



Assessment of Knowledge, Attitudes, and Practices of Parents/Caregivers towards Migraine in Children: A Cross-Sectional Observational Study

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Purpose: This study aimed to evaluate the knowledge, attitudes, and practices (KAP) of parents or caregivers of children suffering from migraines at a tertiary care center in North India.

Methods: We conducted a cross-sectional study involving 100 parents or caregivers, using convenience sampling. A 20-item questionnaire was administered in English and also translated into the local language (Hindi). The study included children with migraines who visited the pediatric outpatient department within a 6-month period (December 2022 to May 2023).

Results: Over 60% of caregivers were aware of the chronic nature of the illness, its triggering factors, the role of family history, and the importance of lifestyle modifications. However, only 46% understood the pathophysiology of the illness, and 53% were aware of the medication used for childhood migraines. More than 85% of caregivers believed that recurrent headaches necessitate a doctor's consultation, may require regular visits for optimal treatment, and were willing to alter their child's lifestyle to prevent headaches. However, a significant percentage of caregivers (47%) practised self-medication for their children's headaches. Most caregivers believed that lifestyle modifications and avoiding triggers were the best treatments for migraines. There were significant associations ($P < 0.05$) between the level of education and responses to questions related to migraine definition, prophylaxis, treatment, investigations, lifestyle modifications, and screen time.

Conclusion: Most participants were well-educated on migraine, and their KAP regarding migraine prevention and treatment were generally adequate. However, the practice of self-medication without professional guidance is a significant concern.

Keywords: Migraine disorders; Cross-sectional studies; Caregivers; Health knowledge, attitudes, practice; Life style

Introduction

Recurrent headaches are not uncommon in children [1]. The

most frequently occurring and debilitating primary headache among this group is the migraine, which can significantly impair a child's life and family dynamics. It can also negatively impact their

quality of life. Migraines in children exhibit different clinical characteristics compared to those in adults [2]. Unlike in adults, migraines in children typically last longer and are often bifrontal or bitemporal in location. They are less common before the age of three. Before puberty, boys are more frequently affected, but after puberty, the condition primarily affects girls. The pain can range from moderate to severe. There are several potential triggers, and a significant family history is present in the majority of cases [3].

The Paediatric Migraine Disability Assessment Tool (PedMIDAS), a modified version of the Migraine Disability Assessment Test (MIDAS) for adults, can be used to evaluate disability in children and adolescents [4]. The diagnosis of a migraine is typically clinical, but additional testing should be conducted to rule out serious secondary causes. Both pharmacological and non-pharmacological approaches are used for management. The cornerstone of management is parental education and lifestyle modifications. Acute treatment consists of acetaminophen, non-steroidal anti-inflammatory drugs, and triptans [5,6].

The goal of preventive therapy is to reduce the frequency and intensity of headaches. Other effective medications for the pediatric age group include flunarizine, propranolol, amitriptyline, levetiracetam, valproate, and topiramate. A pediatrician should examine the child to rule out secondary causes of headaches when necessary [7].

To improve the quality of life and academic performance of a child suffering from migraines, caregivers must be well-informed about this chronic neurological disorder. However, there is a lack of literature regarding the knowledge, attitudes, and practices (KAP) of parents/caregivers concerning childhood migraines, especially in developing countries like India. Therefore, there is a need to study these factors, as they can significantly impact the management and treatment compliance for migraines in children. The objective of this study was to assess the KAP of caregivers of children with migraine.

Materials and Methods

1. Study design

A descriptive cross-sectional questionnaire-based study was conducted at a tertiary care hospital in northern India from December 2022 to May 2023. Ethical approval for the study was obtained from the Command Hospital, Chandimandir ethical committee (letter number 22/11/CHWC/2022). The written informed consents were taken by all the parents/caregivers.

2. Case selection

The study encompassed children aged between 5 and 18 years who suffered from migraines and were accompanied by parents or

caregivers to the pediatric outpatient department (OPD) from December 2022 to May 2023. We screened a total of 120 children with a clinical diagnosis of migraine (as per International Classification of Headache Disorders [ICHD]-3) who visited the OPD. However, 20 were excluded for various reasons, leaving 100 parents or caregivers who completed the questionnaire for the final analysis. The majority of the children had been experiencing symptoms for more than 12 months. We developed a questionnaire by utilising various databases, including Science Direct, Scopus, and PubMed. This questionnaire was subsequently reviewed and refined by experts in migraine management and the Institute's ethics committee. The questionnaire was divided into four sections, each focusing on the subject's demographics, KAP related to migraines (Appendix 1). The inclusion criteria were parents or caregivers who could speak and read English or the local language (Hindi).

