



SAINT PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE
DEPARTMENT OF PEDIATRICS AND CHILD HEALTH

**KNOWLEDGE ON THE MANAGEMENT OF PRIMARY HEADACHE
DISORDERS AMONG PEDIATRIC RESIDENTS AT TEACHING
HOSPITALS IN ADDIS ABABA, ETHIOPIA**

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SAINT PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE
DEPARTMENT OF PEDIATRICS AND CHILD HEALTH

ASSESSMENT OF KNOWLEDGE ON MANAGEMENT OF PRIMARY
HEADACHE DISORDERS AMONG PEDIATRIC RESIDENT AT YEKATIT
AND ST PAULS HOSPITAL MEDICAL COLLEGES

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Table of Contents

acknowledgement	V
List Of Tables	VIII
Acronyms	X
Abstract	X
1. Introduction.....	1
1.1 Background	1
1.2 Statement Of The Problem.....	1
1.3 Significance Of The Study.....	2
1.4. Conceptual Frame Work	3
2. Literature Review.....	4
3. Objectives	6
3.1. General Objective	6
3.2. Specific Objectives	6
4. Methods And Materials.....	7
4.1. Study Area And Period	7
4.2. Study Design.....	7
4.3. Population	8
4.4. Eligibility Criteria	8
4.5. Sample Size Determination And Sampling Technique	8
4.6. Study Variables	8
4.7. Operational Definitions	9
4.7. Data Collection Tools And Procedures.....	9
4.8. Data Quality Assurance	9

4.9. Data Processing & Analysis.....	10
4.10. Ethical Consideration.....	10
4.11. Dissemination and Utilization of Results	11
6. Discusion.....	17
7. Limitations of the Study.....	18
8. Conclusion and Recommendations.....	19
9. References	19
Annexes.....	23

LIST OF TABLES

Table 1: socio-demographic characteristics pediatric residents at teaching hospitals, in Addis Ababa, Ethiopia, 2023.....	12
Table 2: knowledge on diagnosis of primary headache among pediatric residents in teaching hospitals of Addis Ababa, Ethiopia, 2023	13
Table 3: Bivariable and multivariable logistic regression to identify factors associated with knowledge on management of primary headache among pediatric residents in teaching hospitals of Addis Ababa, Ethiopia 2023.....	16

LIST OF FIGURES

Figure 1: Diagram shows factors associated knowledge about headache among pediatric residents at teaching hospitals Addis Ababa, Ethiopia,2023	3
Figure 2: knowledge on management of primary headache among pediatric residents in teaching hospitals ,Addis Ababa Ethiopia 2023	14

ACRONYMS

CI	Confidence Interval
ETB	Ethiopian Birr
GBD	Global burden of disease
G.C	Gregorian calendar
ICHD	international classifications of headache disorders
SPHMMC	Saint Paul's Hospital millennium Medical College
TTH	Tension type headache
UDH	Undifferentiated headache
PI	Principal Investigator
SPSS	Statistical Package for Social Sciences
Y2HMC	Yekatit 12 Hospital Medical College

ABSTRACT

Background: Primary headaches are common in the pediatric and adolescent population and can be disabling for them and their families. The Global Burden of Disease (GBD) study establishes headache as the second-highest cause of disability worldwide. According to studies, migraine is even underdiagnosed and under-treated in neurologist specialist care, and only a small percentage of neurologists pursue headache medicine fellowships. Accurate estimate of the pediatric residents' knowledge on headache management will help in filling the gap on headache diagnosis and treatment and management. In most cases, successful management of headache necessitates the assistance of a neurologist. We have little information knowledge on the management of headache disorders among pediatric residents at teaching hospitals in Ethiopia.

Objective: This study is aimed to assess knowledge on the management of primary headache disorders among pediatric residents at teaching hospitals, in Addis Ababa, Ethiopia, 2023.

Method and Material: A facility based cross- sectional study design was used in this study. The study was conducted among pediatric residents who were attending their residence in Saint Paul Hospital Millennium Medical College (SPHMMC), and Yekatit 12 Hospital Medical College (Y2HMC), Addis Ababa, Ethiopia. Data was collected from all pediatrics residents who were attending the residency programme at SPHMMC and Y12HMC. Data was collected by two data collectors and two supervisors by using a structured and standardized questionnaire. Data was checked for completeness, cleaned and entered into EPI- data version 3.1 and export into SPSS version 26 for analysis.in binary logistic regression statistical analysis. Data was presented using tables and text form. Odds Ratio with 95% Confidence Interval (CI) was used to determine the effect of the independent variables on the outcome variable. P-value less than 0.05 were statistically significant.

Result: The level of having good knowledge on management of primary headache disorders was 59.8%, 95%CI :(49.6, 68.4).Being female residents Sex(Being female residents)AOR=2.80,95%CI:(1.17,6.73),current resident ship institution (SPHMMC)AOR=3.96, 95%CI:(1.57,9.99)and having close family with history of headache AOR=3.15, 95% CI:

(1.20,8.30) were found to be associated with knowledge on management of primary headache disorders.

Conclusion and Recommendation: The finding showed that level of knowledge toward management of primary headache disorders among pediatrics residents was below expected. Sex, current resident ship institution and having close family with history of headache were determinant factors. Therefore, each teaching institution should make appropriate intervention accordingly.

Keywords: Knowledge, Management of headache, SPHMMC, Y12HMC, Addis Ababa.

1. Introduction

1.1 Background

Headache is commonly defined as pain located above the orbital line and is one of the most common complaints in children and adolescents. It can be a primary problem or occur as symptoms of other disorders (secondary headache). Primary headaches are classified based on ICHD-3 beta criteria(1,2).

