BURDEN ATTRIBUTABLE TO CHILDHOOD AND ADOLESCENT PRIMARY HEADACHE DISORDERS IN LUSAKA AND NDOLA SCHOOL CHILDREN AGED 7 - 17 YEARS

BY

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DECLARATION

I hereby declare that this dissertation represents my own work and has not been presented either wholly or in part for a degree at the University of Zambia or any other University.

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APPROVAL

This dissertation of Dr. Nfwama Kawatu is approved as partial fulfillment of requirements for the award of Master of Medicine in Paediatrics and Child Health by the University of Zambia.

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ABSTRACT

Headache is a common complaint in the paediatric and adult populations. However, the prevalence, types and effects on the quality of life of the children that suffer from headache is not known.

This study assessed the prevalence and burden of primary headache disorders in children and adolescents. The data collected and analysed produced a preliminary report of an ongoing study.

This was a cross sectional study, conducted over a 6-month period which targeted participants aged 7-17 years in Lusaka and Ndola schools. It was conducted using a standardized questionnaire that was administered with the guidance of the principal investigator for ages 7-11 years and by self-administration for ages 12-17 years. Questions of interest included the prevalence, duration, intensity and frequency of any headache. Lost school days and parental work days highlighted the quality of life of these children in general. The data was analysed using a validated algorithm of classification of headache which is based on the International Classification of Headache Disorders III.

The 1 year prevalence of headache in general was at 87.3% of the study population. Probable migraine was most common at 44.5% followed by migraine 19.6%. Girls (68.6%) suffered more migraine; boys displayed a high prevalence in tension type headache (39.9%), followed by probable migraine headache at 39.9%. A reduction in the quality of life was significantly associated with a longer duration of headache days, migraine headache and probable migraine headache whereas there was no significant association with other headache types.

The prevalence of primary headache disorders in Zambia is significantly high at 873% with highest prevalences of migraine headache in girls and tension type headache in boys. The quality of life was not significantly altered in these children that suffered headache.

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ABBREVIATIONS

HARDSHIP	Headache-Attributed Restriction Disability Social Handicap and Impaired Participation
ICHD	International Classification of Headache Disorders
IHS	International Headache Society
MOH	Medicine overuse headache
PCOE	Paediatric Centre of Excellence
pMOH	probable Migraine headache
PTA	Parent Teacher Association
TACs	Trigeminal Autonomic Cephalgias
TTH	Tension Type Headache
WHO	World Health Organisation

DEFINITION OF TERMS

The *International Classification of Headache Disorders (ICHD)3-Beta* and an algorithm (appendix..), was used to define and diagnose the various primary headache disorders .

Primary headache: Headache, or a headache disorder, not caused by or attributed to another disorder. It is distinguished from secondary headache disorder *(ICHD 3-Beta).*

Secondary headache: Headache, or a headache disorder, caused by another underlying disorder. A secondary headache may have the characteristics of a primary headache but still fulfill criteria for causation by another disorder *(ICHD 3-Beta).*

Migraine headache: Recurrent headache disorder manifesting in attacks lasting 4-72 hours. Typical characteristics of the headache are unilateral location, pulsating quality, moderate or severe intensity, aggravation by routine physical activity and association with nausea and/or photophobia and phonophobia. (*ICHD 3-Beta)*

Diagnostic criteria *(ICHD 3-Beta):*

A. At least five attacks fulfilling criteria B-D

B. Headache attacks lasting 4-72 hours (untreated or unsuccessfully treated)

C. Headache has at least two of the following four characteristics:

- Unilateral location
- Pulsating quality
- Moderate or severe pain intensity
- Aggravation by or causing avoidance of routine physical activity (eg, walking or climbing stairs)

D. During headache at least one of the following:

- Nausea and/or vomiting
- Photophobia and phonophobia

Probable migraine headache *(ICHD 3-Beta):* Migraine-like attacks missing one of the features required to fulfill all criteria for a type or subtype of migraine coded above, and not

fulfilling criteria for another headache disorder.

Diagnostic criteria:-

A. Attacks fulfilling all but one of criteria A-D for migraine.
B. Not fulfilling ICHD-3 criteria for any other headache disorder

Tension type headache (TTH): TTH is defined as headache lasting more than 1 day but less than 7 days, pressing or tightening in character and located either midline or bilaterally, and is worsened by physical activity. It has several major types and subtypes, depending on the presenting symptoms. In this study however the following diagnostic criteria were used.

