

**PREVALENCE, CLINICAL CHARACTERISTICS, AND IMPACT
OF PRIMARY HEADACHES ON CHILDREN ATTENDING
UPPER PRIMARY SCHOOL IN NAIROBI COUNTY**

**Principal Investigator:
Dr. Tatiana Mutheu Mutinda
H58/6887/2017
Department of Paediatrics and Child Health**

**DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT FOR THE AWARD
OF DEGREE IN MASTER OF MEDICINE, DEPARTMENT OF PAEDIATRICS
AND CHILD HEALTH, FACULTY OF HEALTH SCIENCES, UNIVERSITY OF
NAIROBI.**

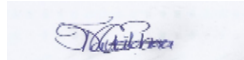
2022

DECLARATION

This is to certify that to the best of my knowledge the content of this thesis is my own work. This thesis has not been submitted for any degree or other purposes.

I certify that the intellectual content of this thesis is the product of my own work and that all the assistance received in preparing this and sources have been acknowledged.

SIGNATUREE:



DATE: 28/5/2022

DR. TATIANA MUTINDA

APPROVAL BY SUPERVISORS

PROFESSOR. CHRISTINE JOWI

PAEDIATRICIAN/CARDIOLOGIST

ASSOCIATE PROFESSOR, DEPARTMENT OF PAEDIATRICS AND CHILD HEALTH

UNIVERSITY OF NAIROBI

SIGNATURE:



DATE: 28/5/2022

DR. DIANA MARANGU

PAEDIATRICIAN/PULMONOLOGIST

LECTURER, DEPARTMENT OF PAEDIATRICS

UNIVERSITY OF NAIROBI

SIGNATURE:



DATE: 21st May2022

DEDICATION

I dedicate this dissertation to my son Komu Enzo Kayumba, and to my parents Joseph Mutinda, Winnifred Mutinda and siblings George Mutinda, Kimeu Mutinda.

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to:

- My supervisors: Prof Christine Jowi and Dr. Diana Marangu for their guidance and invaluable input
- To all the school heads and teachers for their help and willingness to be a part of the research process
- To all the children and their parents for their willingness to participate in this study
- To Dr. Donald Oyatsi for his input and expertise in paediatric neurology
- The Mutinda family for their support throughout the process

TABLE OF CONTENTS

DECLARATION.....	i
APPROVAL BY SUPERVISORS	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT.....	iv
TABLE OF CONTENTS	v
LIST OF FIGURES AND TABLES	vi
LIST OF ABBREVIATIONS	vii
ABSTRACT	viii
INTRODUCTION AND BACKGROUND	1
HEADACHES AND SCHOOL ATTENDANCE.....	2
HEADACHES AND QUALITY OF LIFE.....	3
CLASSIFICATION OF PRIMARY HEADACHE DISORDERS.....	4
LITERATURE REVIEW	9
STUDY JUSTIFICATION AND UTILITY.....	12
RESEARCH QUESTION	13
STUDY OBJECTIVES	13
METHODOLOGY	14
ETHICAL CONSIDERATIONS	16
DATA MANAGEMENT	16
RESULTS.....	18
DISCUSSION.....	24
CONCLUSION.....	26
RECOMMENDATIONS.....	26
REFERENCES	28

APPENDICES	22
Appendix 1: Consent form.....	22
Appendix 2-Assent form.....	27
Appendix 3-Parental questionnaire.....	29
Appendix 4-Study questionnaire.....	31

LIST OF FIGURES AND TABLES

Table 1. Red flag symptoms of headache	2
Table 2. Migraine criteria.....	6
Table 3. Summary of primary headaches	8
Table 4. Literature review summary	11
Table 5. Clinical characteristics of headache (results).....	20
Table 6. Days with headache in the last month and took pills.....	21.
Figure 1. Study procedure	13
Figure 2. Prevalence of primary headache.....	18
Figure 3. Prevalence of types of pf primary headaches.....	19
Figure 4. Impact of headache on school attendance	21
Figure 5. Impact on parents.....	22
Figure 6. Impact on QOL in children with headache.....	23
Figure 7. Impact on QOL in children with no headache.....	23

LIST OF ABBREVIATIONS

ICHD-3 International Classification of headache disorders 3rd edition

WHO World Health Organisation

HARDSHIP Headache-attributed restriction, disability, social handicap, and impaired participation

TTH Tension Type headache

QOL Quality of life

HRQOL Health-related quality of life

PedQOL4.0 Pediatric Quality of life inventory version 4.0

PPV positive predictive value

ABSTRACT

Headache is defined as pain that occurs above the auriculo-infraorbital line. This is one of the most common causes for presentation to a medical facility or healthcare practitioner. It is a common complaint in children and is ranked third as a cause of school absence.

It remains a common problem whose prevalence and impact remains unknown in the paediatric population.

Objectives: The primary objective of this research was to establish the prevalence of primary headache in children in upper primary school in Nairobi county.

Utility: Assessing the magnitude and impact of headache will help create awareness of headaches in schools and inform school health programs to address quality of life and influence health seeking behaviour with regards to headache in children.

Methodology: This was a cross sectional study. The population assessed in this study were children attending upper primary school in Nairobi county in four schools: two public schools and two private schools.

Study period: February 2021 -March 2021

Results: From 153 children recruited the prevalence of primary headache was 10.4% (95% CI 0.0561-0.1531), migraine 5.2%, tension type headache, 3.3% and cluster headache 1.9%. Children lost 3 days of school and parents lost 3 days of work due to headache.

Conclusion: The prevalence of primary headache in Nairobi county is high with migraine being the most common. This headache negatively impacts quality of life and school attendance.

Recommendation: A nationwide survey would be needed to assess impact on a national level.

INTRODUCTION

Pain is one of the most frequent complaints that prompts patients to seek outpatient care.(1,2) This is one of the most distressing complaints to parents from their children. The most common cause of pain across all age groups is headache. Headache is defined as pain above the orbitomeatal line. (3) Headache can be a serious cause of disability, especially in its severest forms. It can also be a sign of more serious underlying illness or can be a sign of other less sinister circumstances such as sleep deprivation, stress and even hunger.(4)

According to the global burden of disease study published in 2013, headache was discovered to be the 3rd highest cause of worldwide years lost due to disability,(5) and migraine was found to be the 6th highest cause of worldwide years lost due to disability.(1) This findings were based on studies carried out in 188 countries and over the years headache has been rising as a cause of disability worldwide.

This has increased the recognition of headache as a cause of disability and more inquiries into prevalence rates and burden on headache globally are being made in different populations across different age groups. Previously, there have been more studies focusing on adults and less frequently on children and adolescents. This, however, is now changing.(6,7)

Headaches are common in children as well and can start as early as age 4years, but by age 9 years, more than 40% of children will have experienced headache.(8) This number increases with age and in adolescents, this number increases to as high as 75% .(8) There is a peak in headaches in pre-adolescent age group and continues to rise in adolescence.

Headaches can be challenging to diagnose in young infants and toddlers who may not be able to adequately express themselves and verbally describe their headache. Children with headache also present differently from adults with headaches, for example, a child with headache may present by becoming socially withdrawn and pale with no other apparent symptom. Another unique headache in children is the abdominal migraine which is often missed and treated as gastritis or other abdominal conditions such as constipation.(9,10)

However, there are some red flag signs that indicate more sinister underlying causes that require immediate referral to a hospital for prompt evaluation. These are listed in the following table.(4)

Table 1. Red flag symptoms that warrant immediate referral to hospital(3)

RED FLAG SYMPTOMS
<ul style="list-style-type: none">• Headache that rouses the child from sleep at night or headache that occurs early in the morning.• Early morning vomiting without nausea• Worsening headache or increased frequency of headache• Personality changes• Complaints of “the worst headache ever”• Headaches accompanied by fever and neck stiffness or neck pain.• Headaches associated with neurological symptoms (numbness, muscle weakness)• Headaches associated with seizures or loss of consciousness (fainting)• Headaches that occur after trauma

HEADACHES AND SCHOOL ATTENDANCE

In Kenya with the advent of free primary education in 2004, there has been a sharp increase in the number of children enrolled in primary school. With that there are also children who miss school for various reasons. Socio-economic and health related issues are the most prominent.

A survey done in the United States of America, by National Health Interview Survey in 1989 showed that headache ranked third as a cause of school absenteeism. Accounting for over 82,000 days of missed school per week, children with headache miss an average of 3.6 school days per year per child. (11) School attendance is linked to a student’s school performance which impacts the attainment of education for the student and ultimately their future and overall quality of life. The more days of school missed, the more the impact on academic performance, this can cause more stress than the headache itself.

The student may start to avoid school or homework due to the pain, as the student falls behind, peers may start teasing them and teachers and parents may also question the legitimacy of the headaches.(11)

The school system in Kenya is structured as pre-primary, primary school and secondary school and then higher education. In the current curriculum, Child-based curriculum (2-6-3-3), primary education would take a total of 8 years, 2 years pre-primary and 6 years primary school. This study seeks to look at the headaches in the upper primary children aged between 9-12

years, in grade 4 to 6 and how this impacts their school attendance and overall quality of life and school experience. This is the age group from previous studies that has been shown to have an increase in prevalence of primary headache.(4,12)

HEADACHES AND QUALITY OF LIFE

Quality of life is defined as, the general wellbeing of people and the communities within which they live. The WHO defines this term as a person's view of their position in life in the background of society and value systems they live in. It is affected by their physical health, mental wellbeing, individual beliefs, their relationships with others and their relationship to their environment.(2,13)

From this evolved the concept of health-related quality of life (HRQOL) which includes all the facets of quality of life that have a direct impact on a person's health.

HRQOL is relatively poorer in subgroups with chronic illnesses and with analysis of this helps guide interventions to improve their situations and avert possibly more serious consequences.(13)

Primary headaches influence the quality of life of the sufferers as they can be incapacitating and prevent individuals from participating in the day-to-day activities of ordinary living. In children this impact can be seen in school attendance, academic performance and social interactions with peers and parents. Headaches can leave affected children feeling isolated and a burden to their families.(2,14,15)

CLASSIFICATION OF HEADACHE

Headaches are classified into two major types based on aetiology, these are primary and secondary headaches. This classification is based on the underlying cause.(9) Other classifications use timing of headache ; can be acute or chronic and anatomical location of headache ; frontal, occipital parietal.

