chandra Halder[4], Mohammad Azizul Karim[5]

Received: 29 Oct 2025
Accepted: 3 Nov 2025
Published: 11 Nov 2025

Published by:
Gopalganj Medical College, Gopalganj, Bangladesh

Correspondence to
Mahabubur Rahman

ORCID
https://orcid.org/0009-0001-8308-2923

ABSTRACT

Introduction: *Migraine is a disabling, recurrent primary headache disorder characterized by moderate-to-severe recurrent head pain associated with nausea, photophobia, and phonophobia. The research aims to quantify the prevalence and pattern of migraine among adults presenting at Bangladeshi tertiary hospitals.* ***Methods & Materials:*** *This was a cross-sectional observational study conducted among 58 adult patients who were seen in the Neurology Outpatient Departments of Neurology, Gopalganj Medical College, Gopalganj, Bangladesh between January 2024 and December 2024. Adults aged 18 years or more who met the ICHD-3 criteria for migraine and were willing to participate were included. Data were analyzed using SPSS version 26.0.* ***Result:*** *The female sex (74.1%) and age 26–35 years (41.3%) were predominant among the 58 patients. Migraine without aura was most frequent (72.4%), with 4–9 attacks per month and 4–12 hours' duration being most common. The most frequent precipitating factors were stress (69.0%), disturbance of sleep (65.5%), and exposure to noise (50.0%). Most frequent associated symptoms were nausea/vomiting (72.4%), photophobia (69.0%), and phonophobia (65.5%).* ***Conclusion:*** *This study establishes migraine as a prevalent neurological disorder in adults who are presenting to tertiary centres in Bangladesh, with extreme female predominance and highest prevalence in the age group of 26–35 years. Migraine without aura was present in most cases, and precipitating factors were stress, inadequate sleep, and sound exposure. In most patients, attacks lasted 4–12 hours, and were accompanied by nausea, photophobia, and phonophobia.*

Keywords: *Migraine, Photophobia, Phonophobia*

(The Insight 2025; 8(2): 447-450)

1. *Assistant Professor, Department of Neurology, Gopalganj Medical College, Gopalganj, Bangladesh*
2. *Associate Professor, Department of Neurology, Gopalganj Medical College, Gopalganj, Bangladesh*
3. *Assistant Professor, Department of Neurology, Gopalganj Medical College, Gopalganj, Bangladesh*
4. *Assistant Professor, Department of Anesthesiology, Gopalganj Medical College, Gopalganj, Bangladesh*
5. *Assistant Professor, Department of Cardiology, Gopalganj Medical College, Gopalganj, Bangladesh*

INTRODUCTION

Migraine is a common, disabling primary headache disorder characterized by rare attacks of moderate-to-severe unilateral, pulsating headache pain often accompanied by photophobia, phonophobia, nausea, and in some cases, transient neurological aura [1]. Its diagnosis is codified by the International Classification of Headache Disorders (ICHD-3) [2]. Migraine is one of the leading causes of neurological disability globally. Landmark Global Burden of Disease (GBD) analyses have identified headache disorders, and in particular migraine, as one of the major causes of years lived with disability, with disproportionate occurrence in women and young adults [3,4]. Global burden from migraine is on the rise and it is increasingly being seen as a priority public health concern [5]. In low- and middle-income countries (LMICs) such as Bangladesh, epidemiologic data on migraine are scarce in the presence of high prevalence and significant socio-economic impact. Hospital-based studies in Bangladesh have shown that migraine is common in adults attending neurology and medicine outpatient clinics, with female predominance and highest prevalence in productive age group [6,7]. The most frequently reported precipitating factors were stress, irregular sleep, fasting, noise, and hormonal changes—events which are not uncommon in urban and semi-urban Bangladeshi environments [7,8]. In addition, locally conducted case–control studies have established connections between consumption of tobacco items (both smoke and smokeless) and migraine occurrence, reflecting specific cultural and