Diagnostic criteria

A. Attacks fulfilling all but one of criteria A-D for migraine.
B. Headache lasting ≥1 day and ≤ 7 days
C. Intensity of the pain described as "not bad" or "quite bad" but not "very bad", with a pressing or tightening character, located either in the middle or bilaterally and worsened by physical activity.
D. Attacks fulfilling all but one of criteria A-D for migraine.
E. No photophobia or phonophobia.

Probable tension type headache: Tension type headache-like attacks missing one of the features required to fulfill all criteria for a type or subtype of TTH

Diagnostic criteria:

A. Attacks fulfilling all but one of criteria. A to E for TTH.
B. Not fulfilling ICHD-3 criteria for any other headache disorder

Undetermined headache: Headache having some but not all features of both TTH and migraine.

Diagnostic criteria: Missing any 2 or more criteria described above for migraine and TTH not fitting any other headache type.

Probable medicine overuse headache: Headache characterised by acute medication use on ≥10 days/month.

Headache ≥ 15 days: Headache lasting more than 15 or more days/ month.

CHAPTER ONE – BACKGROUND

1.1 Introduction

Headache, also known as cephalgia, is pain anywhere in the head. It is one of the most prevalent neurological symptoms globally with the average person experiencing at least one headache in life if not more commonly (*Jensen and Stovner, 2008)*. The International Headache Society (IHS), in the International Classification of Headache Disorders (ICHD III, 2013), defines headache as pain located above the orbital-meatal line. Aetiologies range from primary headache syndromes, to psychosocial stressors, to secondary headache causes including life-threatening infections and brain tumours.

Primary headache syndromes have a significant impact on the lives of children and adolescents, resulting in school absence, decreased extracurricular activities, and poor academic achievement *(Chakravarty et al, 2008).*

Globally, it has been estimated that prevalence among adults of current headache disorder (at least once within the last year) is about 50%. Half to three quarters of adults aged 18–65 years in the world have had headache in the last year and, among those individuals, 30% or more have reported migraine. Headache on 15 or more days every month affects 1.7 - 4% of the world's adult population. Despite regional variations, headache disorders are a worldwide problem, affecting people of all ages, races, income levels and geographical areas. *(WHO, 2016)*- Zambia has reported that 61.6% of adults suffer from headache and 45.7% of them being primary headache *(Mbewe et al, 2015).* The paediatric population however, was not represented in this study.

ICHD III has provided diagnostic criteria and a classification scheme for headaches in general. Headaches are grouped on the basis of aetiology, facilitating proper evaluation and treatment (ICHD III, 2013).

The three (3) main classifications are as follows:-

1. Primary headaches (headache without an underlying cause), e.g. migraine, tension-type, and cluster headache.

2. Secondary headaches, e.g. related to head/neck trauma, vascular and non-vascular disorders, infection, or psychiatric disorders.

3. Cranial neuralgias, central and primary facial pain, and other headaches.

This study focused on the prevalence and burden of the most common primary headache disorders in a non-hospital setting as matter of child health importance in schools of Lusaka and Ndola in Zambia.

It was conducted under the auspices of the Global Campaign against Headache (Steiner, 2004) which is directed by "*Lifting the Burden*", a UK-registered Non-Governmental Organization in official relations with the World Health Organization (*Steiner et al, 2011*). It included children aged 7-11 years and adolescents aged 12-17 years. Development of the protocol was informed by a series of pilot studies performed in Istanbul and Vienna (*Wöber-Bingöl et al 2014*).

The focus of this study was on the prevalence and burden of the most common primary headache disorders contributing to significant disability adjusted life years, as estimated by the 2013 GBD study (add in ref), which was overall 0.97% for headache syndromes, and included migraines, tension type headaches, and medication overuse headaches. Specifically, those occurring more than fifteen days per month have a significant public health impact.

Paediatric migraines are often bilateral, and clear localization of the pain can be difficult to obtain from children. Migraines in children are often of shorter duration than they are in adults. Migraine with aura is seen in 14-30% of children with migraine. Migraine variants are headaches that are accompanied or manifested by transient neurologic symptoms. These symptoms may occur immediately before, during, or after the headache. In some situations, the headache may be mild or non-existent.