Headache is the most frequent neurological symptom and the most common manifestation of pain in childhood(3).Primary headache disorders, including migraine, tension-type, and cluster, are considered as major global health problems due to their high prevalence, chronicness and their substantial disability burden upon the sufferers(4).Primary headaches, including migraine, are common neurological disorders that represent one of the most prevalent and disabling, although under diagnosed and undertreated, forms of pain in childhood(5).The Global Burden of Disease (GBD) study found that headache disorders are a major cause of global ill health, accounting for the second highest cause of disability between 2000 and 2019(6).

Before puberty, boys are affected more frequently than girls, but after puberty, headaches occur more frequently in girls(7).

The most common type of recurrent headache in young children is migraine(8).The frequency of tension type headache increases in late childhood, when TTH is the most common type of primary headache (20–25%), followed by migraine (8%)(9).Chronic TTH affects about 1% of children close to adolescence(10). However, other primary headaches are rare and reliable data are very limited

It has been estimated that a large majority, specifically 80%, of patients who visit primary healthcare centers are suffering from migraines. Unfortunately, only a small percentage, less than 20%, of these individuals receive an accurate diagnosis(11). There have also been observations of inadequate treatment(12). Furthermore, literature has shown that nearly 70% of patients who present to their primary healthcare physicians with headaches do not receive a definitive diagnosis. Studies showed demonstrated that difficulties in primary healthcare

physicians face when diagnosing headaches in comparison to other neurological disorders(13).

A study conducted in the United States has revealed significant gaps in the understanding and knowledge of practicing physicians regarding migraine(14). Similarly, in the United Kingdom, up to two-thirds of migraine patients are misdiagnosed due to limited knowledge of the disease among physicians(15). In Turkey, only a small percentage of physicians, i.e. 10.5%, possess sufficient knowledge to establish a correct headache diagnosis(16).

Headache is the most frequent neurological symptom and commonest manifestation of pain in childhood. Measuring the impact of headache in terms of health status, functioning and quality of life can inform the prioritization of competing resource claims, screen for unmet need, improve communication between patient and physician and monitor response to treatment(17).

In view of the aforementioned, it is imperative to ascertain pediatric residents possess sufficient understanding of management of primary headache disorders in order to effectively care for their patients. As such, the objective of this investigation is to evaluate the level of knowledge pertaining to primary headache disorders management among pediatric residents and to contrast these results with those obtained internationally

1.2 Statement of the problem

Headache influences children and adolescents of all ethnic and socioeconomic groups. It is common worldwide, occurring in up to 60% of children and adolescents aged between 2 and 18 years(18).Prevalence of primary headaches in children and adolescents, with an estimated prevalence of headache and migraine up to 58% and 7.7%(19) respectively. The prevalence of headache ranges from 37 to 51% in seven-year-old children, gradually increasing to 57–82% by age 15(7).According to a population-based national survey of headache burdens in Ethiopia, 1-year prevalence estimates were 17.7% for migraine (higher than the global mean (20), 20.6% for TTH, 0.7% for probable MOH (pMOH) and 2.5% for other headache on ≥ 15 days/month(21).A cross-sectional survey in Ethiopia also revealed Gender- and age-adjusted 1- year prevalence of headache was 72.8% (migraine: 38.6%; tension-type headache: 19.9%; UdH: 12.3%; all headache on ≥ 15 days/month: 1.2%; probable medication-overuse headache: 0.2%). Headache was more prevalent in females (76.2%) than males (71.0%), a finding reflected only in migraine among the headache types. Headache was more prevalent among adolescents (77.6%) than children (68.4%), reflected in all types except migraine, although prevalence of UdH fell sharply after age 14 years to 3.9%(22).

Regarding the impact of primary headache in children cause a substantial impact on quality of life ,limiting social activities, physical activity and school absenteeism, weaker learning outcomes, a higher risk of dropping out of school, and a negative effect on parent's careers Migraine is also associated with comorbidities such as allergies, sleep disorders, emotional and behavioral problems, depression and anxiety, and academic performances (3,5,23,24).Headaches can significantly impair cognitive, emotional, and recreational functioning in all spheres of life, from personal relationships to academic pursuits(25)

The same factors are crucial for children (aged 6 to 11) and teenagers (aged 12 to 17), but recent research has also revealed a common headache disorder characterized by mild pain that lasts only a short time (less than an hour)(17).According to studies, primary headache is even under diagnosed and under-treated in neurologist specialist care, and only a small percentage of neurologists pursue headache medicine fellowships. In most cases, successful management of headache necessitates the assistance of a neurologist(26). The majority of headache patients are referred from primary care centers to secondary care facilities. Although the role of the primary care physician (PCP) is debatable, it is critical in identifying

non-classical clinical presentations and disease unusual histories because this is the first healthcare line. Furthermore, providing good training to PCPs would improve their ability to distinguish between headaches(14).As a result, this would aid in the initiation of optimal therapy and limit unnecessary referrals to neurologists. The latter would be useful in areas with a scarcity of specialists, as is the case in many areas of Ethiopia. In other words, the complementary interaction between the PCP and the neurologist results in effective headache management(15).

The curriculum in medical schools, both in Ethiopia and around the globe, lacks sufficient emphasis on the subject of headaches. This inadequacy in medical education has been identified as a possible reason for under-diagnosing and under-treatment of headaches, which results in a low level of satisfaction among patients suffering from headaches. Research indicates that even neurologists specializing in this field tend to under-diagnose and under-treat migraines, and very few of them take up fellowships in headache medicine(16,27).

Headache is a multifactorial disorder encompassing only genetic, medical and neuropsychological factors but also psychological and personal characteristics. The mechanisms that determine individual differences in headache sensation may be biological or psychosocial (9).