Those who were unwilling to participate, unable to read and write, or not willing to provide informed consent were excluded. The number of respondents to the English and Hindi questionnaires was 40 and 60, respectively.

3. Statistical analysis

The collected data were recorded in a Microsoft Excel spreadsheet (Redmond, WA, USA). The statistical analysis was performed using SPSS version 20 (IBM Corp., Armonk, NY, USA). Categorical variables were presented as number and percentage, while continuous variables were presented as mean±standard deviation. The chi-square test was used to assess the associations of categorical variables with caregivers' level of education. A *P* value <0.05 was considered statistically significant.

Results

During the study period, we screened a total of 120 children with migraines who were accompanied by their parents or caregivers at the pediatric neurology OPD and clinic. Of these, 20 were excluded for various reasons. The final analysis included 100 parents or caregivers who responded to the questionnaire (Fig. 1).

The ages of the children with migraine in the study ranged from 5 to 18 years, with an average age of 10.41±2.54. The boys constituted 53% (n=100) and girls 47% respectively. Most of the caregivers had a good level of education, with approximately 83% being graduates or postgraduates (Table 1).

1. Evaluation of knowledge about migraine among caregivers

The survey questions related to knowledge about migraines revealed that over 60% of caregivers understood the chronic nature

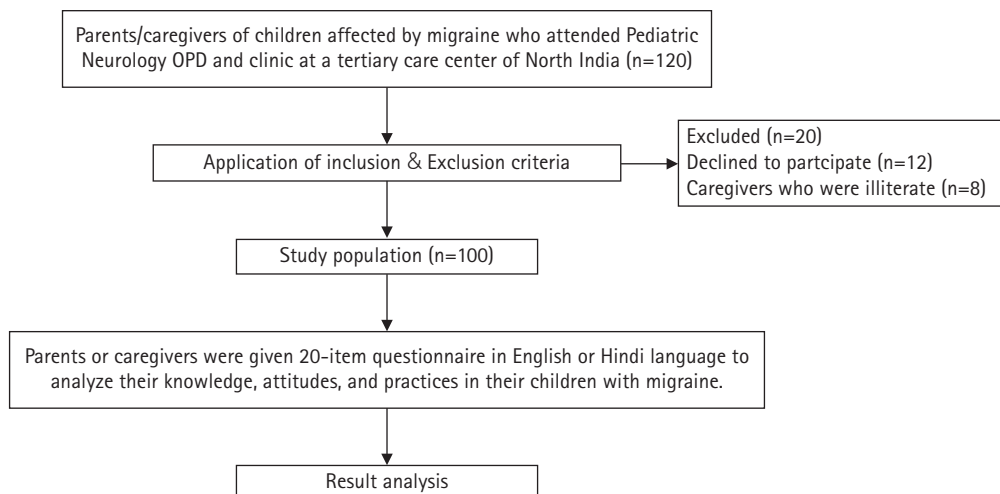


Fig. 1. Flow of study. OPD, outpatient department.

Table 1. Demographic profile of study participants

Variable	Value
Mean age (yr)	10.41±2.54
Sex	
Male	53
Female	47
Education level of the caregiver	
Undergraduate	17
Graduate	61
Postgraduate	22

Values are presented as mean±standard deviation or number.

of the illness, its precipitating factors (such as skipping meals, exposure to bright light, stressors, specific food items, and lack of sleep), and the influence of family history and lifestyle modifications. Approximately 57% were aware that the severity of a migraine can dictate the need for migraine prophylaxis, but the majority of caregivers were unfamiliar with the duration of such prophylaxis. Over 60% of caregivers believed that neuroimaging is always necessary for children with migraines. However, around 90% of caregivers were not familiar with the HTP (House, Tree, and Person) psychological test used in relation to migraines (Table 2).

2. Evaluation of attitudes toward migraine among caregivers

A large majority of caregivers (85%) held the belief that migraines necessitate a consultation with a doctor, and potentially, regular visits for optimal treatment. A substantial proportion of caregivers were willing to modify their child's lifestyle to enhance prevention. However, it is noteworthy that approximately 47% of caregivers engaged in self-medication for their children's headaches (Table 3).