Tension-type headaches are benign. They manifest as a band like sensation around the head, and they may be associated with neck and/or shoulder pain. These headaches often become worse as the day progresses and can last for days. They may be associated with stressful events at home or school and they may be temporarily and relieved by sleep *(Hämäläinen, 1995).*

Cluster headaches which are one of the Trigeminal Autonomic Cephalgas (TACs) are described as severe attacks of pain which is strictly unilateral, orbital, supraorbital, temporal or in any combination of these sites ,lasting 15 minutes to more than an hour and occurring

once every other day to 8 times a day. It is associated with ispilateral lacrimation, ptosis /or eyelid oedema and /or with restlessness (*ICDH III beta).*

Acute and chronic headaches are relatively common in children and adolescents, although estimates of the precise prevalence of headache and migraine vary widely. Depending on the study definition of headache, population involved and time periods studied, 17% to 90% of children report headaches, with an overall prevalence of 58% reporting some form of headache in the past year *(Lateef, 2009),(Abu-Arafeh, 2010).*

Headache prevalence in school children increases with their age as demonstrated in cohorts of identical children and cross-sectional surveys covering different age groups of children in one population *(Albers, et al 2015).*

The Global Burden of disease survey of 2010 reported that tension type headache and migraine are the second and third most prevalent disorders in the world and migraine is the seventh most disabling (*Steiner, 2004).* All data included in this survey on headache disorders was only in the adult population.

Few studies have been done on headache disorders in children and adolescents around the world, with a significant paucity of literature from sub-Saharan Africa and none to the best of our knowledge in the paediatric population in Zambia. This study sought to highlight the burden of primary headache among Zambian school children and to help formulate guidelines of headache identification and management.

1.2 Statement of the Problem

Headache is a common reason why paediatric patients seek medical care and it has a significant impact on the lives of children and adolescents, resulting in school absence, decreased extracurricular activities, and poor academic achievement (*Chakravarty, 2008*).

However, the prevalence and burden of childhood and adolescent headache disorders among Zambian school children is unknown. Despite several studies having been done in the adult and paediatric population worldwide, no information is available on the prevalence and burden of the most common primary headache disorders in the paediatric population in Lusaka and Copperbelt provinces of Zambia.

1.3 Study justification

Headache is a common symptom in paediatric hospital practice. Major causes of headache in this setting include migraine and tension headache as well as headache secondary to intracranial and extracranial infections, intracranial mass lesions, and head or neck trauma. *(Chakravarty, 2008).* However, much less is known about the prevalence and burden of headache in non-hospital paediatric populations in Lusaka and Copperbelt provinces of Zambia.

This study will focus on the prevalence and burden of the most common primary headache disorders in a non-hospital setting as matter of child health importance in schools of Lusaka and Copperbelt provinces of Zambia.

The knowledge gathered will be used to promote headache education and improve communication on headache between children, parents, teachers and medical practitioners.

This in turn will translate into early therapeutic intervention and in turn improve the quality of life of the child.

It will also help recognize headache as an important health problem so that policies can be made to improve the livelihood of primary headache sufferers and ensure that the appropriate treatment is made available at the health centres.

1.4 Research Question

What is the burden of primary headache syndromes in children and adolescents in Lusaka Urban and Ndola rural school children schools?

1.5 Objectives

1.5.1 Main Objective

To establish the burden, character and impact of primary headache disorders among school children and adolescents in Lusaka and Ndola.

1.5.2 Specific Objectives

1. To determine the prevalence of primary headache disorders in school going children aged 7-11 years.
2. To establish the prevalence of headache disorders in school going adolescents aged 12-17

years.

3. To ascertain the types of primary headache disorders prevalent in these children.
4. To determine how the quality of life, quantified by impact on school absences, daily activities, and interactions with family and friends, of these children and adolescents is affected by headache disorders.

ORGANISATION OF THE DISSERTATION

CHAPTER TWO – LITERATURE REVIEW

2.1 Literature Review

Headache is of major public health concern. It is only in the recent few years that it has been recognized as a burden to society.

2.2 Globally

In 2008, *Jensen et al* reported that globally, the percentage of the adult population with an active general headache disorder is 47%, with migraine accounting for 10%, tension-type headache at 38%, and 3% for chronic headache that lasts for more than 15 days per month.

The ICHD III beta criteria can be used to summarise regional prevalence's of headache disorders. *Stovner et al* in 2007 reported that migraine is more prevalent in Europe and North America and the prevalence of TTH seems to be much higher in Europe (80%) than it is in Asia and the Americas (20 - 30%)); data from Africa and Australia/Oceania are lacking.

Swain et al (2013) conducted an international survey on pain in adolescents and established that the most common cause of complaint of pain in the adolescent population was headache among other symptoms at 54.1%.