Primary headaches are disorders in of themselves. They are caused by independent pathomechanisms. These include, migraines, tension type headaches and cluster headaches.(9)

While secondary headaches develop as a symptom due to a different disorder that is known to cause headache. These include, infectious diseases, endocrinological disorders, psychiatric disorders, trauma, and intracranial disorders. In children the most common causes of secondary

headaches, are viral illnesses, sinusitis. (9,10),(16) The focus for this proposal will be on primary headaches.

PRIMARY HEADACHES

The main types of primary headaches that are common in children and adolescents, according to the International Headache society (IHS) are:(16)(10)

1. Migraine headaches
2. Tension type headaches

Migraine

Migraine is one of the main and debilitating headache disorders. It is further sub divided into migraine with aura and migraine without aura(17)(10). An aura is a sensory event that precedes a migraine.(18) An aura can be visual, auditory, tactile and can involve speech and motor functions.

Migraine headaches have been associated with some known triggers, such as sleep deprivation, stress, hunger and seasonal changes in the environment(19,20).

There are distinct differences between the two types of migraines. To demystify these differences, there is an international classification that was developed to give a standard definition and aid in clear diagnosis. This has been outlined by the international headache society, into the international classification of headache disorders, 3rd edition (ICHD-3) which is the latest edition.(10)

Migraine without aura

This is distinguished by headache with distinct pattern and related clinical symptoms. It is the most commonly identified type migraine in the paediatric population accounting for up to 85% of all migraine in young people (9).

Migraine without aura in children and adolescents occurs on both temporal sides (bilateral) or frontotemporal. In children if the headache is occipital, this could be a sign of a more serious condition and requires urgent clinical assessment. In adults and late adolescence, the location is more frequently unilateral. Migraine without aura is usually frontotemporal and often has a menstrual relationship.(10)

The character of pain is described as pulsating, pounding, or throbbing, but the most unique feature is the level of intensity. The intensity of migraine headaches does not allow the sufferer to carry out their day to day activities and comes with accompanying complaints such as an increased sensitivity to light, to sounds, and nausea and vomiting which altogether may interfere with school attendance in children.(10)(3)

The migraine can last for minutes, several hours and in some cases up to 3 days but these episodes do not occur more than 8 times in a month. In some instances the headache may have a cyclic pattern related to a recurring event.(10)

Migraine with aura

Migraine with aura is described by short-lived central neurological symptoms that usually start before or occur at the same time with the headache. Sometimes some patients may have a forewarning phase and a wind down (resolution) phase. The forewarning phase may occur hours or several days prior to the headache. The forewarning symptoms in this phase can include, increased activity, somnolence, fatigue, depression, cravings for specific foods or flavours, certain smells, repetitive yawning, neck stiffness or pain.

Visual and sensory aura occur more frequently in both the paediatric and adult population. Visual aura can occur in as many as 90% of children and adults with migraine.(10) In children and adolescents, atypical visual signs occur that represent aura.(10)(19) Migraine with aura is uncommon in younger children, especially those below 8 years of age, but this could be attributable to the inability of younger children to properly describe the aura symptoms.(19)

Sensory aura also occurs frequently albeit less than visual aura. It occurs in the form of pins and needles moving slowly from one part of the body and spreads to affect the entire side and face. Numbness may occur concurrently, but it may also be the sole sign.(10)

Table 2. Migraine criteria

Adapted from the International Classification of headache disorders 3rd edition.(10)

<p>Migraine without aura</p> <p>A. At least five attacks¹ fulfilling criteria B–D</p> <p>B. Headache attacks lasting 4-72 hours (untreated or unsuccessfully treated)^{2,3}</p> <p>C. Headache has at least two of the following four characteristics:</p> <ol style="list-style-type: none">1. unilateral location2. pulsating quality3. moderate or severe pain intensity4. aggravation by or causing avoidance of routine physical activity (e.g. walking or climbing stairs) <p>D. During headache at least one of the following:</p> <ol style="list-style-type: none">1. nausea and/or vomiting2. photophobia and phonophobia <p>E. Not better accounted for by another ICHD-3 diagnosis.</p>
<p>Migraine with aura</p> <p>A. At least two attacks fulfilling criteria B and C</p> <p>B. One or more of the following fully reversible aura symptoms:</p> <ol style="list-style-type: none">1. visual2. sensory3. speech and/or language4. motor5. brainstem6. retinal <p>C. At least two of the following four characteristics:</p> <ol style="list-style-type: none">1. at least one aura symptom spreads gradually over ≥ 5 minutes, and/or two or more symptoms occur in succession2. each individual aura symptom lasts 5-60 minutes¹3. at least one aura symptom is unilateral²4. the aura is accompanied, or followed within 60 minutes, by headache <p>D. Not better accounted for by another ICHD-3 diagnosis, and transient ischaemic attack has been excluded.</p>

Adapted from the International classification of headache disorders 3rd edition(10)

Abdominal Migraine

This is a disorder uniquely described in children as repetitive episodes of mild to intense abdominal pain in the central part of the abdomen associated with, nausea and vomiting taking 2 hours to 3 days punctuated by symptom free periods between attacks. This has no clear cause and can also occur cyclically and share similar triggers to the migraine headaches. Uniquely, headache has not been reported to occur during these abdominal episodes.(9,10) A full physical evaluation and investigations to rule out gastrointestinal and renal causes are paramount before making the diagnosis.(10)(3)

Tension type headache

This type of headaches occur frequently in young people and can overlap with migraine headaches in some cases.(19) They occur bilaterally and have a pressuring or constricting quality and are mild to moderate in intensity and can take as long as a few minutes to several days.

Tension type headaches can evolve to chronic daily headaches and pain can become unrelenting.(9,10)

The most distinguishing feature of tension type headache is intensified tenderness on the head elicited by manual palpation. The tenderness increases during the headache episode and the intensity increases with the occurrence of the headache.(10) Tension type headaches also have no aura and do not follow the same pattern n premonitory phase (forewarning) and resolution phase seen in migraine headaches.(19,20)

CLINICAL CHARACTERISTICS OF PRIMARY HEADACHES

The clinical characteristics describe the location, site, and quality of pain of primary headaches. This also look at any additional characteristics such as associated symptoms that include nausea, vomiting, inability to do normal physical duties. This is outlined in Table 2.

Table3. Summary of Primary headaches

CLASSIFICATION	MIGRAINE	TENSION	CLUSTER
LOCATION	Unilateral or bilateral (frontal or temporal)	Bilateral frontal	Unilateral orbital
QUALITY	Throbbing, pulsating	Band-like pressure, tightening, non-pulsating	
SEVERITY	Moderate to severe	Mild to moderate	severe
DURATION	4-72 hours	30 minutes to 7 days	Weeks to months (episodic)
ASSOCIATED SYMPTOMS	Aura Photophobia and phonophobia Nausea and/or vomiting Worsened by physical activity- prefer dark, quiet room	Not aggravated by routine physical activity No nausea or vomiting No more than one of photophobia or phonophobia	Restless agitation Ipsilateral conjunctival injection Lacrimation Nasal congestion Rhinorrhoea, eyelid oedema, miosis, ptosis
SUBTYPES	Abdominal migraine, ocular		

Adapted from the ICHD-3(10)

LITERATURE REVIEW

Prevalence of primary headaches in children and adolescents(14)

A cross-sectional descriptive study was carried out in Benin Nigeria by Ofovwe et al. The study enrolled 1679 secondary school pupils whose ages ranged from 11 years to 18 years. The objective of this research was to establish the prevalence in age and gender of primary headaches, the most common trigger and impact of on quality of life of secondary school pupils in Benin. This study revealed a prevalence of headache of 19.5%. The prevalence of migraine was 13.5% and occurred frequently in schoolgirls than schoolboys across the entire age group. The incapability to take part in outside activities, home related chores, and school non-attendance were found to be the frequent effects on quality of life in 76.8% of those with migraine.(14)

Another study to find out the prevalence of primary headache was carried out in Agri, Turkey by Alp et al. A cross-sectional school-based study was done in 2006. The participants were 1385 children aged 11-18 years. This study revealed that the prevalence of migraine was 14.3%, for tension type headache prevalence was 8.6%. Overall **prevalence of primary headache was 34.1%.**(21)

In South Korea, Rho Yi et al did a cross sectional school-based study on 5360 boys and girls. This was a nation-wide survey to find out the prevalence of primary headaches and their clinical features among school children aged 6 to 18 years in South Korea. They found that overall prevalence of headache was 29.1%. They also found that tension type headache occurred more frequently than migraine. Migraine prevalence was shown to increase with age. The prevalence of headache in school children in city and suburban areas was found to be much greater than the prevalence of school children in rural areas.(22)

In Kuwait, Al-Hashel et al conducted a cross sectional community-based study on prevalence and impact of primary headaches in young people whose ages ranged from 6 years to 17 years. They utilized the Headache Attributed restriction, disability, social handicap, and impaired participation questionnaire (HARDSHIP) for children and adolescents and carried out house to house interviews. The data was gathered from 3,423 children and 664 were diagnosed with primary headache. The prevalence of primary headache in Kuwaiti children was found to be 19.4%. Headache was more prevalent in girls than boys. Students lost 1 day of school due to headache and parents lost 1 day of work due to their children's headache.(15)

Clinical characteristics of Primary headaches in children

Cuvellier et al did a cross sectional epidemiological survey of primary headache in children. The study was conducted in 22 hospital neuropaediatric departments and included 486 children aged 2-16 years. This study found that 398 children fit the ICHD-II criteria with a single type of headache. Of these children, 78.1% had bilateral headache, with 62.4% of them localizing the headaches in the frontal area and the pain quality was described as pulsatile/hammering in 56.1% of them. Other clinical features described in this study included the aura symptoms, other associated symptoms such as nausea, vomiting, photophobia, headache duration, headache frequency, aggravation by activity and relief by sleep and impact the headache has on activities. This study also revealed that 73.4% had familial history of migraine mostly in the mother or grandmother. This study also looked at impact of primary headache on school and found that 86.9% of the children were in the expected age for their class and 48.2% had missed school due to their headache with an average of 6 days absent from school in the previous year. (23)

Primary headaches and Impact on quality of life

Rocha-Filho et al did a study to assess the impact of headaches on the lives of school children and the relationship between headaches and school performance. The study enrolled 195 students aged 10-15 years and assessed them using semi-structured interview and the pediatric quality of life inventory version 4.0 (PedQOL4). The study revealed a total prevalence of headache at 97.3%, prevalence for migraines was found at 51% and prevalence of tension type headache at 33%. Migraine and more intense headaches were linked to poorer quality of life and poorer grades in school.(24)