Table 2. Evaluation of knowledge among caregivers

Question	Yes (%)	No (%)
Migraine is a chronic neurological disorder in children	76	24
Are you aware of precipitant factors for childhood migraine (skipping meals, bright light, stressors, any particular food items, lack of sleep)?	74	26
Is it caused by abnormal brain activity or vascular disturbance?	46	54
Is family history important in migraine?	61	39
Are you aware of medication used in childhood migraine (abortive and preventive agents)?	53	47
Are you aware that lifestyle modification will be necessary for migraine prevention?	63	37
Do you consider that severity of the migraine could decide the prophylaxis of a migraine?	57	43
Do you consider that neuroimaging is always required for childhood migraine?	64	36
Do you consider that prophylactic medication for migraine should be used for 3–6 months?	19	81
Are you aware of HTP (House, Tree, and Person) psychological test?	10	90

Table 3. Evaluation of attitudes among caregivers

Question	Yes (%)	No (%)
Would you be willing to consult a doctor for recurrent headaches	89	11
Would you take self medication	47	53
Would you be willing to change children's lifestyle	80	20
Would you be willing to visit the doctor periodically	76	24

3. Evaluation of standard practices among caregivers

The majority of caregivers believed that lifestyle modification and avoidance of triggering factors constitute the most effective treatment for migraines. They were also open to undergoing tests for migraines as recommended by their physicians. Furthermore, they

were knowledgeable about the latest treatment modalities for migraines, which include newer drugs, cognitive behavioral therapy, yoga, and neuromodulation (Table 4).

Significant associations ($P < 0.05$) were found between the level of education and questions pertaining to the definition of migraine, prophylaxis, treatment, investigations, lifestyle modifications, and screen time, as compared to other questions related to the KAP of caregivers towards migraine (Table 5).

Discussion

Migraines significantly impact a child's intellectual performance, memory, personality, and daily activities. There is a dearth of literature on the prevalence of pediatric headaches and the factors contributing to the recurrence of primary headaches. While questionnaire-based studies offer more reliable information and are feasible, clinical interviews remain the gold standard for such research. Increased awareness of the disease has positively impacted health-care, leading to a decrease in morbidity and mortality. Previous studies have confirmed that patients' knowledge and awareness

dramatically influence medication adherence behavior [8].

Upon reviewing the existing literature, we concluded that our study is the first of its kind to assess the KAP among caregivers of children with migraines. Most of the studies mentioned in the literature focus on adult patients or physicians' knowledge of this chronic neurological disorder. In our study, over 60% of caregivers were aware of the chronic nature of the illness, its precipitating factors (such as skipping meals, bright light, stressors, specific food items, lack of sleep), and the role of family history and lifestyle modifications. This awareness level appears to be much higher compared to other studies, primarily those involving adults [9]. However, only 46% of caregivers understood the pathophysiology of the illness, and 53% were familiar with the medication used for childhood migraines, both abortive and preventive. Our study also revealed that more than 85% of caregivers believed that migraines require a consultation with a doctor, may necessitate periodic visits for better treatment, and were ready to change their children's lifestyles to prevent headache. This understanding will further assist clinicians in ruling out more serious causes of headaches that require urgent treatment. Our study also found that the majority of caregivers believed that lifestyle modification and avoiding precipitating factors are the best treatments for migraines. This belief was much more prevalent than in other adult studies mentioned in the literature [10-12]. Caregivers also expressed willingness to undergo tests for migraines as per physician advice and were aware of new treatment modalities for migraines. However, a significant percentage of caregivers (47%) practised self-medication for their children's headaches without consulting a doctor, a trend comparable to adult studies mentioned in the literature [13]. This incorrect practice may be due to the availability of over-the-counter drugs and information through social media, which regulatory agencies

Table 4. Evaluation of standard practice in study participants

Question	Yes (%)	No (%)
Are the acute treatment of headaches and lifestyle modification the best treatment for migraine?	84	16
Would you like to avoid precipitant factors (skipping meals, bright light, stressors, any particular food items, lack of sleep)?	70	30
Would you like to undergo tests for migraine?	62	38
Would you like to reduce screen time to less than 1 hr/day?	92	8
Are you aware of new modalities of treatment for migraine (newer drugs, cognitive behavioral therapy, yoga, neuromodulation)?	51	49

Table 5. Association between knowledge, attitudes, and practices of parents/caregiver with level of education