A pilot study on the Global prevalence and burden of primary headache disorders in the paediatric population aged between 6 and 17 years, was done in Vienna and Istanbul by Wöber-Bingöl et al (2014).The study results revealed that the 1-year prevalence of headache was 89.3%, of which migraine constituted 39.3% and of TTH 37.9%. The prevalence of headache in more than 15 days/month was 4.5%. One fifth (20.7%) of pupils with headache lost ≥1 day of school during the preceding 4 weeks and nearly half (48.8%) reported ≥1 day when they could not do activities they had wanted. The vast majority of pupils with headache experienced difficulties in coping with headache and in concentrating during headache. Quality of life was poorer in pupils with headache than in those without.

In India, among school going children and adolescents aged 8-18 years, the overall prevalence of primary headache disorders was found to be 66.4%. The prevalence of tension-type headache and migraine was found to be 50.99% and 26.98%, respectively. The

prevalence revealed an upward trend with increasing age with preponderance for female sex *(Malik et al, 2012).*

Among 19 public schools in Israel, an anonymous self-administered questionnaire was presented to 2088 10th grade adolescents and revealed that girls suffered from headache more frequently than boys at 61.2% compared to 28.1% of boys. Those who suffered from frequent headaches also reported having significantly more other somatic complaints than adolescents without headaches (*Genizi, et al 2013).*

2.3 Sub-Saharan Region

In Africa, very few studies have looked at headache prevalence and impact, with only two having specifically studying a paediatric population, therefore data regarding impact of headaches in this region is limited. Furthermore, those that do include children only included older adolescents as described below.

In an Ethiopian small urban community, a cross-sectional sample survey carried out in 2013, found an overall prevalence of primary headache as 21.6% in the age group 15 and above and the burden of primary headache disorders in terms of missing working, school or social activities was 68.0% (*Mengistu and Alemayehu, 2013*).

The prevalence of primary headache disorders in Egypt was found to be high at 51.4%, in 15 years and older, and was comparable to findings in the Western world (*El-Sherbiny et al, 2015).*

A study done in the Enugu state of Nigeria, in the age group 30-69 years, showed 66.7% of participants had experienced headache in their lifetime, and 49.4% had experienced primary headaches. The prevalence of migraine and TTH were 6.4% and 13.4% respectively. The study also revealed more women than men suffered from primary headache (*Ezeala-Adikaibe et al, 2014).*

2.4 Zambia

2.4.1 Local Studies on Primary Headache and its Burden

The study done in the adult population (18-65 years) in two provinces of Zambia concluded that primary headache disorders, common in high-income countries, are at least as prevalent

in Zambia. The 1-year prevalence of any headache was 61.6%, of migraine 22.9%, of tension-type headache (TTH) 22.8% of headache on ≥15 days/month 11.5% and of probable medication-overuse headache (pMOH) 7.1% (*Mbewe, et al 2015).*

To date no studies or data are available on headache in children and adolescents in both rural and urban Zambia.

Overall, data is limited regarding primary headache disorders in children and the impact they have on life, both globally and specifically in sub-Saharan Africa. The limited literature available is, as a result, not easily generalizable to our paediatric population in Zambia, therefore necessitating an epidemiologic study prior to development of guidelines for management of this important condition.

CHAPTER THREE – METHODOLOGY

3.1 Study Design

This study was nested within a larger cross sectional study under the auspicies of the International Headache Society with the initiative of a United Kingdom based non-Governmental organization called "Lifting the burden", in partnership of the World Health Organisation, evaluating prevalence and burden of primary headache disorders in school going children in Lusaka and Ndola aged children aged 7-17 years. The main study was run from 2017-2018, with ongoing analyses in process. Initial data was collected by this author in 2017, to do a preliminary data analyses amongst a smaller sample size as part of monitoring of the larger study.

3.2 Site Description

Children were recruited from government and private run primary and secondary schools in Lusaka and Ndola.

3.3 Study Duration

The study was carried out from September 2017 – February 2018 covering a period of six m months.

3.4 Target population

The target population was comprised of all children from day primary schools in Lusaka and Ndola District aged between 7 and 17 years old.

3.5 Eligibility Criteria

3.5.1 Inclusion criteria

- School children and adolescents aged 7-17 in Lusaka and Ndola
- Parental consent
- Participant assent

3.5.2 Exclusion criteria

- Refusal to take part in the study.
- Unable to answer questionnaire due to cognitive limitations or other medical reasons

3.6 Sample size

Assuming that the prevalence of headache among Zambian adults (*Mbewe et al, 2015*) and children was similar at 61%, a minimum sample size of 1462 was calculated.

$$\mathbf{N = \frac{Z^2 \times P (1-P)}{(E)^2}}$$

Where: -

N= Sample required

P= Proportion of the population estimated to have desired characteristics

E= Degrees of freedom= 0.025

Z= Z statistic= 1.96 (95% C I)

P= Expected prevalence (61%)

Therefore $N = \frac{(1.96)^2 \times 0.61 (1-0.61)}{(0.025)^2}$

N= **1462.**

The sample size required was increased to 2100 in order to conform to the pilot study done in Vienna and Istanbul by Wöber-Bingöl et al (2014). The calculation was done using a confidence interval of 95%, P-value of 0.025.