ISSN: 2663-9491 e-ISSN: 2789-6897

behavioral disease determinants in this population [9]. Evidence supporting these findings is derived from community-based data. A recent large-scale cross-sectional study among university students reported a prevalence of approximately 21% for migraine, with a clear female preponderance and significant interference in daily functioning and academic achievement [10]. Academic stress, sleep deprivation, and chronic screen exposure were reported as frequent precipitants in the study, highlighting modifiable risk factors that could be controlled through awareness and behavior modification [10]. The patterns are consistent with international observations ascribing migraine to lifestyle deviations, psychological stress, and environmental triggers [3,4,5]. Despite this, migraine remains underdiagnosed and undertreated across most of Bangladesh. Most of the patients present at the tertiary centers after multiple attacks over years because of low awareness, lack of proper diagnostics at the primary level, and limited access to effective preventive treatments [6]. Migraine has also been recognized by the World Health Organization (WHO) as a major cause of disability worldwide, emphasizing the importance of evidence-based strategies to improve diagnosis, management, and resource allocation in low-resource settings [8]. Given these limitations, there is a pressing need for comprehensive, hospital-based research to determine the prevalence and clinical characteristics of migraine. The current study aimed to assess the pattern and prevalence of migraine in Bangladesh adults presenting to tertiary hospitals.

METHODS & MATERIALS

This cross-sectional observational study was conducted on 58 adult patients attending the Neurology Outpatient Departments in Gopalganj Medical College, Gopalganj, Bangladesh, from January 2024 to December 2024. Adults aged 18 years and above who met the ICHD-3 diagnostic criteria for migraine and gave consent were included, while patients with secondary headaches, chronic neurological disorders other than migraine, or declined consent were excluded. Information was collected employing a pre-tested, structured questionnaire that captured sociodemographic details, clinical manifestations of migraine (type, frequency, duration, associated symptoms), and potential precipitating factors (stress, disturbance of sleep, noise, fasting, hormonal fluctuations). Information was cross-verified with clinical presentations and medical records whenever they were available. Data were coded and analyzed employing SPSS version 26.0, and data were represented by descriptive statistics such as mean, standard deviation, frequency, and percentage. Ethical clearance was obtained from the Institutional Review Board of the institution, and written informed consent from all participants, and their confidentiality and voluntary nature of their participation were guaranteed.

RESULTS

Among the 58 participants, females constituted the majority (74.1%), while males accounted for 25.9%. The highest proportion of patients (41.3%) belonged to the 26–35-year age group, followed by 18–25 years (25.9%). Only 13.8% of patients were above 45 years. [Table I]

Table – I: Distribution of Study Participants by Age and Gender (*n*=58)

Age group (years)	Male n (%)	Female n (%)	Total n (%)
18–25	4 (6.9)	11 (19.0)	15 (25.9)
26–35	6 (10.3)	18 (31.0)	24 (41.3)
36–45	3 (5.2)	8 (13.8)	11 (19.0)
>45	2 (3.5)	6 (10.3)	8 (13.8)
Total	15 (25.9)	43 (74.1)	58 (100)

The majority of patients (62.1%) resided in urban areas, and most were either service holders (34.5%) or students (29.3%). Sleep disturbance was reported by 69% of participants. Tobacco use was found in 20.7% of the cases. [Table II]

Table – II: Socio-Demographic and Lifestyle Characteristics of the Study Participants (*n*=58)

Variable	Category	Frequency (n)	Percentage (%)
Residence	Urban	36	62.1
	Rural	22	37.9
Occupation	Student	17	29.3
	Service holder	20	34.5
	Housewife	16	27.6
	Others	5	8.6
Sleep disturbance	Present	40	69.0
	Absent	18	31.0
Tobacco use	Yes	12	20.7
	No	46	79.3

ISSN: 2663-9491 e-ISSN: 2789-6897

Migraine without aura was more frequent (72.4%) than migraine with aura (27.6%). Most patients experienced between four to nine attacks per month, and nearly half (48.3%) reported attack durations of 4–12 hours. [Table III]

Table – III: Distribution of Patients by Type, Frequency, and Duration of Migraine Attacks (*n*=58)

Parameter	Category	Frequency (n)	Percentage (%)
Type of migraine	Without aura	42	72.4
	With aura	16	27.6
Attack frequency	≤ 4 per month	25	43.1
	5–9 per month	20	34.5
	≥ 10 per month	13	22.4
Duration of attacks	< 4 hours	9	15.5
	4–12 hours	28	48.3
	> 12 hours	21	36.2

Stress and anxiety were identified as the most frequent triggering factors (69.0%), followed closely by lack of sleep (65.5%) and noise exposure (50.0%). Fasting, prolonged screen exposure, and hormonal variations were also reported as common triggers. [Table IV]

Table – IV: Common Precipitating (Trigger) Factors Reported by Patients (*n*=58)

Trigger factor	Frequency (n)	Percentage (%)
Stress or anxiety	40	69.0
Lack of sleep	38	65.5
Noise exposure	29	50.0
Fasting or skipped meals	27	46.6
Prolonged screen time	25	43.1
Hormonal changes (females)	22	51.2 (of 43 females)
Certain foods (e.g., chocolate, cheese)	14	24.1
Weather changes	11	19.0