We have little information knowledge on the management of headache disorders among pediatric residents at teaching hospitals in Ethiopia. Accurate estimate of the pediatric residents' knowledge on headache management will help in filling the gap on headache diagnosis and treatment and management, and reducing its economic and social burden. We aimed to assess the knowledge on the management of headache disorders among pediatric residents at teaching hospitals in Ethiopia. Therefore the main aim of this study is to assess the knowledge on the management of headache disorders among pediatric residents at teaching hospitals in Ethiopia.

1.3 Significance of the study

Headache is a common health problem and its management is affected by different factors. Therefore, this study will be expected to fill gap of information on knowledge on the management of headache among residents. The information generated from this study will assist to evaluate the current strategies of managing and controlling of headache. In addition,

the research findings of the study will contribute to academic knowledge and add to ongoing research efforts on headache. The findings of this study will also help to strengthen the quality of education. It helps for healthcare providers to improve diagnosis and treatment strategies. This can lead to better outcomes, reduced health care costs and improve overall health outcomes related with headache. The findings of this study will also be base line for the future studies and appropriate intervention measures.

1.4. Conceptual frame work

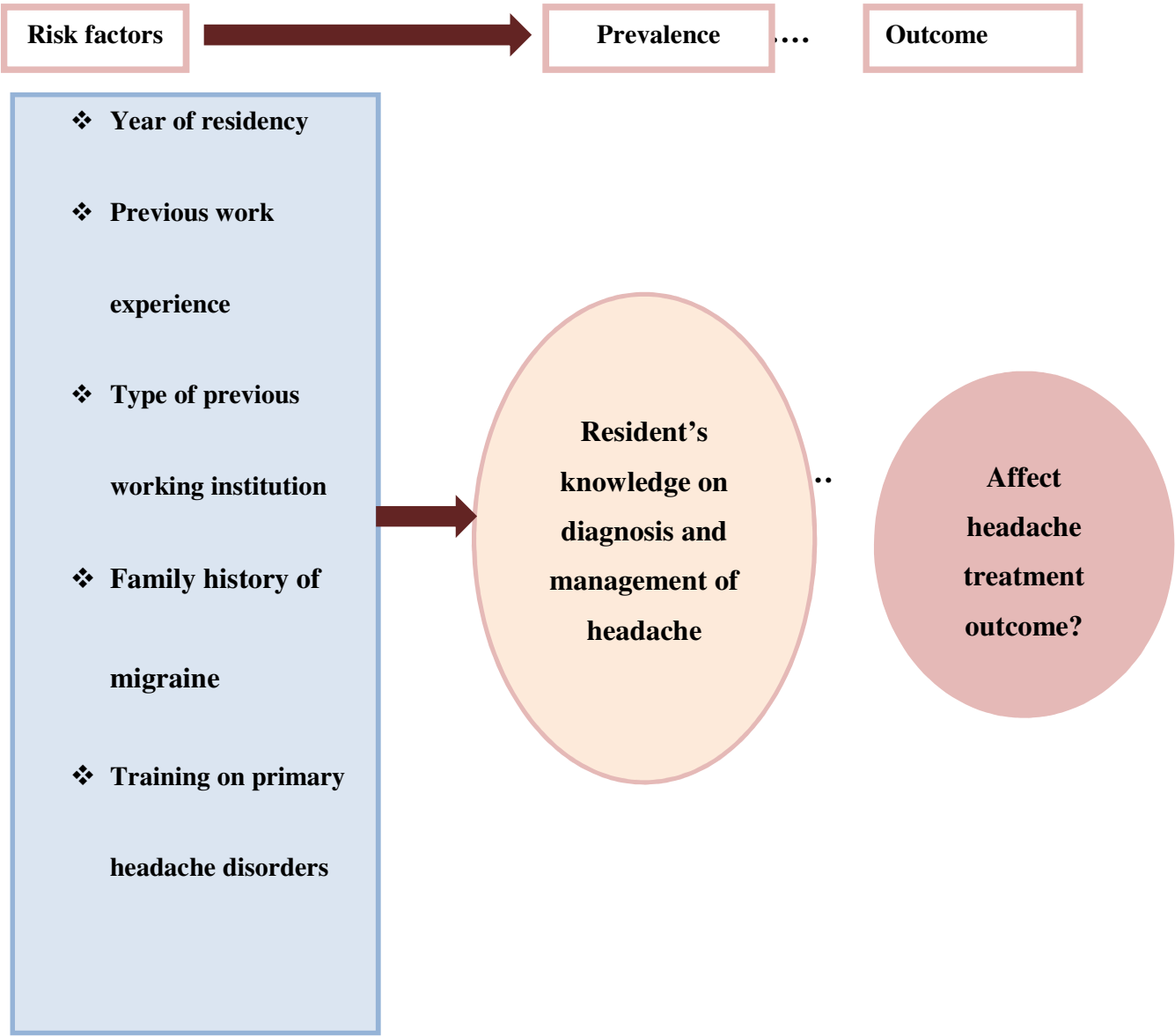


Figure 1: Diagram shows factors associated knowledge about headache among pediatric residents at teaching hospitals Addis Ababa, Ethiopia, 2023

2. Literature review

Headache represents the most frequent neurological issue that patients report when seeking care at primary healthcare centers. It has been approximated that over 7% of all visits to these facilities are related to headache disorders. Headache disorders rank as the third highest cause of disability globally migraine and medication-overuse headache (MOH) are the primary culprits This means that healthcare providers must actively inquire and examine patients in order to provide appropriate and accurate diagnosis and treatment(28,29).

In a cross-sectional survey conducted Ouagadougou (Burkina Faso), the ICDH-3 criteria was well-understood by 80% of general practitioners. The three most commonly accepted IHS criteria were mild-to-moderate intensity (80%), photophobia or sonophobia (80.2%), and pulsatility quality (93.1%). The majority of general practitioners (81.9%) rarely ordered brain imaging. Non-steroidal anti-inflammatory drugs (39.47%), paracetamol (44.74%), and ergot derivatives (3.95%) were the most popular acute treatments. The three most popular preventive medications were NSAID (16.7%), amitriptyline (27.8%), and ergot derivative (18.9%). 56.9% of general practitioners have suggested a colleague or specialist for headache patients(30).