The study was to be carried out over a period of 6 months from a sample of 1462 participants and would be on going to reach a target group of 2100.

3.7 Sampling Methods

Convenient selection of 7 schools was done for both Lusaka and Ndola. Five of the seven schools were visited from both Lusaka and Ndola, and included pupils aged 7 to 17 years. A research assistant was trained to ensure uniformity of data collection. Questionnaires were administered to participants willing to take part and meeting the inclusion criteria. The questionnaire used was a modified HARDSHIP (Headache-Attributed Restriction, Disability, Social Handicap and Impaired Participation) questionnaire developed and used in other surveys by Lifting the Burden in conjunction with the World Health Organisation. (*Wöber-Bingöl et al, 2014).*

A total of 2100 children will be selected from the school lists without prior knowledge of their health or social background, so far, 1005 participants have been interviewed. All enrolments were done at a time that enrolment was approved and allocated by the school.

3.8 Study procedures

1. Sensitisation of the head teacher and parents.
2. Identification of a lead teacher and a member of the Parent Teacher Association (PTA)
3. Delivering of study information sheet
4. Administering of the questionnaire

The principal investigator, with the help of an assistant, administered the questionnaire with average time to complete of approximately one hour.

3.9 The questionnaire

A predesigned Headache-Attributed Restriction, Disability, Social Handicap and Impaired Participation (HARDSHIP) questionnaire which has been used and validated in adult studies in multiple countries, languages and cultures (*Steiner et al 2014*) was used.

It was conducted using a standardized questionnaire was administered with the guidance of the principal investigator for ages 7-11 years and by self-administration for ages 12-17 years. That questionnaire consisted of 44 questions with mainly four categories of questions, including demographics (age and sex), two screening questions, (“have you ever had a headache?” and presence of headache in the last year), diagnostic questions based on the ICHD III beta criteria and emotional impact and Quality-of-Life (QoL) questions.

No personal details that could help identify participants appeared on the form.

Data was entered on an Epinfo database.

3.10 Statistical Analysis

The collected data was coded and analysed using Statistical Package for Social Science (SPSS) version 25.

An algorithmic flow chart with scores was used to segregate the different headache types.

The first step was identification and separation of participants with headache for more than 15 days/month from those with headache for less than 15 days/month. The groups with headache for more than 15 days /month were then further screened for either probable MOH or other headache more than 15 days /month.

Secondly, by applying the current International Classification of Headache Disorders (ICHD-3 beta) criteria to the latter group, those with definite migraine and definite Tension Type Headache (TTH) were separated.

Thirdly, probable migraine and probable TTH in accordance with accepted guidelines (referred to above) were identified.

3.11 Data analysis

Prevalences of these disorders were expressed as proportions (%) with 95% confidence intervals (CIs). For overall estimates, the total sample Number (N) was the denominator. Prevalences were also estimated by gender and age group. Overall prevalences were adjusted for gender and age where imbalances occurred during sampling.

Descriptive analyses generated proportions (%) with 95% CIs and, where appropriate, means and standard deviations (SDs) and/or medians.

For burden estimates:-

a) Questions requiring “yes/no” responses were analysed for proportions of each response
b) Headache duration, reported in hours, was summarised as means (+/- SDs) and medians.
c) Intensity, reported as “not bad”, “quite bad” or “very bad” (equated to mild, moderate and severe), was summarised as proportions of each response.

d) Frequencies (of headache, medication use, lost time from school [days absent or leaving early] and other activities) were summarised as means and medians in days per week or 4 weeks.

e) Emotional impact and Quality-of-Life (QoL) questions, which require selection from the response options “never”, “sometimes”, “often” and “always” in the preceding 4 weeks, will be scored 1-4, and summed to generate impact (potential range 6-24; high being adverse) and QoL scores (12-48; low being adverse).