Powers et al conducted a survey study on 572 children who presented to a children's headache centre. Using the pediatric quality of life inventory version 4.0 on the children and parents found that the quality of life of children who suffered headaches is greatly influenced by this disorder. The impact of headaches on QOL is comparable to that found in other chronic illnesses, with negative effects in academic and emotional performance being the greatest significant impact.(25)

Table 4. Literature review Summary

STUDY AUTHOR, YEAR, TITLE	COUNTRY, SAMPLE POPULATION	RESULTS
Prevalence and impact of headache and migraine among secondary school students in Nigeria. 2010 Ofovwe et al.(14)	1679 students 11-18 years	Prevalence of headache 19.5% Prevalence of migraine- 13.5%
Use of international classification of headache disorders, 2 nd edition, criteria in the diagnosis of primary headache in school children: epidemiology study from eastern Turkey. 2009. Alp et al(21)	1385 students 11-18 years	Prevalence of headache- 34.1% Prevalence of migraine- 14.3%
Prevalence and clinical characteristics of primary headaches among school children in South Korea: A nationwide survey. 2012 Rho Yi et al.(22)	5360 children 6-18 years	Prevalence of headache 29.1%
Clinical characteristics of headache in Italian adolescents aged 11-16 years: a cross sectional questionnaire school-based study. Fioadelli et al. 2018(26)	2064 children 11-16 years	Prevalence of headache 65.9%
Headaches, quality of life and academic performance in school children and	195 children 10-15 years	Prevalence of headache 97.3%

adolescents. Brazil. Rocha-Filho et al 2012(24)		
Quality of life in childhood migraines: clinical impact and comparison to other chronic illnesses. Powers et al. 2003(25)	572 children 2-18 years	QOL score 73.1 compared to 70.5 in healthy norms
The global burden of headache: a documentation of headache prevalence and disability worldwide. Stovner et al 2007(6)	Systematic review 107 publications	Increasing burden of headache in adults and children worldwide
Prevalence and burden of primary headache disorders in Kuwaiti children and adolescents: A community-based study. 2019 Al-Hashel et al(15)	3,423 children aged 6-17 years	Prevalence of primary headaches 19.4%

STUDY JUSTIFICATION AND UTILITY

Primary headaches are a common trigger of pain and disability in children whose prevalence and impact remains unknown. The pain of headaches significantly affects children's quality of life especially in school attendance and overall performance as well as their emotional wellbeing. Headaches not only affect the sufferer but also are a great concern for parents and caregivers.

Assessing the magnitude and impact of headache will help create awareness of headaches in schools and may inform school health programs to address quality of life and the new knowledge can influence health seeking behaviour with regards to headache.

This study aims to establish the prevalence of headache in school going children in our setting and assess the impact this has on their quality of life; the findings will be useful to engage

school health programs and create awareness among healthcare workers to look out for primary headaches in the paediatric population.

DATA COLLECTION INSTRUMENTS

We utilized the HARDSHIP inquiry form developed by the World health organization (WHO) as part of the global campaign in lifting the burden of headache. The questionnaire had a total of 44 questions. The questionnaire was in English and Kiswahili. We also had an additional medical history questionnaire that was filled by parents and this was also in English and Kiswahili. We pretested the questionnaire and clarified any queries or misunderstanding in the language used.

The questionnaire is attached as Appendix.

RESEARCH QUESTION

What is the prevalence, clinical characteristics, and impact of primary headache in children attending upper primary school in Nairobi?

STUDY OBJECTIVES

Primary Objective

To determine the prevalence of primary headaches in children attending upper primary classes in schools in Nairobi county.

Secondary Objectives

1. To describe the clinical characteristics of primary headaches in children
2. To assess effect of headaches on overall quality of life in children.

METHODOLOGY

Study design: Cross sectional school-based study

Study population: Students attending primary school in upper primary level classes. In two public schools and two private schools.

Study period: One month in first term in 2021 (February-March 2021) This time was selected after students have resumed school for one month as school attendance is an important variable in assessing impact on quality of life.

Inclusion criteria: (1) Children attending upper primary level classes in the selected schools. (2) Children whose parents opted in and children who gave assent.

Exclusion criteria: (1) Children whose parents opted out of the study; (2) Children who declined to give assent. (3) Children with a known chronic illness

This study excluded 6 children with chronic illness.

SAMPLE SIZE CALCULATION

Estimate of expected proportion (p); Desired level of absolute precision (d); Confidence limit (95% and z-score 1.96)

P=19.4% the prevalence of primary headache from Al-Hashel et al.(15) The study population in this study has similar characteristics and the same tool was used.

$$N=1.96^2p[1-p]/d^2$$

$$1.96^2 \times 0.19 \times 0.4 / 0.05^2$$

$$N=117$$

10% to factor non-response due to absenteeism, refusal to give assent/parental consent or unfilled questionnaire, and a design effect of 20% to cater for school clusters (intra-class correlation)

$$N=152$$

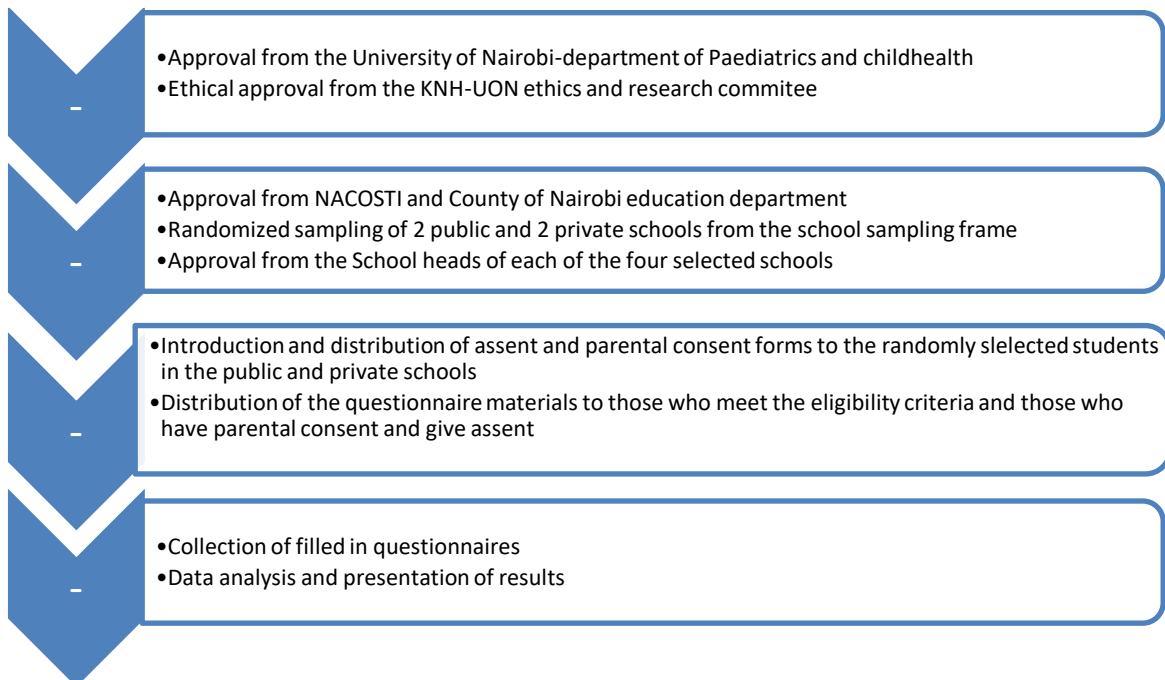
i.e., 38 students in each school (13 students per class.)

PARTICIPANT SELECTION

Simple random sampling of 2 private schools from a sampling frame of all private schools in Nairobi and similarly simple random sampling of 2 public schools was undertaken from a sampling frame of all public schools in Nairobi.

Schools were coded and uploaded on to STATA to randomly select the schools. Simple random sampling of eligible students in each of the four classes was undertaken in each selected school. Should there be multiple streams in a class, sampling will be stratified at the stream level. This robust sampling strategy aims to mitigate selection bias.

Figure1. Study Procedure



Approval to conduct this study was obtained from the Department of Paediatrics and child health, University of Nairobi and the KNH-UON Ethics and Research committee. After obtaining this approval, the next step was getting approval from NACOSTI and the County of Nairobi Education Department and from all the participating schools. The questionnaire was pretested to ensure that the students understand the questions and any challenges with filling it out were addressed.

Data collection was done over one month. We explained to the class teachers and the students the purpose of the study. Once the students understood what the study is about, they took home the parental consent form (Appendix1) and the questionnaire.

The principal investigator and the research assistants obtained assent from each student with the duly signed parental opt in form. (Appendix2)

The filled in forms were then collected by the research assistants. Thereafter the responses were coded and analyzed by the principal investigator with assistance from the statistician.

ETHICAL CONSIDERATIONS

1. **Permission:** Permission to carry out this study was requested from Nairobi County Department of Primary Education. A letter of protocol approval was acquired before beginning the study, as well as authorization for other study documents after evaluation by the KNH-UON Ethics, Research and Standards Committee. Approval from the individual selected schools was also obtained.
2. **Risks:** There were no physical risk as the study utilizes a questionnaire.
3. **Benefits:** The study participants were categorised according to the various primary headache types, those that cause severe disability, these findings will be communicated to the relevant school health authorities.
4. **Confidentiality:** Subject confidentiality has been strictly maintained by the principal investigator. The study protocol, documents, data generated were kept confidential. No material concerning the study, or the data was released to any unauthorized third party. Data will not be issued without written consent of the participant, except as required for supervision by the KNH-UON Ethics Research and Standards Committee.
5. **Informed consent (opt in/opt out):** Informed consent was obtained from parents/guardians through an opt in or opt out take home forms with written information on the study objectives, purpose, and procedure to be followed. There was no coercion and those who opted out were excluded from the study. (Appendix 1)
6. **Assenting document:** Assenting document were provided for all children.

DATA MANAGEMENT AND ANALYSIS

Data collection was confidential using a structured questionnaire. The responses from the questionnaire were used only for this study and uploaded onto excel and then transferred to STATA 5.0 for statistical analysis.

Logistic regression analysis was carried out with the dependent variable (presence of headache yesterday) being dichotomous. It is either the child had a headache or not. This was done to explain the relationship between the dependent binary outcome and independent variables age, sex and whether the child attended private or public school.

Continuous variables were summarized using means and standard deviations. Categorical variables e.g., sex, private school, public school, were summarized using proportion as percentages.

