

FREQUENCY AND CLINICAL PROFILE OF PEDIATRIC MIGRAINE USING PEDMIDAS

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ABSTRACT

Background: Among neurological disorders affecting children, migraine is relatively common. It affects approximately 10.6% of children aged 5–15 years, and its frequency tends to increase with age. Repeated or severe attacks can interfere considerably with a child's everyday activities and functioning. The current study aimed to find out the frequency and clinical profile of pediatric migraine by using Pediatric Migraine Disability Assessment (PedMIDAS) score.

Methods: A prospective, randomized, cross-sectional study was carried out at the Pediatric Neurology Outpatient Department, University of Child Health Sciences, The Children's Hospital Lahore. The analysis included 350 children between 8 and 15 years of age presented with history of headache. Variables collected included age, sex, body weight, type of headache, monthly headache frequency, headache location, migraine subtype, duration of migraine attacks, family history of migraine, baseline PedMIDAS score and physical/neurological examination to rule out secondary headaches were performed. Intensity or severity of pain was assessed by The Faces Pain Scale-Revised Scale. Statistical analyses were performed using the Statistical Package for Social Sciences version 22.

Results: A total of 350 children diagnosed with headache were enrolled in the study. The mean age of the study participants was 10.32 ± 2.6 years with male predominance. The unilateral headache was frequent in 62.4% participants while bilateral headache in 37.6% participants. The frequency of migraine was 12.6%. Migraine with aura was observed more frequently (54.6%) among children. Looking over the clinical symptoms, the photophobia was frequent in 86.4% participants, phonophobia in 43.2% participants, vomiting, abdominal pain and constipation in 93.2%, 11.4% and 25% respectively. Migraine attack was triggered by food in 47.7% study participants. A positive family history of migraine was present in 70.4% of study participants. Baseline migraine-related disability measured by the PedMIDAS score was 58.65 ± 7.6 .

Conclusion: The frequency of migraine was 12.6% among the study participants. Migraine with aura was observed more frequently (54.6%) among children while the photophobia was more frequent followed by phonophobia vomiting, abdominal pain and constipation. Migraine attack was triggered by food.

KEYWORDS: Pediatric headache, Migraine, PedMIDAS

INTRODUCTION

Migraine is a recurrent neurological disorder characterized by episodes of headache that usually last between 2 and 72 hours. According to the International Classification of Headache Disorders, 3rd edition (ICHD-3, 2018), a typical migraine headache is associated with at least two features, such as unilateral pain, a pulsating or throbbing sensation, moderate to severe intensity, and worsening of pain with routine physical activity (1). Nausea, vomiting, and increased sensitivity to light or sound are also commonly reported during an attack. The diagnostic criteria for migraine in children and adolescents have been revised by the International Headache Society over the years to accommodate the differences between pediatric and adult presentations. Unlike adults, children may experience pain on both sides of the head, and their migraine attacks can be shorter in duration (2, 3).

Among neurological disorders affecting children, migraine is relatively common. It affects approximately 10.6% of children aged 5–15 years, and its frequency tends to increase with age. Although it is more commonly identified during later childhood and adolescence, migraine may occur even during the early years of life, including infancy. Repeated or severe attacks can interfere considerably with a child's everyday activities and functioning. In addition to affecting school participation and academic performance, the recurrent nature of migraine may negatively influence the child's overall quality of life (4, 5).

Migraine affects a substantial proportion of school-aged children, with prevalence increasing progressively during late childhood and adolescence (5, 6). Beyond the physical discomfort associated with headache attacks, recurrent migraine can negatively influence school attendance, academic performance, participation in extracurricular activities,

emotional well-being, and overall quality of life (7, 8). As a result, preventive treatment is recommended for children who experience frequent attacks, prolonged episodes, or significant migraine-related disability despite appropriate acute therapy. The current study aimed to find out the frequency and clinical profile of pediatric migraine by using Pediatric Migraine Disability Assessment (PedMIDAS) score.

MATERIAL AND METHODS

Study Design and Setting

A prospective, randomized, cross-sectional study was carried out at the Pediatric Neurology Outpatient Department, University of Child Health Sciences, The Children's Hospital Lahore for the duration from September 2025 to February 2026.