Other studies found that the availability of prophylactic therapy, which can decrease the frequency of primary headache attacks, is not well known. Only 10.2% of the technicians had accurate knowledge when asked whether there was a medication that reduces the frequency of migraine attacks(31).

Another cross-sectional study conducted in Turkey showed that only 10.5% of participants were able to provide all necessary primary headaches without aura diagnostic criteria. Unilateral (53.4%) and pulsating headaches(47%) were the most well-known characteristics(32).

A cross-sectional survey conducted in Norway showed that 80% of the general practitioners (GPs) recommended appropriate preventive treatment for frequent episodic migraine, while 28% recommended appropriate preventive treatment for chronic tension-type headache (CTTH). In this study, 59% of the respondents knew that prophylactic headache medication does not cause medication-overuse headache (MOH), and 52% of the respondents knew that different types of acute headache medications can cause MOH(33).

Another study conducted in Saudi-Arabia revealed that the severity of symptoms was accompanied by a poor quality of life in terms of social and professional aspects. This could negatively affect referral patterns to secondary health-care facilities. Healthcare providers' knowledge regarding migraine diagnosis and treatment was inadequate. The majority of subjects were unaware of migraine, which resulted in underdiagnosis, undertreatment, and a high use of over-the-counter medications(34).

Another cross-sectional study found that the International Classification of Headache Disorders was used by only 32.7% of people. In our sample, 68.3% of respondents said they were highly or extremely interested in headaches, and 75.9% said they would like to learn more about the condition. Theoretical and practical courses as well as update lectures were thought to be the most helpful resources. In clinical practice, 90% used triptans and 78% used preventive treatments. The most frequently used drug was amitriptyline; only 22.1% choose topiramate(35).

A study conducted in UK found that about 70% of headaches went undiagnosed, 24% were classified as primary headaches, and 6% as secondary headaches. It is hypothesized that the high level of morbidity and unmet need in this condition are caused by GPs' difficulty in diagnosing headache presentations(12).

In a cross-section study conducted in Jeddah about 45.6% of the participants had sufficient knowledge, and the overall median (P75) knowledge score was 15%. The majority of respondents (>50%) were unable to name the minimum duration of chronic migraine, the requirement to count at least eight migraine attacks per month, the significance of controlling medication overuse, and the identification of topiramate as the most effective chronic migraine treatment. General practitioners (GPs), medical students with bachelor's degrees, young doctors (23–35 years old), and those with less than five years of experience performed worse than their peers. Independently, doctors with 6–10 years of clinical experience were more knowledgeable than PCPs with less experience(34).

3. OBJECTIVES

3.1. General Objective

- The general objective of this study is to assess the knowledge on the management of primary headache disorders among pediatric residents at teaching hospitals in Addis Ababa, Ethiopia, 2023.

3.2. Specific objectives

- ❖ To determine the level of knowledge on the diagnosis of primary headache disorders
- ❖ To determine the level of knowledge on the management of primary headache disorders
- ❖ To assess factors associated with knowledge on the management of primary headache disorders among pediatric residents.

4. METHODS AND MATERIALS

4.1. Study Area and Period

The study was conducted in Saint Paul's Hospital Millennium Medical College (SPHMMC), and Yekatit 12 Hospital Medical Colleges (Y12HMC), which were medical and teaching specialty hospitals found in Addis Ababa city administration, Ethiopia. St Paul's Millennium Medical College, as it is now known, was founded in 2010 by a decree of the Council of Ministers, despite the fact that the medical school opened in 2007 and the hospital was founded in 1968 by the late Emperor Haile Selassie. It is governed by a board of directors appointed by the Federal Ministry of Health. The College developed Ethiopia's first integrated modular and hybrid problem-based curriculum for undergraduate medical education, and it is now expanding into postgraduate programmes and diversifying its undergraduate programme offerings. St Paul's is in the process of rapidly expanding its capacity, having grown from 3 to 250 faculty members in the last six years and expanding teaching facilities. The college had more than 2800 clinical, academic and administrative and support staffs and an average of 1200 emergency and outpatient clients daily. St. Paul's Hospital Millennium Medical College offers healthcare and training to students through its various biomedical and clinical departments, which include Anatomy, Physiology, Biochemistry, Pharmacology, Public Health, Pathology, General Surgery, Internal Medicine, Obstetrics and Gynecology, Pediatrics and Child Health, Emergency Medicine, Urology, Neurology, Orthopedics, Psychiatry, Ophthalmology, ENT, Dentistry and Maxillofacial Surgery, Radiology Anesthesiology, Nursing, ICU (Intensive Care Unit), ART (HIV care), Endoscopy, Physiotherapy, Laboratory and Pharmacy.

Yekatit 12 Hospital Medical College was established in 1915 E.C. Before it was named as Yekatit 12 Hospital Medical College in 2003, the hospital was called as Yekatit 12 Hospital. The hospital is serving more than 5 million people in the catchment area in all six major departments and other units since 1923. The medical college currently is providing advance clinical services, and academic services in medical and speciality services. During the study period, Yekatit 12 hospital medical use to attend 200 to 250 patients per day through six units at the OPD. The study will be conducted from July 15-August 15, 2023.

4.2. Study Design

In this study a hospital based cross-sectional study design was used. .

4.3. Population

4.3.1. Source Population

All pediatric residents in SPHMMC and Y12HMC were included..

4.3.2. Study Population

All pediatric residents in SPHMMC and Y12HMC were included.