Factors associated with primary headache included include, parental history of migraine, tension type headache or cluster headaches, class level as informed by the prevalence and impact of headache study done in Nigeria by Ofovwe.

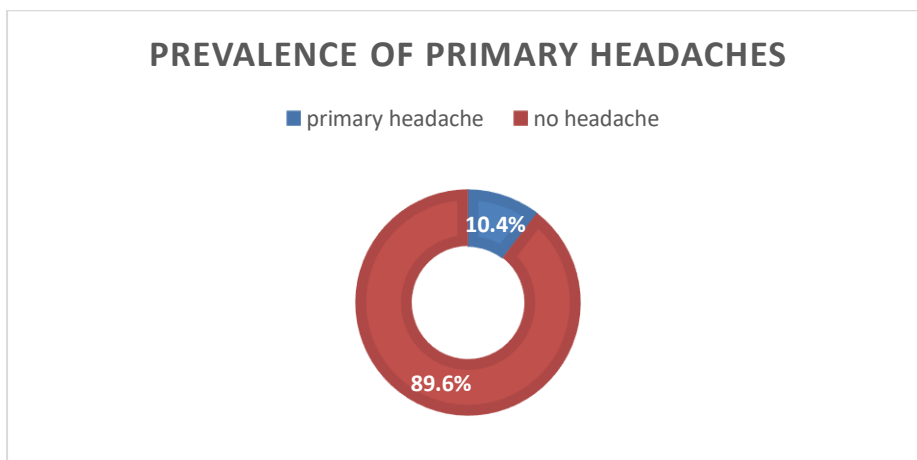
Characteristics of headache were tabulated and described as frequency.

RESULTS

Prevalence of primary headaches

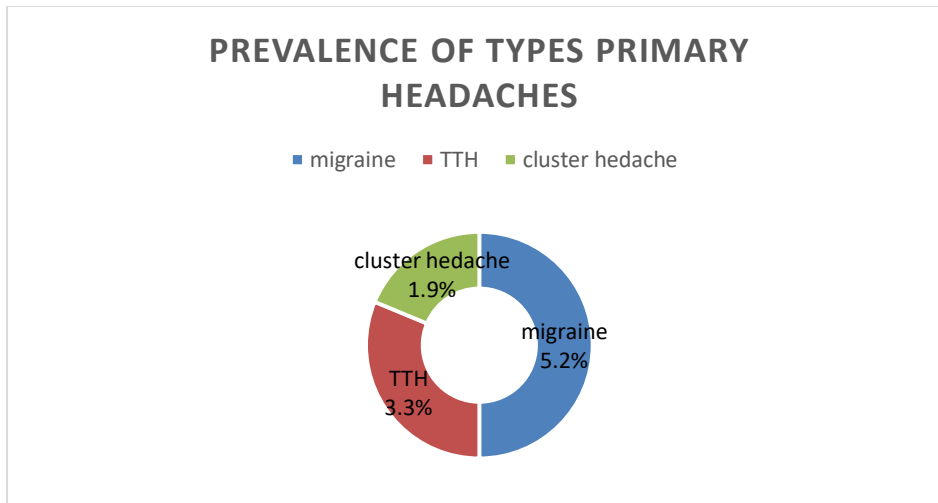
A total of 153 children were recruited into the study. Out of the 153 children 16 had headache that fit into the criteria for primary headache and had headache yesterday. The prevalence of primary headaches was at 10.4% (95% CI 0.0561-0.1531). This is represented in the figure below.

Figure 2. Prevalence of Primary headache



The prevalence of the three main types of headaches according to the ICHD-3 criteria, the prevalence of migraine headache (5.2%), eight of the 153 children included in this study suffered from migraine headache, prevalence of tension type headaches (3.3%), five of the 153 children in this study suffered from tension type headache and prevalence of cluster headaches (1.9%), three of the 153 children had cluster headaches.

Figure 3. Prevalence of the types of primary headache



Clinical characteristics of primary headaches

This study described the clinical characteristics in four main areas, these are, location, quality, duration of headache and associated symptoms. The children who had ever had headache were 73 out of the 153 children.

Migraines in children are mostly unilateral which was what was described in this study. 25 out of the 73 children with headache had unilateral headache.

The quality of the headache was mainly throbbing in nature which is also the quality in keeping with migraine headaches, there is a proportion of children whose quality of pain did not fit the choices in the questionnaire, and these were filled out as 'cannot describe'.

The duration of headache was at most two hours in 60 out of the 73 children with headache. Only seven out of the 73 children had headaches that would last more than four hours.

The associated symptoms described in this study are aggravation by physical activity, associated nausea or photophobia and phonophobia.

The most frequent associated symptoms were phonophobia (prefer to be quiet), followed by worsening by physical activity and nausea and the least frequent symptom was photophobia (prefer to be in the dark). These are described in the table below.

Table 5. Clinical characteristics of headache (results)

CLINICAL CHARACTERISTIC	Frequency N =73
LOCATION - UNILATERAL - BILATERAL - FRONTAL	25(34.25) 24(32.88) 24(32.88)
QUALITY -THROBBING -PRESSING -CANNOT DESCRIBE	29(39.73) 18(24.66) 26(35.62)
DURATION -LESS THAN 1 HOUR -1-2 HOURS -2-4 HOURS ->4 HOURS	43(58.90) 17(23.29) 6(8.22) 7(9.59)
ASSOCIATED SYMPTOMS -WORSENER BY PHYSICAL ACTIVITY -NAUSEA -PREFER DARK -PREFER QUIET	47(64.38) 39(53.42) 30(40.1) 67(91.78)

IMPACT OF PRIMARY HEADACHES

This study assessed the impact of headache by determining the number of days the children had headache and the number of days they had to take medication because of their headache and the days they missed school and had to leave early.

This study found that children have headache up to three days in a month of headache and 77% of them had to take medication because of the headache and during these three days, 90% of these children miss school or leave school early and 79% of parents also miss work for three

days to look after the children during the headache episodes. These findings have been summarized in the diagrams below.

Table 6. Days with headache in the last month and took pills

Number of days they had an headache in the last month N=73	
0 to 3 days	53(72.60)
4 to 7 days	11(15.07)
8 to 10 days	4(5.48)
Above 10 days	5(6.85)
Number of days they took medicine pill in the last month	
0 to 3 days	56(77.78)
4 to 7 days	10(13.89)
8 to 10 days	2(2.78)
Above 10 days	4(5.56)

Figure 4. Impact of headache on school attendance (days missed school days left early)

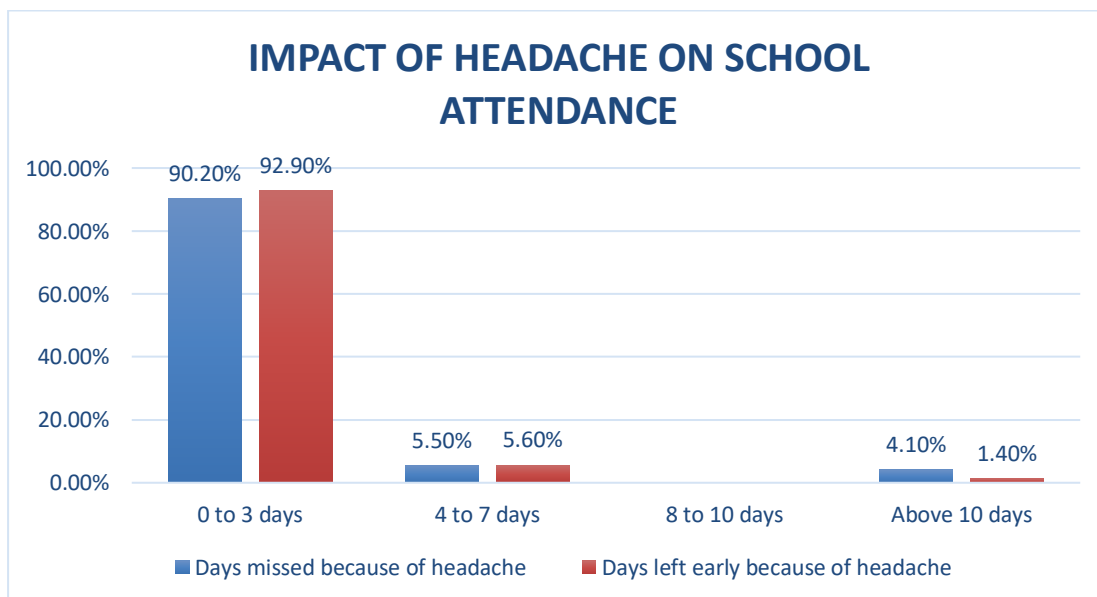
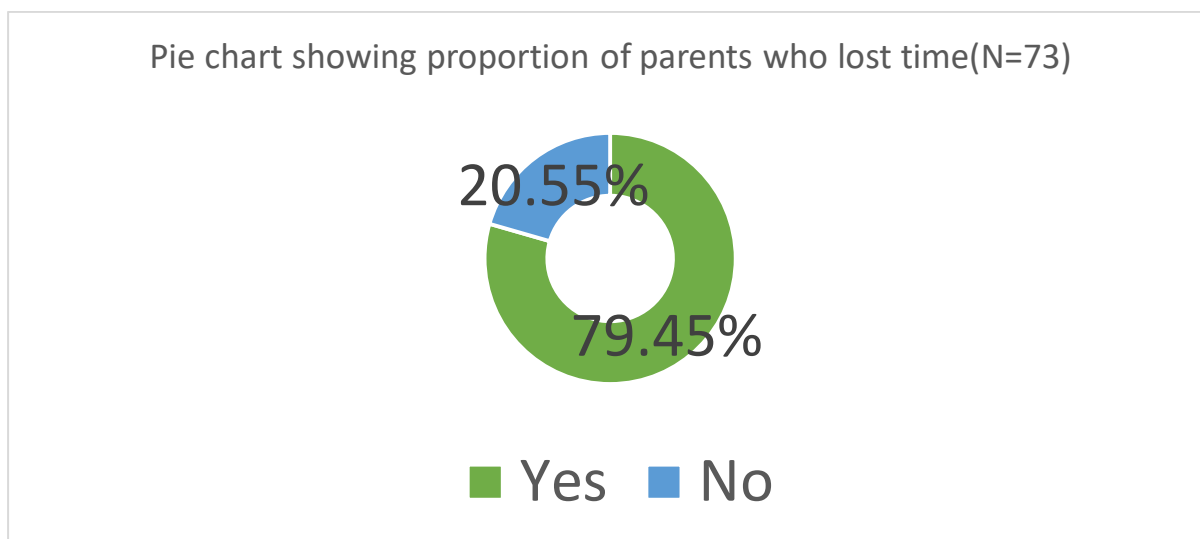


Figure 5. Impact on parents



IMPACT ON QUALITY OF LIFE

This study also looked at quality of life of children with headache and compared with the quality of life of children without headache. The questions asked were on a Likert scale and a score in percentage was given for each response to give a quality of life score.