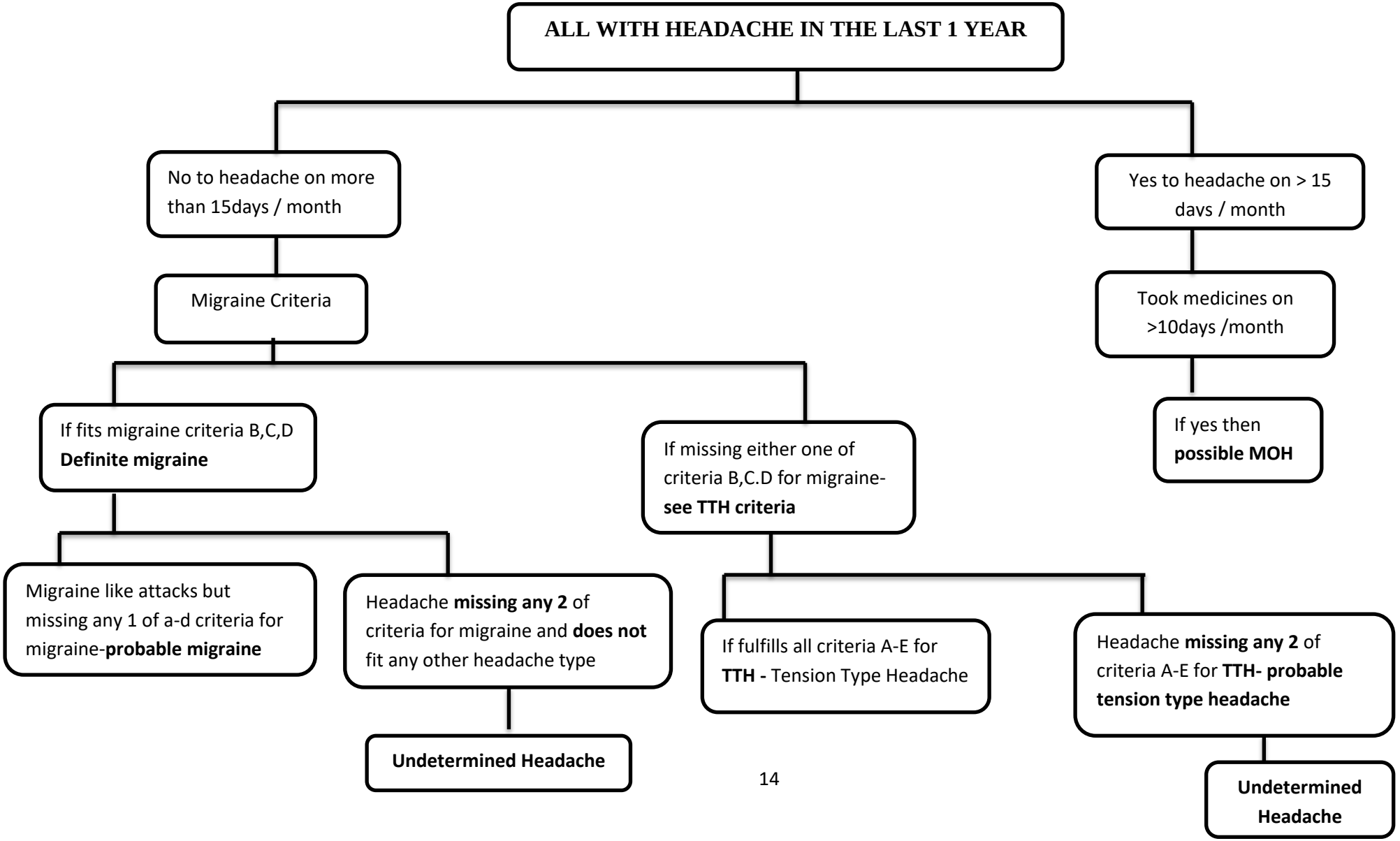
Bivariate analysis of associations estimated Odds Ratios (ORs) with 95% confidence intervals (CIs). Analyses were performed using IBM SPSS Statistics, Version 25. The level of statistical significance was $p<0.05$.

3.12 Ethical Consideration

The purpose and procedures of the study were fully explained and a written informed consent/assent was obtained from the guardian/parent and participant where applicable. It was emphasized that participation in the study was purely voluntary and that participants could withdraw from the study at any point. We did not anticipate any adverse event as this was a low risk study.

No personal details that may help identify participants appeared on the form.

Figure 1: A flow chart showing diagnostic algorithm for headache types



CHAPTER FOUR – RESULTS

4.1 Socio-demographic and baseline characteristics of the participants

The results reported here are preliminary findings of an ongoing study done under the auspices of "Lifting the Burden", and will include >2000 participants as more are expected to be recruited from Lusaka.