4.4. Eligibility criteria

4.4.1. Inclusion criteria

All pediatric residents in SPHMMC and Y12HMC, who were currently actively attending their education in these hospitals.

4.4.2. Exclusion criteria

Those pediatric residents on month off and birth leave were excluded from this study.

4.5. Sample Size Determination and Sampling Technique

4.5.1. Sample size Determination and sampling technique

Data was collected from all pediatrics residents who were attending the residency programme at SPHMMC and Y12HMC. All pediatric residents were approached in the hospitals when they were on their job but while they were on tea break time. The first step would be taking informed consent to participate in the study. The second step would be administering the structured self-filled questionnaire to the residents. The information was taken from all residents who were willing to participate in the study and available during the data collection period.

4.6. Study variables

4.6.1. Dependent Variables

- ❖ Knowledge on diagnosis of primary headache disorders
- ❖ knowledge on primary management of primary headache disorders

4.6.2. Independent variables

Background variables: Age, gender, neurology training, experience working as GP, year of education in residency, type of hospital on residency, prior working hospital when GP, and Experience of Migraine.

4.7. Operational definitions

- ❖ **Knowledge on diagnosis of primary headache disorders :** Residents will be asked about their experience and the standards that they used to assess to diagnose headache in accordance with their knowledge of the ICDH 3 diagnosis criteria for migraine. If participant answered yes the items they considered as having knowledge on diagnosis (30).
- ❖ **Knowledge on management headache:** Based on International recommendations for migraine treatment 39 items with yes and no question was used to assess knowledge on management primary headache. After calculating the mean, those pediatric residents score above the mean were considered as having a good knowledge (30).

4.7. Data collection tools and procedures

The questionnaire was prepared after reviewing different published literatures from internationally reputable journals. The data was collected by two general practitioners and supervised by two public health experts. The questionnaire included demographic and background information as well as sections of questions used to identify knowledge on prevalence of headache in Ethiopia, prevalence of knowledge on the diagnosis of headache, and prevalence of knowledge on the management of headache

4.8. Data Quality Assurance

Data quality was assured by carrying out careful design of data extraction formats, appropriate recruitment of data collectors and by giving adequate training and follow-up for data collectors and supervisors. The questionnaire was pre-tested on 5% of residents from medical colleges which are relatively near to the hospitals and was modified accordingly before the main study begins. The face and content validity of the final version of the tool was evaluated before and after pretest by advisors. Two days intensive training was given for data collectors and supervisors. The investigators and supervisors did intensive supervision during the whole period of data collection. The investigators to conform reliability of data during data collection reviewed a random sample of questionnaires and the supervisors made random crosschecks for their completeness, accuracy, and consistency. The data collectors with the close observation of the principal investigators and supervisors will collect the data. Remarks were given during morning times on how to eliminate or minimize errors and take corrective actions. The data was checked for completeness and consistency and then it was coded,

entered and stored into the computer using Epi-data version 3.1 Soft-Ware. Data was exported to SPSS version 26 statistical packages for analysis.

4.9. Data processing & analysis

Data was coded and entered into Epi- data version 3.1 and exported to the Statistical Package for the Social Sciences (SPSS) version 26 for statistical analysis. Descriptive statistics (frequencies, percentages, mean values, and standard deviations) was calculated for demographic and background status of the participants. Variables for knowledge questions were computed using variables recoding. Results were reported as percentages (frequency) for categorical variables or means with standard deviations for continuous variables. All predictor variables that had a significant association in bivariable analysis with $p\text{-value} \leq 0.25$ was entered into multivariable logistic regression model to assess the association between dependent and independent variables. Then multivariable logistic regression model was used to identify independent factors associated knowledge by controlling the effect of confounders. In order to decide whether a variable was significant associations with dependent variable was estimated with $p\text{-value}$ less than or equal to 0.05 in the logistic regression model. The crude and adjusted odds ratios together with their corresponding 95% confidence intervals were computed and interpreted accordingly.

4.10. Ethical Consideration

Ethical clearance was obtained from SPHMMC's before conducting the study. After securing ethical clearance from SPHMMC's, the two medical colleges were informed about the objective of the study through a support letter from SPHMMC's and written permission will be obtained from the hospital's administrations before starting data collection. Informed consent was taken from residents just before data collection. To keep the confidentiality of the study subjects' information, personal identifiers were not included in the data collection format and all recorded data was kept in a very secure area where only principal investigator can access to it. When there was a need to contact study participants, their Id number was used to get them. The results of the study were disclosed only when it is necessary and for those who want to know it.

4.11. Dissemination and Utilization of Results

Result of the study will be submitted to SPHMMC's in both hard copy and soft copy forms and will be sent to each hospitals and other organizations when deemed necessary. The finding of this study will be presented for SPHMMC. The findings of the study will also be presented to the Y2HMC. It will also be presented in different annual conferences and seminars. The research results will finally be sent for publication in reputable Journals to facilitate its access and use in different websites.

5. RESULTS

5.1. SOCIO-DEMOGRAPHIC CHARACTERISTICS

In this study, 121 pediatric residents were interviewed and 117 of them were included, resulting in a response rate of 96.7%. The majority of the pediatric residents, 66(56.4%) were male and with age group above 30 years, with mean age of 30 years and a standard deviation of 2.5 years. Additionally, 86 (73.5%) of them were had work experience less than 3 years before starting residency and only one third them 29(24.8%) were second year resident ship. Furthermore 42(35.9%) of the pediatric residents had close family with headache history (Table 1).