The questions asked to the children with headache related to how they feel about their headaches and limitations due to headaches. The children in this study found it harder to cope well and concentrate due to their headaches and their parents also limited their activities due to their headaches. Majority, however, did not feel sad about their headaches and did not isolate themselves due to headache.

The questions asked to the children without headache were general about their feeling towards themselves and overall life. The children without headache did not have difficulty completing their schoolwork, they were generally pleased with their lives and themselves. Very few harboured feelings of fear or feeling ill or tired.

The responses on the Likert scale were assigned percentages and this was used to calculate the overall quality of life score. The quality-of-life score in children without headache was 59.1% compared to the quality-of-life score in children with headache who scored 44.1%

Figure 6. Impact on Quality of life in children with headache

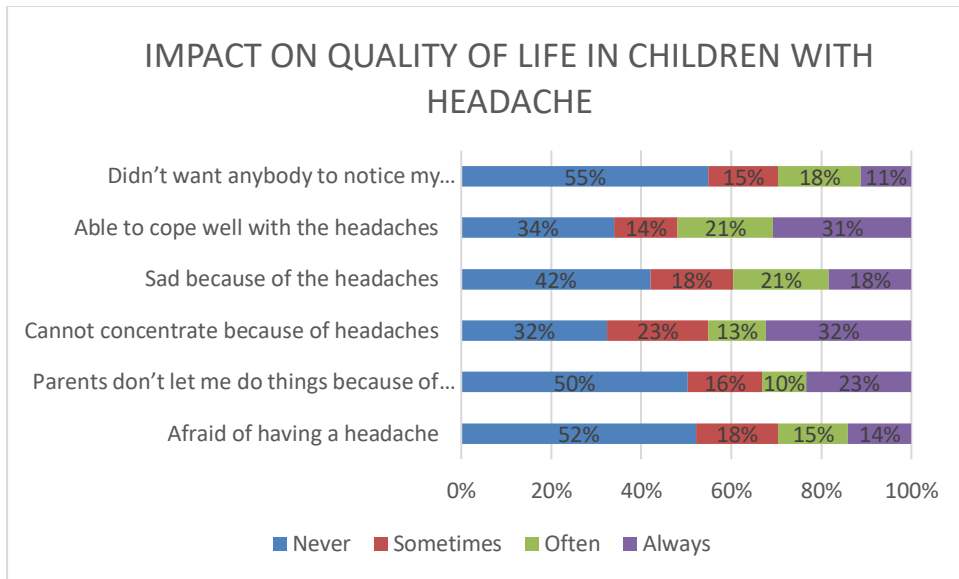
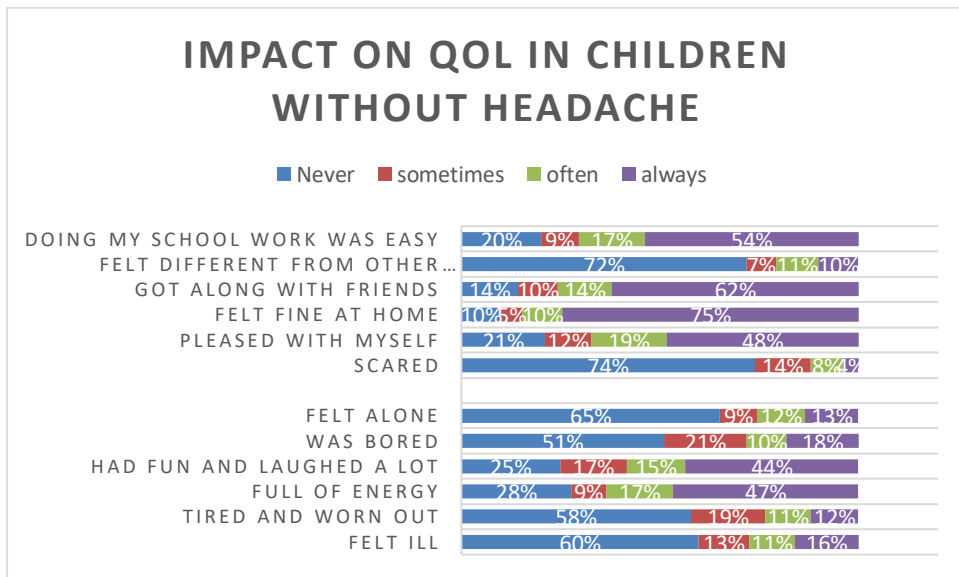


Figure 7. Impact on Quality of life in children without headache



DISCUSSION

The prevalence of primary headaches in children attending upper primary school in Nairobi county was high with migraine being the most common. The children in this study lost three days of school because of headache and parents lost three days of work. The researcher did not find comparable studies in Sub-Saharan Africa in similar age group.

There was a similar a study done in Kuwait, by Yousef Al-Hashel et al, in 2019, the prevalence of primary headache in this study was 19.4%. This study utilized the HARSHIP questionnaire as well. Migraine prevalence was 10.9%, tension type headache 6.2% and chronic headache 0.9%. Students in this study lost 1.29 days of school and parents lost one day of work because of their children's headache. (15) The findings in this study were like our findings with high prevalence of headache notably higher prevalence of migraine headache. However, in Kuwait, the children lost 1 day of school compared to our study where children lost 3 days of school. This could reflect the differences in health seeking behaviour and management of headaches.

A study done in Shanghai, China, by Zheng Jin et al (2013), the prevalence of primary headache in children in China was 9.68%. The prevalence of migraine 44.85% and tension-type headache 29.18% and cluster headache 6.22%. This study however did not analyse school attendance and impact of headache.(27) The overall prevalence of primary headache was lower than in our study with a much higher prevalence of migraine, this differences could be attributed to the different criteria used to assess primary headache in each study. However, we can infer that overall prevalence of primary headache is still high in our study as it is in Shanghai.

A nationwide survey in school children in South Korea, by Rho Y-I et al (2011) found the prevalence of headache at 29.1%. The prevalence of tension type headache 13.7% and prevalence of migraine was 8.7%. This survey did not analyse impact of headaches on quality of life.(22) In the survey in South Korea, the prevalence of headache was twice as high and predominantly tension type headache which was quite different from the results of our study. This could be due to the methodology and tool used.

A study done in Benin, Nigeria, in secondary school students aged 11-18 years, by Ofovwe et al (2010) found prevalence of headache at 19.5% with migraine prevalence at 13.5% and the most common headache in the students. The impact of headache in these students included inability to perform household chores and school absenteeism being the most common. These findings were similar to our study population.

Prevalence of primary headaches in children varies in different populations based on the different criteria used and different methodology applied, however in the comparative studies and this study, prevalence of primary headache remains high with migraine being the most common. This is different from previous literature which cited tension type headache as the most common in children.

Headaches impact children's life by affecting school attendance and performance of day-to-day activities. However, the number of days missed in school vary, in our study, children missed three days of school a month due to headache. In Kuwait children missed one day of school. This has a negative impact in the child's academic performance and confidence and can limit the opportunities available to them in school. We can approximate that the children would lose as many as 9 days in a school term. The parents to these children would lose 3 days of work to stay home and take care of the child with headache. This can significantly impact the income generated for the family and have adverse effects on other aspects of the child's health and wellbeing. The economic power of the parent also influences health seeking behaviour. By extension this also affects the other children in the home.

This study found the headaches are majorly unilateral and throbbing in nature associated with phonophobia and worsened by physical activity. These characteristics are found in migraine which is the larger proportion of primary headache subtype in this study.

The quality-of-life score was lower in children with primary headache than in children without headache. This further attests to the impact of primary headache on overall well-being in children.

A study done by Powers et al, examined the quality of life in children with migraine headaches and concluded that the impact of headaches is similar to that found in other chronic illnesses with effect on school and emotional wellbeing(25).

STUDY LIMITATIONS AND STRENGTHS

LIMITATIONS

Children's description of headache may not fit into the headache criteria described. The questionnaire included an undefined headache category to factor this.

The participants may have recall bias as the information required relies on memory of the prior 4 weeks. However, the questionnaire also asked about, 'headache yesterday' with the aim to mitigate this.

This study was carried out during a global pandemic and this may also have affected the overall quality of life of the children and impacted some of their responses.

STRENGTHS

The population for this study includes both students in private and public schools in Nairobi county which is a cosmopolitan city with children from different backgrounds and socioeconomic status. This allows for generalizability to both private and public sectors. The strength of this study lies in that we used the HARSHIP questionnaire, which is a validated tool and furthermore, is being used in a worldwide study on the burden of headache, this makes the findings in our setting comparable to other countries with the same tool.

This study brings new information on primary headaches in the paediatric population in this region. Some of the teachers were surprised to know that even primary school children suffer from migraines and this affected their school attendance, this study inadvertently educated the teachers.

CONCLUSION

The prevalence of primary headaches in children attending upper primary school in Nairobi county is high. Migraine is the most common primary headache subtype. The burden of headache is on the children and the parents. These headaches affect schoolwork, social activities, parents' work and overall quality of life in children.

Awareness of these headaches among the schoolteachers, health care practitioners and families can significantly improve the quality of life and reduce the burden by early recognition and prompt referral for proper management.

RECOMMENDATIONS

The findings of this study reveal a high prevalence of primary headache in school children and affects school attendance, a school health assessment to guide on recognition and referral of affected children can aid in early management.

A nationwide school survey would be useful in assessing the national impact. This can lead to development of county headache centres to address the impact of headache.