A total of 1082 pupils were interviewed in the selected classes. Seventy seven children were excluded in the data analysis as they were either younger than 7 or older than 17. Therefore data analysed was for 1005 participants.

4.2 Participants distribution by site

A total of 1005 study participants were analysed of which, 661 (66%) were from Ndola and 344(34%) were from Lusaka as shown in figure 1 .

Table 1: Participants distribution by site

Site	N	%
Lusaka	661	65.7
Ndola	344	34.2
Total	**1005**	**100**

4.3 Age distribution of participants

The demographic characteristics of the participants are displayed in table 2. Of the pupils interviewed 700 (70%) were in the age group 12-17 years and 305 (30%) were aged 7-11 years, mean age of 12.8 ± 2.5 SD years.

Table 2: Age range of enrolled children

Age	N	%
Mean age in years (SD) 12.8		(2.5)
7 – 11	305	30
12 – 17	700	70
Total	**1005**	**100.0**

4.4 Overall gender distribution

The distribution of participants by gender revealed girls at 601 (59.8%), and boys were 404 (40.2%) as in table 3.

Table 3: Overall Gender distribution

Gender	**N**	**%**
Male	404	(40.2)
Female	601	(59.8)
Total	**1005**	**100**

4.5 Distribution by age group

The gender distribution in the two age groups had 193(63.3%) female participants in the group 7-11years old and 408 (58.3%) among the 12-17 years, out of a total of 601(58.3%) females. The male population constituted 112 (36.7%) in the age group 7-11years and that of the group of the 12-17 years had 292 (41.7%). Table 4.

Table 4: Gender distribution by age group

	7-11		**12-17**		**Total**
Gender	**N**	**%**	**N**	**%**	
Male	112	36.7	292	41.7	404
Female	193	63.3	408	58.3	601
Total	305	100.0	700	100.0	1005

P = 0.138

4.6 Prevalence of primary headache disorders

Table 5 displays the 1005 children and adolescents that took part in the survey, 968 (96.3%) answered yes to the screening question have you ever had a headache .To the second screening question: “have you had a headache in the last year” 877(87.7%) responded Yes. The participants that responded no headache to the screening questions were 128 (12.7%).

Table 5: Prevalence of primary headache disorders

Screening Questions	N	%
Ever had headache?	968	(96.3)
Had headache in the last year?	877	(87.3)
		P value=0.000

4.7 General prevalence of headache subtypes

The 877 (87.3%) that reported having had a headache in the last year ,further responded to diagnostic questions which analysed using an algorithm and were scored according to the headache type. Migraine headache criteria was met by 172 (19.6%) participants, 80 (9.2%) had tension type headache (TTH). The remaining headache types were probable migraine, 389 (44.4%), probable TTH, 144 (16.4%), other headache on more than 15 days 9(1%). The above findings are summarised in table 6.

Table 6: Prevalence of Headache types in general

Headache Type	N	%
Migraine	172	19.6
TTH	80	9.0
Probable Migraine	389	44.5
Probable TTH	144	16.5
Undetermined	74	8.4
Probable MOH	9	1
Other Headache on ≥15 Days/month	9	1
Total	**877**	**100.0**

4.8 Gender distribution of headache subtypes

The diagnosed headache types were categorized by gender. A migraine headache criterion was met by 54 (31.4%) boys and 118 (68.6%) girls (p value 0.065). The subtype TTH among the boys was 35(43%) and 45 (56%) in the girl`s group (p value 0.391). Probable Migraine

was reported by 154(39.6 %) boys and 235 (60.4 %) girls (p value 0.806) ,while 59 (40%) boys and 85(60%) girls had probable TTH (p value 0.630) . The rest of the headache subtypes are as shown in table 7.

Table 7: Headache type by gender

Headache Type	Male		Female		Total		
	N	**%**	**N**	**%**	**N**	**%**	**P value**
Migraine	54	31.4	118	68.6	172	19.6	0.068
TTH	35	43	45	56	80	9	0.382
Probable Migraine	154	39.9	235	60.4	389	44.5	0.783
Probable TTH	59	14.6	85	14.1	144	16.5	0.615
Undetermined	30	7.4	44	7.3	74	8.5	0.764
Probable MOH	5	1.2	4	0.7	9	1	0.304
Other Headache on ≥15 Days	3	0.7	6	1.5	9	1	0.739
Total	**340**		**537**		**877**	**100**	

P = 0.336

4.9 Prevalence of Primary headache subtypes by age group

Of the 172 migraineurs, 55(32.0%) were aged 7-11 years and 117 (38 %) among the preadolescents. Children 7- 11 years that reported TTH were 25 (31.2%) among and 55 (69%), in the older group. Those that had probable migraine were 113 (29.0%) in the group aged 7-11 years and 276 (71%) in the 12-17 years where as TTH accounted for 28 (19.4%) in the group aged 7-11 years and 116 (80.5%) in the 12-17 years age group as shown in table 8.