Table 1: socio-demographic characteristics pediatric residents at teaching hospitals, in Addis Ababa, Ethiopia, 2023

Variables	Category	Frequency	Percent
Age	<= 30 years	52	44.4
	>30 years	65	55.6
Sex	Male	66	56.4
	Female	51	43.6
Year of residency education	R1	47	40.2
	R2	29	24.8
	R3	41	35.0
Work experience before starting residency	<3 years	86	73.5
	>=3 years	31	26.5
Type of institution you were serving before you start residency	Health centers	16	13.7
	Primary	26	22.2
	hospitals		

	General hospitals	36	30.8
	Teaching hospitals	37	31.6
	others	2	1.7
Current resident ship institution	SPHMMC	79	67.5
	Y12HMC	38	32.5
Having any close family with headache history	Yes	42	35.9
	No	75	64.1

5.2. KNOWLEDGE ON DIAGNOSIS OF PRIMARY HEADACHE

In the current study most of the pediatric residents 83(70.9%) respond as they had experience in diagnosing headache in pediatrics, from these 67(80.7%) of them use ICHD3 beta criteria during diagnosis. Furthermore nearly half (47.9%) of pediatrics residents had history of headache training, however 98(83.8%) of the participants believed that, such as headache training should be mandatory during residency in pediatrics (Table 2).

Table 2: knowledge on diagnosis of primary headache among pediatric residents in teaching hospitals of Addis Ababa, Ethiopia, 2023

Variables	Category	Frequency	Percent
History of headache education /training/	Yes	56	47.9
	No	61	52.1
Perception on headache course (training) as mandatory during paediatrics residency	Yes	98	83.8
	No	19	16.2
Have you ever had experience in diagnosing migraine headache in paediatrics	Yes	83	70.9
	No	34	29.1

Criteria used to diagnose headache	ICHD3 beta'	67	80.7
	Others*	16	19.3

*=National recommendations for the treatment of headaches (NEL),BMJ Best Practice/Up to date via the Norwegian Electronic Health Library and Google search etc.

5.3. KNOWLEDGE ON MANAGEMENT OF PRIMARY HEADACHE DISORDERS

Regarding knowledge on management of primary headache among pediatrics residents, the overall having good knowledge was 70(59.8%), 95%CI :(49.6, 68.4) with the mean value above 49.54 (Figure 2).

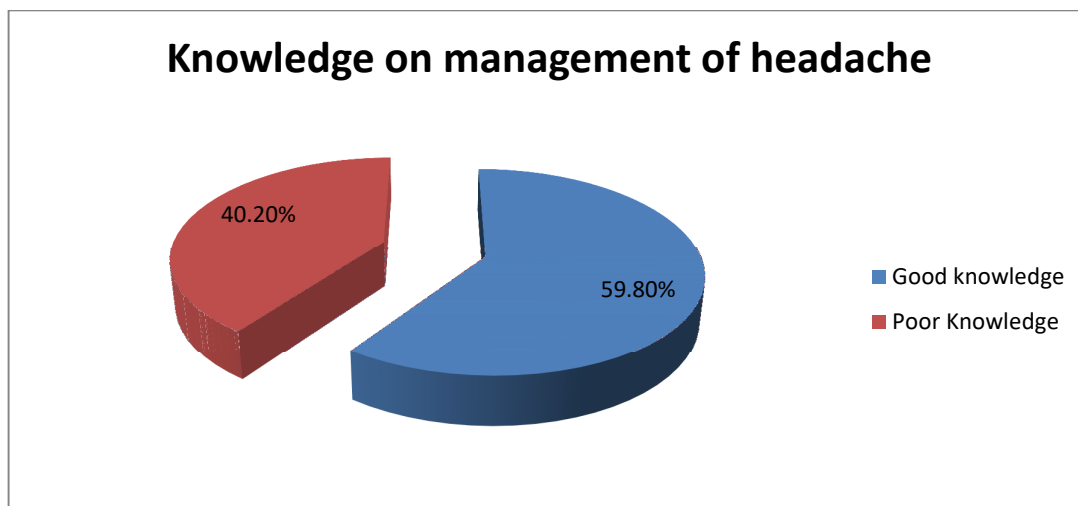


Figure 2: knowledge on management of primary headache among pediatric residents in teaching hospitals, Addis Ababa Ethiopia 2023

5.4. FACTORS ASSOCIATED WITH KNOWLEDGE ON MANAGEMENT OF PRIMARY HEADACHE DISORDERS

In Bivariable binary logistic regression model variables like: Sex, Year of residency education, Current resident ship institution and Having close family with history of headache pass the cut point of binary regression (p value < 0.25). These variables were included in the multivariable logistic regression model and for those variables with $p \leq 0.05$ considered as having significant association with knowledge on management of primary headache. Predictors of knowledge on management of primary headache identified as to be statistically significant at p -value < 0.05 were: Sex, current resident ship institution and having close family with history of headache.

Female pediatrics residents was by 2.8 times more likely to have knowledge on management of primary headache as compared with those male residents $AOR=2.80, 95\%CI:(1.17, 6.73)$ while Those pediatrics residents working in SPHMMC were by 3.96 times more knowledgeable on management of primary headache as compared with those Y12HMC, $AOR=3.96, 95\%CI:(1.57, 9.99)$ and those pediatrics residents who had close family with history of headache were by 3.15 times more knowledgeable when compared with counterparts $AOR=3.15, 95\%CI(1.20, 8.30)$

Table 3: Bivariable and multivariable logistic regression to identify factors associated with knowledge on management of primary headache among pediatric residents in teaching hospitals of Addis Ababa, Ethiopia 2023