REFERENCES

1. Steiner TJ, Birbeck GL, Jensen RH, Katsarava Z, Stovner LJ, Martelletti P. Headache disorders are third cause of disability worldwide. *J Headache Pain* [Internet]. 2015;16(1):15–7. Available from: <http://dx.doi.org/10.1186/s10194-015-0544-2>
2. Abu Bakar N, Tanprawate S, Lambru G, Torkamani M, Jahanshahi M, Matharu MS. Quality of life in primary headache disorders: A review. *Cephalalgia*. 2016;36(1):67–91.
3. How CH, Chan WSD. Headaches in children. *Singapore Med J*. 2014;55(3):128–31.
4. Blume HK. Pediatric Headache: A Review. *Pediatr Rev*. 2012;33(12):562–76.
5. Abu-Arafeh I, Razak S, Sivaraman B, Graham C, Woldeamanuel YW, Andreou AP, et al. Lifting the burden: The Global Campaign to Reduce the Burden of Headache Worldwide Lifting. *J Headache Pain* [Internet]. 2014;50(3):1–15. Available from: <http://dx.doi.org/10.1016/j.jns.2014.04.019>
6. Stovner LJ, Hagen K, Jensen R, Katsarava Z, Lipton RB, Scher AI, et al. The global burden of headache: A documentation of headache prevalence and disability worldwide. *Cephalalgia*. 2007;27(3):193–210.
7. Abu-Arafeh I, Razak S, Sivaraman B, Graham C. Prevalence of headache and migraine in children and adolescents: A systematic review of population-based studies. *Dev Med Child Neurol*. 2010;52(12):1088–97.
8. Care U. Headaches / migraines Facts about headaches in children Different types of headaches : 2019;1–5. Available from: <https://www.chw.org/medical-care/pain-management-program/conditions/headache>
9. Bale JF, Bodensteiner JB. Pediatric neurology, Part II. *Neurol Clin*. 2003;21(4).
10. The International Classification of Headache Disorders, 3rd edition (beta version). *Cephalalgia*. 2013;33(9):629–808.
11. Managing Headaches and School [Internet]. MHNI Migraine Headache and Head Pain Treatment (<https://www.mhni.com>). Available from: <https://mhni.com/headache-pain-faq/pediatric-headaches/managing-headaches-school#:~:text=In the 1989 National>

Health, days per year per child.

12. Abu-Arafah I, Özge A. Headache in children and adolescents. *Headache Child Adolesc A Case-Based Approach*. 2016;1–220.
13. CDC. HRQOL [Internet]. 2018. Available from: <https://www.cdc.gov/hrqol/concept.htm>
14. Ofovwé GE, Ofili AN. Prevalence and impact of headache and migraine among secondary school students in Nigeria. *Headache*. 2010;50(10):1570–5.
15. Al-Hashel JY, Ahmed SF, Alroughani R. Prevalence and Burden of Primary Headache Disorders in Kuwaiti Children and Adolescents: A Community Based Study. *Front Neurol*. 2019;10(July):1–7.
16. Vincent M, Wang S. Headache Classification Committee of the International Headache Society (IHS) The International Classification of Headache Disorders, 3rd edition. *Cephalalgia*. 2018;38(1):1–211.
17. Olesen J. The international classification of headache disorders. *Headache [Internet]*. 2008;48(5):691–3. Available from: [http://dx.doi.org/10.1016/S1474-4422\(18\)30085-1](http://dx.doi.org/10.1016/S1474-4422(18)30085-1)
18. Shiel W(. Medical definition of migraine aura [Internet]. 2018. Available from: <https://www.medicinenet.com/script/main/art.asp?articlekey=11671>
19. Raucci U, Della Vecchia N, Ossella C, Paolino MC, Villa MP, Reale A, et al. Management of Childhood Headache in the Emergency Department. Review of the Literature. *Front Neurol*. 2019;10(August).
20. Genizi J, Srugo I. Primary Headache in Children and Adolescents: From Pathophysiology to Diagnosis and Treatment. *J Headache Pain Manag*. 2016;1(2).
21. Alp R, Alp SI, Palanci Y, Sur H, Boru UT, Ozge A, et al. Use of the international classification of headache disorders, Second Edition, criteria in the diagnosis of primary headache in schoolchildren: Epidemiology study from eastern Turkey. *Cephalalgia*. 2010;30(7):868–77.
22. Rho Y Il, Chung HJ, Lee KH, Eun BL, Eun SH, Nam SO, et al. Prevalence and clinical characteristics of primary headaches among school children in South Korea: A

- nationwide survey. *Headache*. 2012;52(4):592–9.
23. Cuvellier JC, Donnet A, Guégan-Massardier É, Nachit-Ouinekh F, Parain D, Vallée L. Clinical features of primary headache in children: A multicentre hospital-based study in France. *Cephalalgia*. 2008;28(11):1145–53.
 24. Rocha-Filho PAS, Santos P V. Headaches, quality of life, and academic performance in schoolchildren and adolescents. *Headache*. 2014;54(7):1194–202.
 25. Powers SW, Patton SR, Hommel KA, Hershey AD. Quality of Life in Childhood Migraines: Clinical Impact and Comparison to Other Chronic Illnesses. *Pediatrics*. 2004;112(1):e1–5.
 26. De Amici M, Marseglia GL, Verrotti A, Piccorossi A, Tucci M, Sacchi L, et al. Clinical characteristics of headache in Italian adolescents aged 11–16 years: a cross-sectional questionnaire school-based study. *Ital J Pediatr*. 2018;44(1):1–11.
 27. Jin Z, Shi L, Wang YJ, Yang LG, Shi YH, Shen LW RC. Prevalence of headache among children and adolescents in Shanghai, China. *J Clin Neurosci* 2013 Jan;20(1):117-21. 2013;

APPENDIX 1

APPENDIX 1: CONSENT FORM FOR PARTICIPATION IN THE STUDY

STUDY TITLE: PREVALENCE, CLINICAL CHARACTERISTICS, AND IMPACT OF PRIMARY HEADACHES ON CHILDREN ATTENDING UPPER PRIMARY SCHOOL IN NAIROBI COUNTY

Respondent's Study Identification Number: _____

Date: _____

Investigator: Dr. Tatiana Mutinda
Paediatric Resident, University of Nairobi
Tel no: 0708-292270
Email: tatianamutinda@gmail.com

Supervisors:

Prof. Christine Yuko Jowi
Paediatrician and Cardiologist
Associate Professor Department of Paediatrics and Child Health,
University of Nairobi
Tel no: 0722 293 454
Email: yukojowi@gmail.com

Dr. Diana Marangu
Paediatrician and Pulmonologist
Lecturer, Department of Paediatrics
University of Nairobi
Email: dmarangu@uonbi.ac.ke
Tel no: 0721 282815

Investigator's statement

I am a postgraduate student at the University of Nairobi pursuing a Master of Medicine degree in Paediatrics and Child Health. As part of fulfilment for the above degree, I wish to conduct a study on the prevalence and impact of primary headaches on children upper primary level classes in Nairobi.

Study background

Headaches are a common presentation to any outpatient department or emergency department. In children, headaches are also common and occur in 30-50% of children. As many as 6% of children report daily headaches. Headaches in children are commonly due to viral illnesses, sinusitis, and other aetiologies. The headaches can cause serious disability and impact daily life and school activities.

Broad objective

The aims of this study are to determine the prevalence of primary headaches in children in upper primary classes in Nairobi.

Voluntariness of participation

Participation is entirely voluntary. There will be no financial rewards to you for participating in the study. One is free to participate or withdraw from the study at any point. Refusal to participate will not compromise your child's school assessments in any way.

Confidentiality

Confidentiality will be maintained at all stages. All forms used will be identified only by the Subject Identification Number (SIN) to maintain subject confidentiality. Information will not be released without written permission of the subject.

Benefits

Your participation in this study will help me determine the number of children who suffer from primary headaches and the impact of this on their lives. The results of this study will help create awareness of the burden of headache in children who are otherwise well. The study will help caregivers of children recognize the signs of primary headaches and understand the impact this has on their children's quality of life.

Risks.

There will be no physical examination and the children only require filling out a questionnaire.

Right of withdrawal

One has a right to withdraw from the study at any point. There will be no penalties.

Problems or Questions:

If you ever have any questions about the study or about the use of the results you can contact the principal investigator, Dr. Tatiana Mutinda by calling 0708-292270

If you have any questions regarding your rights as a research participant, you can contact the Kenyatta National Hospital Ethics and Research Committee (KNH- ESRC) by calling 2726300 Ext. 44355.

Consent Form: Participant’s Statement:

I _____ having received adequate information regarding the study research, risks, benefits hereby AGREE / DISAGREE (Cross out as appropriate) to participate in the study with my child. I understand that our participation is fully voluntary and that I am free to withdraw at any time. I have been given adequate opportunity to ask questions and seek clarification on the study and these have been addressed satisfactorily.

Parents Signature: _____ Date _____

I _____ declare that I have adequately explained to the above participant, the study procedure, risks, and benefits and given him /her time to ask questions and seek clarification regarding the study. I have answered all the questions raised to the best of my ability.

Interviewer’s Signature: _____ Date: _____

APPENDIX 1 (KISWAHILI)

KIAMBATISHO 1: FOMU YA RIDHARA YA KUSHIRIKI KATIKA UTAFITI

KIWANGO CHA MAAMBUKIZI, ISHARA NA ATHARI YA MAUMIVU YA KVICHWA KWA WATOTO WANAOSOMEA KWA SHULE YA MSINGI KATIKA KAUNTI YA NAIROBI

Kauli ya mchunguzi

Mimi ni mwanafunzi wa uzamili katika Chuo Kikuu cha Nairobi nikiendelea na digrii ya Master of Medicine katika Paediatrics na Afya ya Mtoto. Kama sehemu ya kutimiza kiwango cha juu, ninapenda kufanya utafiti juu ya kuenea na athari za maumivu ya kichwa ya msingi kwa madarasa ya kiwango cha juu cha watoto huko Nairobi.

Historia ya kusoma

Maumivu ya kichwa ni uwasilishaji wa kawaida kwa idara yoyote ya wagonjwa wa nje au idara ya dharura. Kwa watoto, maumivu ya kichwa pia ni kawaida na hufanyika kwa watoto 30-50%. Asilimia 6 ya watoto huripoti maumivu ya kichwa kila siku. Maumivu ya kichwa kwa watoto kawaida husababishwa na magonjwa ya virusi, sinusitis na aetiolojia zingine. Maumivu ya kichwa yanaweza kusababisha ulemavu mkubwa na kuathiri maisha ya kila siku na shughuli za shule.

Lengo pana

Malengo ya utafiti huu ni kuamua kuenea kwa maumivu ya kichwa ya msingi kwa watoto katika darasa la msingi huko Nairobi.

Kujitolea kushiriki

Kushiriki ni kwa hiari kabisa. Hakutakuwa na tuzo za kifedha kwako kwa kushiriki katika utafiti. Mtu yuko huru kushiriki au kujiondoa kwenye utafiti wakati wowote. Kukataa kushiriki hakutaharibu tathmini ya shule ya mtoto wako kwa njia yoyote.