Question	Response	Undergraduate (n=17, %)	Graduate (n=61, %)	Postgraduate (n=22, %)	P value ^a
Is migraine is a chronic neurological disorder in children	Yes	12 (70.6)	51 (83.6)	13 (59.1)	0.05
	No	5 (29.4)	10 (16.4)	9 (40.9)	
Do you consider that severity of the migraine could decide the prophylaxis of a migraine	Yes	12 (70.6)	38 (62.3)	7 (31.8)	0.02
	No	5 (29.4)	23 (37.7)	15 (68.2)	
Do you consider that prophylactic medication for migraine be used for 3-6 months	Yes	4 (23.5)	7 (11.5)	8 (36.4)	0.03
	No	13 (76.5)	54 (88.5)	14 (63.6)	
Would you like to modify your lifestyle for better prevention	Yes	7 (41.2)	55 (90.2)	18 (81.8)	<0.0001
	No	10 (58.8)	6 (9.8)	4 (18.2)	
Would like to undergo tests for migraine	Yes	9 (52.9)	33 (54.1)	20 (90.9)	0.007
	No	8 (47.1)	28 (45.9)	2 (9.1)	
Would you like to reduce screen time to less than 1 hr/day	Yes	11 (64.7)	59 (96.7)	22 (100)	0.001
	No	6 (35.3)	2 (3.3)	0	

^aChi-square test statistic P value.

should address and attempt to curb.

Significant associations ($P < 0.05$) were found between the level of education and questions pertaining to the definition, prophylaxis, treatment, investigations, lifestyle modifications, and screen time related to migraine. This finding underscores the importance of educational level and knowledge about this chronic condition for improving the understanding and treatment of migraines in children.

In conclusion, most of the included participants had a strong educational background, and KAP regarding migraine prevention and treatment were adequate. However, the prevalent issue of self-medication without expert consultation was a significant concern. Health authorities should consider implementing educational programs that provide accurate information, foster positive attitudes, and enhance practical skills related to migraine. This could lead to an improved quality of life for children affected by migraine.

Conflicts of interest

No potential conflict of interest relevant to this article was reported.

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Author contribution

Conceptualization: RS, AKM, and SS. Data curation: RS and AU. Formal analysis: AKM, MU, and AU. Visualization: MU and SS. Writing-original draft: RS, AKM, and MU. Writing-review & editing: RS, AKM, and SS.

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References

- Papetti L, Ursitti F, Moavero R, Ferilli MA, Sforza G, Tarantino S, et al. Prophylactic treatment of pediatric migraine: is there anything new in the last decade? *Front Neurol* 2019;10:771.
- Szperka C. Headache in children and adolescents. *Continuum (Minneapolis)* 2021;27:703-31.
- Rothner AD. Migraine variants in children. *Pediatr Ann* 2018;47:e50-4.
- Hershey AD, Powers SW, Vockell AL, LeCates S, Kabbouche MA, Maynard MK. PedMIDAS: development of a questionnaire to assess disability of migraines in children. *Neurology* 2001;57:2034-9.
- Oskoui M, Pringsheim T, Holler-Managan Y, Potrebic S, Billinghurst L, Gloss D, et al. Practice guideline update summary: acute treatment of migraine in children and adolescents: report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology and the American Headache Society. *Headache* 2019;59:1158-73.
- Thangaraju P, Mahesh K, Venkatesan S. Information on migraine drugs in commonly available Indian drug information sources: whether we satisfied the community needs? *Indian J Pharmacol* 2022;54:216-20.
- Teleanu RI, Vladacenco O, Teleanu DM, Epure DA. Treatment of pediatric migraine: a review. *Maedica (Bucur)* 2016;11:136-43.
- Bosworth HB. Medication adherence. In: Bosworth H, editor. *Improving patient treatment adherence: a clinician's guide*. New York: SpringerScience+Business Media, LLC; 2010. p. 68-94.
- Menon B, Remadevi N. Migraine in nursing students: a study from a tertiary care center in South India. *J Neurosci Rural Pract* 2021;12:129-32.
- Thomas R, Adepu R, Keshava BS, Harsha S, Parthasarathi G, Sebastian J. Impact of patient education on health related quality of life in migraine patients. *World J Pharm Res* 2014;3:982-97.
- Kelman L. The triggers or precipitants of the acute migraine attack. *Cephalalgia* 2007;27:394-402.
- Gupta R, Malhotra A, Malhotra P. An observational study to assess the knowledge of migraine among patients with migraine at a tertiary care teaching hospital. *Int J Basic Clin Pharmacol* 2019;8:502-6.
- Alkudhairi OS, Alghthy AM, Hindi WS, Alqassemi SI. Assessment of knowledge and attitude and practice towards migraine prevention and treatment among general population in Saudi Arabia. *Egypt J Hosp Med* 2018;73:6531-4.