Variables	Category	Knowledge management of primary headache		COR95%CI	P value	AOR95%CI	P value
		poor knowledge	Good knowledge				
Sex	Male	33	33	1		1	
	Female	14	37	2.64(1.21,5.78)	.015	2.80(1.17,6.73)*	.021
Year of residency education	R1	21	26	1		1	
	R2	13	16	.99(0.39,2.52)	.990	0.57(0.19,1.69)	.310
	R3	13	28	1.74(0.73,4.17)	.214	1.22(0.44,3.39)	.702
Current resident ship institution	SPHMMC	22	57	4.98(2.17,11.44)	.000	3.96(1.57,9.99)*	.004
	Y12HMC	25	13	1		1	
Having close family with history of headache	Yes	8	32	4.11(1.68,10.04)	.002	3.15(1.20,8.30)*	.020
	No	39	38	1		1	

*=p value <0.05

6. DISCUSSION

This finding aims to explore knowledge on diagnosis and management of primary headache disorders among pediatrics residents in Addis Ababa, Ethiopia. In this study 70.9% of pediatric residents respond as they had experience in diagnosing headache in pediatrics and from these 80.7% of them use ICHD3 beta criteria during diagnosis. However different study suggests different finding. More than 50% of the GPs reported headache diagnosis and management to be clinically difficult, which underlines the importance of educating GPs to be comfortable in diagnosing and treating headache disorders(36). The reason might be due to no diagnostic tests exist for headache disorders, and diagnoses are primarily based on good history taking and clinical examination. All treatment guidelines are based on specific diagnoses, thus it is altermost importance to make the correct diagnosis. Although previous studies among GPs have shown that many patients do not receive a specific headache diagnosis, thier finding show that only 8% used the diagnostic headache criteria (ICHD-3) on a regular basis was lower than expected (37).

This study finding suggest overall knowledge on management of primary headache disorders was 59.8%,95%CI:(49.6, 68.4).This study finding higher than the study done in Turkish study aiming at assessing the awareness of migraine among PCPs, only 10.5% of the participants had a satisfactory level of knowledge to make a correct diagnosis of migraine fulfilling the IHS criteria. One-third of them expressed the need for brain screening to diagnose migraine, which is considered unnecessary for a definitive diagnosis of migraine disorder(38) and In a study conducted in the USA, the gap of knowledge about migraine was significant even among physicians practicing in a top academic medical center indeed, just one-third of them were familiar with the American Academy of Neurology guidelines(39).This gap of knowledge affects patient management and interferes with reaching a definite diagnosis. Furthermore In a study conducted in England, it was found that two-thirds of patients did not get the right diagnosis of their trouble from PCPs(12).

However this study finding lower than the study done in Jeddah even which show low knowledge levels and inappropriate attitudes toward CM as indicated by their inconsistent knowledge responses(<70% of correct answers) for majority of items related to the diagnosis and management of the disease(34). The reason might be due to geographical difference,

quality of care difference, infrastructure difference, difference in population category, study period difference etc.

This finding suggest that sex of pediatric residents, Current institution working as resident ship and having close family with history of headache were found to be statistical significant factors with knowledge on management of primary headache. The odd of having a good knowledge on management of primary headache was by 2.8 times more likely among female pediatric residents when compared with those male pediatrics residents. The reason behind might be female experience more headache than men due to hormonal difference. These hormone related headache triggers are menstruation, pregnancy, lactation, menopause and taking oral contraceptive so that ,since they exposed at different period of time the will be concerned what to diagnosis and manage each type of primary headache. This finding supported by the study done in Norway which suggested women used regular MRI for all new headaches more commonly than men to diagnose and manage in proper way(16).

Those pediatrics residents working in SPHMMC were by 3.96 times more knowledgeable on management of primary headache as compared with those Y12HMC. The reason for the discrepancy might be due SPHMMC used as pediatric centers. Since different pediatric case referred to SPHMMC most pediatric residents encounter primary headache so that to diagnosis and to manage the case they will refer different reading materials and my ask their senior residents. These lead to increasing their knowledge on diagnosis and management of different pediatric case.

Other factors which had statistical association with knowledge on management of primary headache were having close family with history of headache. The odd of having good knowledge on management of primary headache was by 3.15 times more likely among pediatric residents who had close family with history of headache. The reason might be due to frequent exposure of headache which increases their concern how to treat the case.

7. LIMITATIONS OF THE STUDY

- This study was entirely made based on interview rather than observation
- Since there is not study done on knowledge of paediatrics residents on management of primary headache it was difficult to compare and support with other related study.
- It is no free from self-response and desirability bias

➤ **8. CONCLUSION AND RECOMMENDATIONS**

➤ **8.1. CONCLUSION**

- The finding this of study revealed that the level of knowledge among paediatric residents on management of primary headache disorders was below expected. This indicates marked deficits in the formal education for paediatric residents and highlights the need to implement effective academic control toward primary headache disorders management. Sex, Resident ship institution and having close family with history of headache were among factors which had association with knowledge on management of headache.

➤ **8.2. RECOMMENDATION**

Based on the study findings the following recommendations have been forwarded to concerned bodies

FOR SPHMMC AND Y12HMC

- ✓ Y12HMC should take intervention and follow up on competency of pediatrics residents on management of each primary headache disorders
- ✓ Y12HMC should facilitate to share knowledge on this area by communicating with the SPHMMC for short period training

FOR EACH PEDIATRIC RESIDENTS

- ✓ All pediatric residents should be give concern on primary headache diagnosis and managements as part of your future career challenge

FOR FUTURE RESEARCHERS

- ✓ Since a lot of factors can affect for poor knowledge future researcher should incorporate different antecedent variables that could affect the result
- ✓ Future researchers recommended to incorporate qualitative study such as in-depth interview to explore more.

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ANNEXES

Anne I: approval sheet

Assurance of Principal Investigator

I the undersigned agree to accept all responsibilities for the scientific and ethical conduct of the research project. I will provide timely progress report to my advisor and seek the necessary advice and approval from my primary advisors in the course of the research. I will communicate timely to my advisors all stakeholders involved in the study including any source of funding for this research.