Usiri

Usiri utahifadhiwa katika hatua zote. Fomu zote zinazotumiwa zitatambuliwa tu na Nambari ya Kitambulisho cha Somo (SIN) kudumisha usiri wa somo. Habari haitatolewa bila ruhusa ya maandishi ya mhusika.

Faida

Ushiriki wako katika utafiti huu utanisaidia kujua idadi ya watoto ambao wanakabiliwa na maumivu ya kichwa ya msingi na athari ya hii kwa maisha yao. Matokeo ya utafiti huu yatasaidia kujenga uelewa wa mzigo wa maumivu ya kichwa kwa watoto ambao wako sawa. Utafiti huo utasaidia walezi wa watoto kutambua ishara za maumivu ya kichwa ya msingi na kuelewa athari ambayo inao kwa maisha ya watoto wao.

Hatari

Hakutakuwa na uchunguzi wa mwili na watoto wanahitaji tu kujaza dodoso.

Haki ya kujiondoa

Mtu ana haki ya kujiondoa kutoka kwa utafiti wakati wowote. Hakutakuwa na adhabu.

Shida au Maswali:

Ikiwa una maswali yoyote juu ya utafiti huu au juu ya utumiaji wa matokeo unaweza kuwasiliana na mpelelezi mkuu, Dk. Tatiana Mutinda kwa kupiga simu 0708-292270

Ikiwa una maswali yoyote kuhusu haki yako kama mshiriki wa utafiti, unaweza kuwasiliana na Kamati ya Maadili ya Hospitali ya Kitaifa ya Kenyatta na Kamati ya Utafiti (KNH- ESRC) kwa kupiga simu kwa 2726300 Ext. 44355.

Fomu ya Idhini: Taarifa ya Mshiriki:

Mimi _____kipokea habari za kutosha kuhusu utafiti wa utafiti, hatari, faida hapa NAKUBALIANA / SIKUBALI (Toka kadiri inavyofaa) kushiriki kwenye utafiti na mtoto wangu. Ninaelewa kuwa ushiriki wetu ni wa hiari kabisa na kwamba niko huru kujiondoa wakati wowote. Nimepewa nafasi ya kutosha kuuliza maswali na kutafuta ufafanuzi juu ya utafiti na haya yameshughulikiwa kwa kuridhisha.

Saini ya Wazazi: _____ Tarehe _____

Mimi _____ nakiri kuwa nimeelezea vya kutosha kwa mshiriki hapo juu, utaratibu wa utafiti, hatari, na faida na kumpa wakati wake wa kuuliza maswali na kutafuta ufafanuzi kuhusu utafiti huo. Nimejibu maswali yote yaliyoulizwa kwa uwezo wangu wote.

Saini ya Mhojiji: _____ Tarehe: _____

APPENDIX 2

ASSENTING DOCUMENT: TO BE FILLED BY CHILDREN IN UPPER PRIMARY LEVEL CLASSES (GRADE 4-GRADE6)

STUDY TITLE: PREVALENCE, CHARACTERISTICS, AND IMPACT OF PRIMARY HEADACHE ON CHILDREN ATTENDING UPPER PRIMARY IN NAIROBI

I am doing a study to understand the presence of headache and the impact this has on your school attendance and quality of life. I would like to ask you and your parent to fill in the attached questionnaire.

There is no right or wrong answer.

All answers/responses you give will be private and confidential.

You can ask questions about this study and if you wish not to continue you can ask us to stop.

If you do not want to be in the study, do not sign this paper. No one will be upset with you if you do not sign.

If you sign this paper it means you have read and understood the above information and agree to participate in this study.

Your signature _____ Date _____

Signature of person obtaining assent _____ Date _____

Printed Name of Person Obtaining assent _____

APPENDIX 2 (KISWAHILI)

HATIMA YA KUTUMIA (ASSENT): KUJAZWA NA WATOTO KATIKA MADARASA YA NNE HADI YA SITA (GRADE 4-GRADE6)

KIWANGO CHA MAAMBUKIZI, ISHARA NA ATHARI YA MAUMIVU YA KVICHWA KWA WATOTO WANAOSOMEA KWA SHULE YA MSINGI KATIKA KAUNTI YA NAIROBI

Ninafanya utafiti ili kuelewa uwepo wa maumivu ya kichwa na athari ambayo inao kwenye mahudhurio yako ya shule na maisha bora. Ningependa kukuuliza wewe na mzazi wako kujaza dodoso lililoambatanishwa.

Hakuna jibu sahihi au kosa.

Majibu yote utakayotoa yatakuwa ya faragha na ya siri.

Unaweza kuuliza maswali juu ya utafiti huu na ikiwa hutaki kuendelea unaweza kutuuliza tuache.

Ikiwa hautaki kuwa kwenye utafiti, usisaini karatasi hii. Hakuna mtu atakayekukasirikia ikiwa hautasaini.

Ikiwa utasaini karatasi hii inamaanisha kuwa umesoma na kuelewa habari iliyo hapo juu na unakubali kushiriki katika utafiti huu.

Saini yako _____ Tarehe _____

Saini ya mtu anayepata idhini _____ Tarehe _____

Jina la Mtu aliyechapishwa Kupata idhini _____

APPENDIX 3

PARENTAL MEDICAL HISTORY QUESTIONNAIRE (TO BE FILLED IN BY PARENTS)

1. Does your child have any chronic illness for which he/she is under treatment? Circle those that apply.
 - (i) Kidney disease
 - (ii) Heart disease
 - (iii) High blood pressure
 - (iv) Sickle cell disease
 - (v) Other

Specify: _____

2. Have you been diagnosed with migraine headaches?
 - (i) Yes
 - (ii) No
3. Have you been diagnosed with cluster headaches?
 - (i) Yes
 - (ii) No
4. Is there a history of migraine headache in the family?
 - (i) Yes
 - (ii) No

Specify which family member(s): _____

Appendix 3 (KISWAHILI)

MASWALI YA HISTORIA YA KITIBA YA WAZAZI (YA KUJAZWA NA WAZAZI)

1. Je! Mtoto wako ana ugonjwa wowote sugu ambao anatibiwa? Zungusha zile zinazotumika.
 - (i) Ugonjwa wa figo
 - (ii) Ugonjwa wa moyo
 - (iii) Shinikizo la damu
 - (iv) Ugonjwa wa seli za ugonjwa
 - (v) Nyingine

Bainisha: _____

2. Je! Umegunduliwa na maumivu ya kichwa ya migraine?

(i) Ndio

(ii) Hapana

3. Je! Umegunduliwa na maumivu ya kichwa ya nguzo?

(i) Ndio

(ii) Hapana

4. Je! Kuna historia ya maumivu ya kichwa ya kipandauso katika familia?

(i) Ndio

(ii) Hapana

Bainisha ni yupi mwanafamilia: _____

APPENDIX 4 QUESTIONNAIRE TO BE FILLED IN BY STUDENTS IN GRADE 4-6

STUDY TITLE: PREVALENCE, CLINICAL CHARACTERISTICS, AND IMPACT OF PRIMARY HEADACHES ON CHILDREN ATTENDING UPPER PRIMARY SCHOOL IN NAIROBI COUNTY

School identifier (to be completed by the centre)		_____
Class identifier (to be completed by the centre)		_____
Respondent identifier (to be completed by the interviewer)		_____
1	What is today's date?	____/____/____ day / month / year
Questions about you		
2	How old are you?	_____ years
3	Are you a boy or a girl? (please tick one box)	boy <input type="checkbox"/> girl <input type="checkbox"/>
Screen questions		
4	Have you ever had a headache? (please tick one box)	no <input type="checkbox"/> yes <input type="checkbox"/>
5	Have you had a headache in the last year? (please tick one box)	no <input type="checkbox"/> yes <input type="checkbox"/> If you answered no, please go straight to question 33.
Diagnostic questions		
These questions describe your headaches.		

6	How long does your headache usually last? (please tick one box)	<input type="checkbox"/> less than 1 hour	<input type="checkbox"/> 1-2 hours	<input type="checkbox"/> 2-4 hours	<input type="checkbox"/> more than 4 hours
7	How bad is your headache usually? (please tick one box)	<input type="checkbox"/> not bad		<input type="checkbox"/> quite bad	<input type="checkbox"/> awfully bad
8	Which best describes your headache? (please choose the one that is closest, and tick one box)	<input type="checkbox"/> throbbing or (like the heartbeat)			<input type="checkbox"/> Pressing <input type="checkbox"/> Cannot define
9	Is your headache usually on only one side of the head, in the middle or on both sides? (please tick one box)	<input type="checkbox"/> on side	<input type="checkbox"/> one in middle	<input type="checkbox"/> the on sides	<input type="checkbox"/> both
10	Does exercise (like walking or climbing stairs) make your headache worse? (please tick one box)	no <input type="checkbox"/> yes <input type="checkbox"/>			
11	Do you avoid exercise (like walking or climbing stairs) when you have a headache? (please tick one box)	no <input type="checkbox"/> yes <input type="checkbox"/>			
12	With your headache, do you usually feel sick (as though you may throw up)? (please tick one box)	no <input type="checkbox"/> yes <input type="checkbox"/>			
13	With your headache, are you usually actually sick (do you throw up)? (please tick one box)	no <input type="checkbox"/> yes <input type="checkbox"/>			
14	When you have a headache, do you prefer to be in the dark? (please tick one box)	no <input type="checkbox"/> yes <input type="checkbox"/>			
15	When you have a headache, do you prefer to be in the quiet? (please tick one box)	no <input type="checkbox"/> yes <input type="checkbox"/>			

Impact questions		
The questions from now on are about how your headaches affect you and your life. The first two questions are about last week .		
16	On how many days in the last week did you have a headache? (please enter the number of days, between 0 and 7)	_____ day(s)
17	On how many days in the last week did you take medicine or pills because _____ of _____ headache? (please enter the number of days, between 0 and 7)	_____ day(s)
The next questions are about the last ONE MONTH .		
18	On how many days in the last one month did you have a headache? (please enter the number of days, between 0 and 28)	_____ day(s)
19	On how many days in the last one month did you take medicine or pills because of headache? (please enter the number of days, between 0 and 28)	_____ day(s)
20	On how many days in the last one month did you not go to school because of your headaches? (please enter the number of days, between 0 and 20)	_____ day(s)
21	On how many days in the last one month did you leave school early because of your headaches? (please enter the number of days, between 0 and 20)	_____ day(s)
22	On how many days in the last one month could you not do things you wanted to because of your headaches? (please enter the number of days, between 0 and 28)	_____ day(s)
23	During the last one month , have your headaches caused your parents to lose time from work? (please tick one box and, if yes, enter the total number of days lost)	no <input type="checkbox"/> yes <input type="checkbox"/> _____ day(s)

Yesterday questions					
24	Did you have a headache yesterday ? (please tick one box)	no <input type="checkbox"/>	yes <input type="checkbox"/>	If you answered no, please go straight to question 27.	
25	How bad was it? (please tick one box)	<input type="checkbox"/> not bad	<input type="checkbox"/> quite bad	<input type="checkbox"/> awfully bad	
26	Did you miss school yesterday? (please tick one box)	<input type="checkbox"/> no	<input type="checkbox"/> yes, I left early	<input type="checkbox"/> yes, I did not go	
More impact questions					
Please think about your life in the last one month to answer these questions.					
27	I was afraid of having a headache. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
28	My parents did not let me do things because of my headaches. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
29	I could not concentrate because of my headaches. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
30	I was sad because of my headaches. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
31	I was able to cope well with my headaches. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
32	I wanted nobody to notice my headaches. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
The remaining questions are for everyone , with or without headaches.					