Study Population

Inclusion Criteria:

The analysis included 350 children between 8 and 15 years of age presented with history of headache. Participant's headache was labelled as migraine, according to the International Classification of Headache Disorders, Third Edition (ICHD-3), experienced at least four migraine attacks per month during the previous three months, had moderate-to-severe migraine-related disability based on the Pediatric Migraine Disability Assessment (PedMIDAS) score.

Exclusion Criteria:

Children were not eligible for enrollment if the headache was secondary to an underlying condition, including infection, head trauma, or an intracranial structural abnormality. Those who had been enrolled in any clinical trial were also considered ineligible.

Data Collection

Baseline demographic and clinical information was recorded on a pre-designed, self-explanatory proforma. Variables collected included age, sex, body weight, type of headache, monthly headache frequency, headache location, migraine subtype, duration of migraine attacks, family history of migraine, baseline PedMIDAS score (9) and physical/neurological examination to rule out secondary headaches were performed. Intensity or severity of pain was assessed by The Faces Pain Scale-Revised Scale (10). Throughout the study, caregivers-maintained headache diaries to document the frequency and duration of headache, medication adherence and any adverse events.

Statistical Analysis

Statistical analyses were performed using the Statistical Package for Social Sciences (SPSS), version 22. Continuous variables were summarized as mean $\pm$ standard deviation, whereas categorical variables were presented as frequencies and percentages.

RESULTS

A total of 350 children diagnosed with headache were enrolled in the study. The mean age of the study participants was 10.32 ± 2.6 years, while the mean body weight was 28.48 ± 5.8 kg. Male participants predominated, accounting for 70.3%. Frontal headache was the most frequent headache location (39.9%), followed by occipital and temporal headache (32.7% and 27.4%, respectively). The unilateral headache was frequent in 62.4% participants while bilateral headache in 37.6% participants. The characteristics of study participants are presented in Table 1.

Table 1 Characteristics of study participants

Variables	n=350 (%)
Age (years)	10.32 ± 2.6
Weight (kg)	28.48 ± 5.8
Male	246 (70.3%)
Female	104 (29.7%)
Frontal headache	139 (39.9%)
Temporal headache	96 (27.4%)
Occipital headache	115 (32.7%)
Unilateral headache	218 (62.4%)
Bilateral headache	132 (37.6%)

The frequency of migraine was 12.6% among the study participants as plotted in Figure 1. Migraine with aura was observed more frequently (54.6%) among children. Looking over the clinical symptoms, the photophobia was frequent in 86.4% participants, phonophobia in 43.2% participants, vomiting, abdominal pain and constipation in 93.2%, 11.4% and 25% respectively. Migraine attack was triggered by food in 47.7% study participants. The average duration of migraine attacks was 3.91 ± 1.4 hours while the average monthly headache frequency was 5.35 ± 2.6 episodes. A

positive family history of migraine was present in 70.4% of study participants. Baseline migraine-related disability measured by the PedMIDAS score was 58.65 ± 7.6 as mentioned in Table 2.