Name of the student: _____

Signature: _____

Date: _____

Approval of the Primary Advisor

Name of the primary advisor: _____

Signature: _____

Date: _____

Approval of the Co-Advisor

Name of the primary advisor: _____

Signature: _____

Date: _____

Annex II: English Version Questionnaire

Saint Paul's Hospital millennium Medical College Department of Pediatrics and Child health

Questionnaire designed to assess knowledge on the management of headache disorders among pediatric residents at teaching hospitals in Ethiopia, 2023

Part I: Study Participant Information Sheet and informed consent

My name is _____. I am working as the data collector of the study being conducted in this health facility. I kindly request you to lend me your attention to explain you about the study in general. Aim of this study is to assess knowledge on the management of headache disorders among pediatric residents at teaching hospitals in Ethiopia. The main purpose of the research is to fill the information gap and provide pertinent evidence for decision makers and headaches treatment program implementers on the problem. The data collectors will collect the necessary information from study subjects and from respective charts, using interviewer administered structured questionnaire, which takes 30 minutes. Participating in this study does not have any risk or harm, direct benefit and incentives. The information acquired from patient and his/her file will be confidential. Participating in this study is fully voluntary.

Contact address: Principal investigator: Dr. Abraham Fasil, Mobile No: +251913839314

Part II: Consent Form

I have understood the verbal explanation of the information sheet concerning this study and I understood what will be required of me and what will happen to me if I take part in it. I also understand that any time I may withdraw from this study without giving a reason and that the service utilization of my family and myself will not be affected for my refusal to be included in the study. Are you voluntary to participate in this study?

1. Yes: Continue to the next page 2. No: Skip to the next participant

Part III:Questionnaire

Questionnaire Code_____

Guide to data collectors: Read the questions and fill the data carefully by making appropriate circle or writing the response on the space provided accordingly.

The questionnaire has Three parts.

S. No.	Questions	Response Category	Skip/Remark
Part 1:Demographic and background characteristics			
1.01	What is your age (in completed years)?	_____ years	
1.02	What is your sex?	1.Male 2.Female	
1.03	What is your year of residency education?	1. R1 2. R2 3. R3	
1.04	What is your work experience in full years before you start residency?	_____ Years	
1.05	In what type of institution you were serving before you start residency?	1. Health center 2. Primary Hospital 3. General hospital 4. Teaching Hospital 5. others(Specify)	
1.06	Institution currently working as resident ship?	1. SPHMMC 2. Y12HMC	
1.07	Do have any close family who have history of migraine headache?	1. Yes 2. No	

Part 2:Knowledge on diagnosis of headache questions			
2.01	Have you ever had any headache education /training?	1. Yes 2. No	
2.02	Do you think that such as headache course (training) should be mandatory during residency in paediatrics?	1.Yes 2.No	

2.03	Have you ever had experience in diagnosing migraine headache in paediatrics?	1.Yes 2.No	
2.04	What criteria are you using for diagnosis of paediatrics migraine headache in your clinical practices?	1.ICHD- 3 beta 2.Others(specify it)	

S.n	Part 3:Knowledge on management of headache questions		
3.01	What do you think is the prevalence of paediatrics migraine worldwide, In Africa and In Ethiopia respectively?	_____	
3.02	What are the principles of management of paediatrics migraine headache	1. Reduction of headache frequency, severity & duration 2. Improving in quality of life 3. reduction of headache related distress and psychological symptoms 4. Avoidance of acute headache medication escalation. 5. Don't know	
3.03	Do you know the abortive medications for migraine attack?	1.Yes 2.No	
3.04	If yes to Q 3.03 specify	_____	
3.05	When you prescribe Ibuprofen for migraine attack, which dose of ibuprofen do you prescribe?	1. 7.5- 10mg/kg/dose, 2.<7.5 mg/kg/dose 3.>10mg/kg/dose 4. Other(Specify)	

3.06	When are prophylactic drugs indicated in the treatment of migraine in children?	1. 2 or more headaches per month 2. Inability to tolerate triptans 3. 2 or more headaches per weeks 4. Can be started during any attacks 5. other(specify)	
3.07	Which are prophylactic medications for migraine?(more than one possible answers)	1.Triptans 2.Ergot alkaloids 3.Beta blockers 4.Analgesics 5.Tricyclic antidepressants	
3.08	Do you know other preventive measures for migraine other than pharmacologic treatment?	1.Yes 2.No	
3.09	If yes to Q3.08 specify	_____	
3.10	Do you know what kind of medication that can potentially causes medication over use headaches ?(more than 1 possible answers)	1.Migraine preventive medicine 2.Migraine acute medicine 3.Simple analgesics 4.Opioid 5.Do not know	
3.11	What treatment do you usually recommend to patients with medication over use headache?	1. Preventive medication without withdrawal of overused medication 2. Withdrawal of overused medication 3. Withdrawal of over used medication and initiation of preventive medication at the same time 4. Withdrawal of over used medication and possibly preventive medication on their next visit 5. Do not know	
3.12	How do you prevent Medication over use headache (MOH)?	1.Educating the care giver and patient about the condition 2.limiting the use of analgesics to no more than 2-4 X/month 3.limiting the use of triptans to no more than 2-4 X/month 4.To use opioids 5. None	
3.13	When do you advise a migraine patient to take migraine specific drug for migraine	1.Those who recommend taking it when the headache starts 2.Those who recommend taking it when the patient has headache	

	type headache?	3.Those who recommend taking it when the headache is severe 4.Those who recommend taking it when the headache is disabling	
3.14	How you manage a child with debilitating migraine attack lasting more than 72hrs	1.Antidopaminergic drugs such as methoclorpromide 2.CCB 3.IV Dehydroergotamine (DHE) 4. Beta blockers 5. IV Valproate	

The End!!!Thank You very much for your kind cooperation!