Quality of life questions

Please think about **your life in the last one month** to answer these questions.

33	I felt ill. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
34	I was tired and worn-out. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
35	I felt full of energy. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
36	I had fun and laughed a lot. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
37	I was bored. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
38	I felt alone. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
39	I was scared. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
40	I felt pleased with myself. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
41	I felt fine at home. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
42	I got along with my friends. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
43	I felt different from other children. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always
44	Doing my schoolwork was easy. (please tick one box)	<input type="checkbox"/> never	<input type="checkbox"/> sometimes	<input type="checkbox"/> often	<input type="checkbox"/> always

This is the end of the questionnaire. Thank you very much for answering it.

APPENDIX 4 (KISWAHILI)

KIWANGO CHA MAAMBUKIZI, ISHARA NA ATHARI YA MAUMIVU YA KVICHWA KWA WATOTO WANAOSOMEA KWA SHULE YA MSINGI KATIKA KAUNTI YA NAIROBI

Kitambulisho cha shule (kukamilika na kituo)		_____
Kitambulisho cha darasa (kukamilika na kituo)		_____
Kitambulisho cha mhojiwa (kukamilika na mhojiji)		_____
1	Tarehe ya leo ni nini?	____/____/____ siku/ mwezi / mwaka
Maswali kukuhusu		
2	Una miaka mingapi?	_____ miaka
3	Je, wewe ni mvulana au msichana? (tafadhali tiki kisanduku kimoja)	kijana <input type="checkbox"/> msichana <input type="checkbox"/>
Maswali ya skrini		
4	Je! Umewahi kuumwa na kichwa? (tafadhali tiki kisanduku kimoja)	Hapana <input type="checkbox"/> ndio <input type="checkbox"/>
5	Je! Umewahi kuumwa na kichwa katika mwaka uliopita? (tafadhali weka alama kwenye sanduku moja)	Hapana <input type="checkbox"/> ndio <input type="checkbox"/> Ikiwa umejibu hapana,

		tafadhali nenda moja kwa moja kwa swali la 33.			
Maswali ya uchunguzi					
Maswali haya yanaelezea maumivu yako ya kichwa.					
6	Kwa kawaida maumivu ya kichwa yako hudumu kwa muda gani? (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> chini ya Saa 1	<input type="checkbox"/> Masaa 1-2	<input type="checkbox"/> Masaa 2-4	<input type="checkbox"/> zaidi ya Masaa 4
7	Je! Maumivu ya kichwa yako ni mabaya kiasi gani? (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> Sio mbaya	<input type="checkbox"/> Mbaya sana	<input type="checkbox"/> Mbaya zaidi	
8	Ni ipi inayoelezea maumivu ya kichwa chako vizuri? (tafadhali chagua iliyo karibu zaidi, na weka alama kwenye sanduku moja)	<input type="checkbox"/> kupigapiga (kama mapigo ya moyo)		<input type="checkbox"/> Kufinywa <input type="checkbox"/> Haitambuliki	
9	Je! Maumivu ya kichwa yako kawaida upande mmoja tu wa kichwa, katikati au pande zote mbili? (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> Pande moja	<input type="checkbox"/> katikati	<input type="checkbox"/> Pande zote mbili	
10	Je! Mazoezi (kama kutembea au kupanda ngazi) hukufanya maumivu ya kichwa yako kuwa mabaya zaidi? (tafadhali weka alama kwenye sanduku moja)	Hapana <input type="checkbox"/> ndio <input type="checkbox"/>			
11	Je! Unaepuka mazoezi (kama vile kutembea au kupanda ngazi) wakati una maumivu ya kichwa? (tafadhali weka alama kwenye sanduku moja)	Hapana <input type="checkbox"/> ndio <input type="checkbox"/>			

1 2	Ukiwa na maumivu ya kichwa, je! Kawaida huhisi mgonjwa (kana kwamba unaweza kutapika)? (tafadhali weka alama kwenye sanduku moja)	Hapana <input type="checkbox"/> ndio <input type="checkbox"/>
1 3	Kwa maumivu ya kichwa yako, je! Wewe ni mgonjwa kweli? (huwa unatapika)? (tafadhali weka alama kwenye sanduku moja)	Hapana <input type="checkbox"/> ndio <input type="checkbox"/>
1 4	Wakati una maumivu ya kichwa, je! Unapendelea kuwa gizani? (tafadhali weka alama kwenye sanduku moja)	Hapana <input type="checkbox"/> ndio <input type="checkbox"/>
1 5	Wakati una maumivu ya kichwa, je! Unapendelea kukaa katika kunyamaza/kutilivu? (tafadhali weka alama kwenye sanduku moja)	Hapana <input type="checkbox"/> ndio <input type="checkbox"/>
Maswali ya athari		
Maswali kutoka sasa ni juu ya jinsi maumivu ya kichwa yako yanavyoathiri wewe na maisha yako. Maswali mawili ya kwanza yanahusu wiki iliyopita.		
1 6	Je! Kwa siku ngapi katika wiki iliyopita ulikuwa na maumivu ya kichwa? (tafadhali ingiza idadi ya siku, kati ya 0 na 7)	Siku _____
1 7	Je! Kwa siku ngapi katika wiki iliyopita ulitumia dawa au vidonge kwa sababu ya maumivu ya kichwa? (tafadhali ingiza idadi ya siku, kati ya 0 na 7)	Siku _____
Maswali yafuatayo ni kuhusu MWEZI MMOJA uliopita.		
1 8	Je! Kwa siku ngapi katika mwezi mmoja uliopita ulipata maumivu ya kichwa? (tafadhali ingiza idadi ya siku, kati ya 0 na 28)	Siku _____
1 9	Je! Ulitumia dawa au vidonge kwa siku ngapi katika mwezi mmoja uliopita kwa sababu ya maumivu ya kichwa? (tafadhali ingiza idadi ya siku, kati ya 0 na 28)	Siku _____

20	Je! Kwa siku ngapi katika mwezi mmoja uliopita haukuenda shule kwa sababu ya maumivu ya kichwa? (tafadhali ingiza idadi ya siku, kati ya 0 na 20)	Siku _____
21	Je! Kwa siku ngapi katika mwezi mmoja uliopita uliacha shule mapema kwa sababu ya maumivu ya kichwa? (tafadhali ingiza idadi ya siku, kati ya 0 na 20)	Siku _____
22	Je! Kwa siku ngapi katika mwezi mmoja uliopita haukuweza kufanya vitu ambavyo ulitaka kwa sababu ya maumivu ya kichwa? (tafadhali ingiza idadi ya siku, kati ya 0 na 28)	Siku _____
23	Katika mwezi mmoja uliopita , maumivu ya kichwa yako yamesababisha wazazi wako kupoteza muda kutoka kazini? (tafadhali weka alama kwenye sanduku moja na, ikiwa ndio, ingiza jumla ya siku zilizopotea)	hapana <input type="checkbox"/> ndio <input type="checkbox"/> Siku _____
Maswali ya jana		
24	Je! Uliumwa na kichwa jana ? (tafadhali weka alama kwenye sanduku moja)	Hapana <input type="checkbox"/> ndio <input type="checkbox"/> Ikiwa umejibu hapana, tafadhali nenda moja kwa moja kwa swali la 27.
25	Ilikuwa mbaya kiasi gani? (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> Sio mbaya <input type="checkbox"/> Mbaya sana <input type="checkbox"/> Mbaya zaidi
26	Je! Ulikosa kwenda shule jana? (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> Hapana <input type="checkbox"/> Ndio, niliondoka mapema <input type="checkbox"/> Ndio, Sikuenda
Maswali ya athari zaidi		

Tafadhali fikiria juu ya maisha yako katika mwezi mmoja uliopita kujibu maswali haya.					
27	Niliogopa kumwa na kichwa (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
28	Wazazi wangu hawakuniruhusu nifanye mambo kwa sababu ya maumivu ya kichwa (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
29	Sikuweza kuzingatia kwa sababu ya maumivu ya kichwa (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
30	Nilihuzunika kwa sababu ya maumivu ya kichwa (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
31	Niliweza kukabiliana vizuri na maumivu yangu ya kichwa (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
32	Sikutaka mtu yeyote atambue maumivu yangu ya kichwa (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
Maswali yaliyosalia ni ya kila mtu , mwenye maumivu ya kichwa au bila.					
Uboru wa maswali ya Maisha					
Tafadhali fikiria juu ya maisha yako katika mwezi mmoja uliopita kujibu maswali haya.					

33	Nilihisi mgonjwa (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
34	Nilikuwa nimechoka (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
35	Nilihisi nimejaa nguvu (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
36	Nilifurahi na nikacheka sana (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
37	Nilikuwa nimeboeka (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
38	Nilihisi upweke (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
39	Niliogopa (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
40	Nilihisi kufurahishwa na mimi mwenyewe (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
41	Nilijisikia niko salama nyumbani (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara

42	Nilielewana na marafiki zangu (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
43	Nilihisi kuwa tofauti na watoto wengine (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara
44	Kufanya kazi yangu ya shule ilikuwa rahisi (tafadhali weka alama kwenye sanduku moja)	<input type="checkbox"/> kamwe	<input type="checkbox"/> Wakati mwingine	<input type="checkbox"/> Mara nyingi	<input type="checkbox"/> Kila mara

Huu ndio mwisho wa dodoso. Asante sana kwa kuijibu.