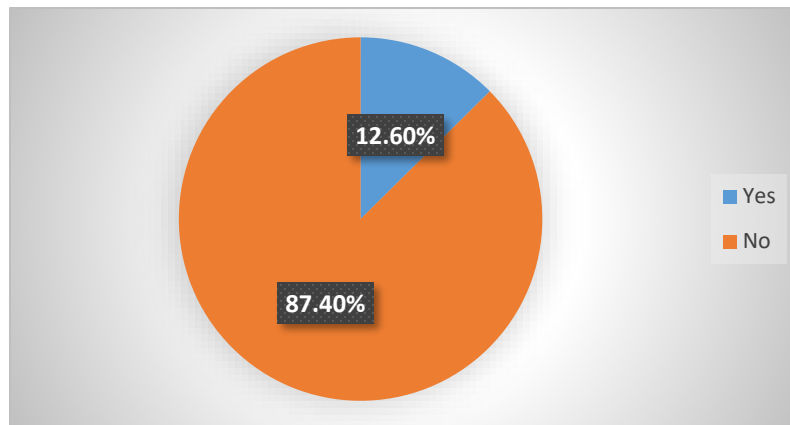


Figure 1 Frequency of migraine in pediatric age group

Table 2 Clinical profile of study participants with migraine

	n=44 (%)
Migraine with aura	24 (54.6%)
Migraine without aura	20 (45.4%)
Photophobia	38 (86.4%)
Phonophobia	19 (43.2%)
Vomiting	41 (93.2%)
Abdominal Pain	5 (11.4%)
Constipation	11 (25%)
Food triggers	21 (47.7%)
Mean duration (hours)	3.91 ± 1.4
Monthly headache frequency	5.35 ± 2.6
Positive family history	31 (70.4%)
Baseline PedMIDAS score	58.65 ± 7.6

DISCUSSION

Headache appeared to be one of the most poorly managed health problems among school-aged children. Furthermore, many children were taking medication without seeking medical advice. Such self-medication is concerning because it may result in inappropriate drug use and delay proper diagnosis and management (11).

Among different types of headaches, migraine is the most prevalent neurological disorders affecting children and adolescents, with considerable consequences on academic performance, psychological well-being, and daily functioning (12). Studies reported the prevalence of migraine is about 10.6% in children within aged 5–15 years (5), while the current study reported slightly higher frequency of migraine (12.6%) among the study population. One notable finding of current study was the higher prevalence of migraine among boys as compared to their counterpart (70.3% and 29.7%, respectively), but this finding was slightly contradictory to previous studies, that generally reported a greater difference between the two sexes, with migraine tending to be more prevalent among girls, particularly during later childhood and adolescence (13). On the other hand, study from India favored current finding by reporting higher prevalence of migraine among boys than the girls (14), this variation might be due to the geographical difference as Pakistan and India fall in the same sub-continent, having same geographical location and cultural beliefs. One of the studies, also found that migraine tends to be more prevalent in boys before puberty but becomes more common among girls during adolescence (15).

Literature also found that the prevalence rising as the child grow older but it can manifest at any age, including infancy (16). The mean age of the current study participants was 10.32 ± 2.6 years. Family history has frequently been considered a marker of genetic susceptibility to migraine. More than two-thirds of children included in the present analysis reported a positive family history of migraine, supporting previous literature describing strong familial aggregation of the disorder (17).

Regarding the clinical characteristics of headache, unilateral pain was the predominant pattern with frequency of 62.4% in our study, Migraine with aura was observed more frequently (54.6%) among children, the photophobia was

frequent in 86.4% participants, phonophobia in 43.2% participants, vomiting, abdominal pain and constipation in 93.2%, 11.4% and 25% respectively. These findings are comparable to those reported by Al-Futaisi et al., who observed aura in approximately one-third of children with migraine. In their study, visual phenomena, including fortification spectra, were the most commonly reported manifestations (5). On the other hand, Baby et.al reported bilateral pain among 68% of the children, with the bifrontal region being the most commonly affected site while aura was present in 17% of the children, with visual symptoms being the most frequent type (52.63%). These visual manifestations included scotomas and gray halos, they also observed gastrointestinal symptoms including nausea and vomiting were the predominant complaints, while abdominal pain was reported by 18.18% of participants and constipation by 24.49% (14).

Dietary factors were frequently identified as potential triggers for migraine attacks in the literature. Previous studies have reported a variety of food and beverages that may precipitate headaches, including chocolate, citrus fruits, nuts, ice cream, alcoholic drinks, coffee, and other caffeine-containing products (18). Other dietary components, such as monosodium glutamate (MSG), histamine, sucralose, and gluten, have also been described as possible migraine triggers (19). In current study population, food-related factors were the most commonly reported triggers (47.7%) among children, suggesting that dietary habits may play an important role in precipitating migraine attacks in this age group.

CONCLUSION

The frequency of migraine was 12.6% among the study participants. Migraine with aura was observed more frequently (54.6%) among children while the photophobia was frequent in 86.4% participants, phonophobia in 43.2% participants, vomiting, abdominal pain and constipation in 93.2%, 11.4% and 25% respectively. Migraine attack was triggered by food in 47.7% study participants. A positive family history of migraine was present in 70.4% of study participants.

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