The most frequent associated symptoms were nausea or vomiting (72.4%), photophobia (69.0%), and phonophobia (65.5%). Fatigue and mood changes were also common among the participants. [Table V]

Table – V: Associated Symptoms Observed During Migraine Attacks (*n*=58)

Symptom	Frequency (n)	Percentage (%)
Nausea/vomiting	42	72.4
Photophobia	40	69.0
Phonophobia	38	65.5
Dizziness/vertigo	22	37.9
Aura (visual/sensory)	16	27.6
Fatigue	31	53.4
Irritability/mood change	25	43.1

DISCUSSION

In this study, females constituted 74.1% (43/58) of migraine patients; the largest age stratum was 26–35 years (41.3%, 24/58). Badrul Haque et al. reported 67% female predominance among 250 clinic migraine patients and a modal age of 21–30 years (58.6%) in a Dhaka clinic population [7]. The present female proportion (74.1%) exceeds Haque's 67% by 7.1 percentage points, while the current concentration in 26–35 years shifts the modal age one decile older compared with Haque's 21–30 years. Urban residence accounted for 62.1% (36/58), and sleep disturbance was reported by 69.0% (40/58) of participants in the present series. In the Rafi et al. university sample, poor sleep quality was reported by ~69% of participants overall, and the prevalence of migraine was concentrated among those with poor sleep (study sample mean poor-sleep 69%), providing a direct numeric match on sleep disturbance prevalence with our clinic population [10]. Tobacco use was present in 20.7% (12/58) of our sample; a hospital-based case–control in Dhaka reported a positive association between smoked and smokeless tobacco and migraine, but reported association metrics rather than an identical prevalence figure [9]. Migraine without aura accounted for 72.4% (42/58) and with aura 27.6% (16/58). Attack frequency was ≤4/month in 43.1% (25/58), 5–9/month in 34.5% (20/58), and ≥10/month in 22.4% (13/58). Duration 4–12 hours occurred in 48.3% (28/58), and >12 hours in 36.2% (21/58). Haque's clinic dataset included subtypes under "migraine", but the present 27.6% aura proportion fits within commonly reported ranges where aura occurs in roughly one-quarter of clinical samples

[1,7]. Rafi's student study reported that more than two-thirds of their migraine cases experienced >5 attacks/month; numerically, our combined 5+ attacks group (34.5% + 22.4% = 56.9%) is slightly lower than the student-cohort proportion of frequent attacks, reflecting differences in setting and sampling (clinic vs student survey) [10]. Stress/anxiety (69.0%, 40/58), lack of sleep (65.5%, 38/58), and noise (50.0%, 29/58) were the top triggers. In Rafi et al., stress was reported by 71% of student migraineurs and irregular sleep by 47% - our stress figure (69.0%) is numerically very close to Rafi's 71%, while our lack-of-sleep (65.5%) is higher than their 47%, indicating that disturbed sleep in clinic attenders may be more prevalent or more often reported than in the student population [10]. Haque's clinic review documented stress and sleeps deprivation as frequent precipitants and reported significant associations for sleep deprivation; numerically, Haque's emphasis on sleep aligns with our high 65.5% figure for sleep-related triggers [7]. Nausea/vomiting occurred in 72.4% (42/58), photophobia in 69.0% (40/58), and phonophobia in 65.5% (38/58). These symptom frequencies are quantitatively consistent with descriptions in recent reviews, which report nausea and sensory sensitivity as among the most frequent accompanying symptoms in clinical migraine populations [11,4]. The present nausea frequency (72.4%) and photophobia (69.0%) indicate that a large majority of clinic attendees have classic migraine-associated features [2].

Limitations of The Study

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

CONCLUSION

The current study demonstrates that migraine is a frequent neurological condition in adults presenting to tertiary centers in Bangladesh with a marked female predominance and peak frequency of 26–35 years of age. The majority of cases were of migraine without aura and classic precipitating causes were stress, insomnia, and noise exposure. The majority of the patients had 4–12 hour duration of the attack, often with concomitant nausea, photophobia, and phonophobia.

RECOMMENDATION

It is recommended that targeted awareness programs be implemented to educate adults, especially women, about migraine triggers and preventive strategies. Clinicians should emphasize lifestyle modifications such as adequate sleep, stress management, and avoidance of known precipitants.

Funding: No funding sources
Conflict of interest: None declared

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