Table 8: Prevalence of different types of Headache in the 7 -11 years and 12-17 age groups

	7-11 Years		12-17 Years		Total		P value
Headache Type	**n**	**%**	**n**	**%**	**n**	**%**	
Migraine	55	32	117	68	172	19.6	0.298
TTH	25	31.2	55	69	80	9	0.543
Probable Migraine	113	29	276	71	389	44.5	0.716
Probable TTH	28	19.4	116	80.5	144	16.5	0.031
Undetermined	31	34	49	66	80	8.6	0.043
Probable MOH			9	1	9	1	0.061
Other Headache on ≥15 Days			9	1	9	1	0.062
Total	**246**	**28**	**631**	**72**	**877**	**100**	

4.10 Primary headache prevalences in Lusaka and Ndola

Prevalences of the headache subtypes were analysed and characterized for both Lusaka and Ndola. Migraine constituted 58 (6.6 %) and 114 (13 %), probable migraine headache was at 125 (14.3 %) and 264 (30.1 %) for Lusaka and Ndola respectively. followed by probable TTH at 52 (5.9%) and 92 (10.5 %). TTH was reported by 21 (2.4%) and 52 (5.9%) of the participants, and undetermined headache was documented in 22 (2.5%) and 52 (7.9%),while the proportion with probable medicine overuse headache was small at 5(0.5%).

Table 9: Prevalence of Headache Lusaka and Ndola

Headache Type	Lusaka		Ndola			P-value
	N	**%**	**N**	**%**		
Migraine	58	6.6	114	13	172	0.845
TTH	21	2.4	59	6.7	80	0.220
Probable Migraine	125	14.3	264	30.1	389	0.774
Probable TTH	52	5.9	92	10.5	144	0.456
Undetermined	22	2.5	52	5.9	80	0.570
Probable MOH	5	0.6	4	0.5	9	0.153
Other Headache on ≥15 Days	6	0.5	3	0.3	9	0.033
Total	**289**	**32**	**588**	**68**	**100**	

4.11 The quality of life (QOL) of the study participants

The QoL was assessed using a linear regression model as in table 8.The questions evaluated were scored. There was a score of 1- 4 on the answers provided. A higher score meant a poorer quality of life both on the emotional impact and burden sets of questions. .

There was a significant association between the increase in age and the likelihood to suffer headache coefficient factor of -1.275 (p value< 0.001 with 95% CI -1.940- -0.610). Probable migraine headache was linked to poorer QoL, coefficient factor of -7.528(p value 0.004 with 95% CI -12.576- -2.481). Migraineurs and the reduction in the QOL had a significant correction by coefficient factor of -7.987 (p value 0.007 with 95% CI -13.768 -2.206). Furthermore, the four week impact score for headache was quite significant at-0.161 (p vale of <0.001 with 95% CI -0.247-0.075). There was no significant reduction in the quality of life for other headache types.as shown in table 10.

Table 10: Linear Regression model of District, Age, Sex, Headache types and Headache Impact by Quality of Life

	Coefficients	Standardized Coefficients	p	95% CI	
				Lower	Upper
District Lusaka Ndola (Reference)	1.307	0.037	0.468	-2.228	4.841
Age	**-1.275**	**-0.193**	**<0.001**	**-1.940**	**-0.610**
Sex Girl Boy (Reference)	-0.187	-0.005	0.911	-3.461	3.087
Migraine Headache	**-7.987**	**-0.179**	**0.007**	**-13.768**	**-2.206**
TTH Headache	-4.530	-0.073	0.212	-11.657	2.597
Probable Migraine Headache	**-7.528**	**-0.218**	**0.004**	**-12.576**	**-2.481**
Probable TTH	-3.173	-0.066	0.309	-9.295	2.949
Undetermined Headache	-5.486	-0.085	0.141	-12.798	1.826
Probable MOH	0.082	0.000	0.994	-22.167	22.332
Number of days had headache in the last week	-0.971	-0.098	0.081	-2.063	0.121
Number of days had pills because of headache in the last week	-0.258	-0.025	0.657	-1.397	0.881
Number of days had headache in the last four weeks	-0.338	-0.074	0.279	-0.950	0.275
Number of days had pills because of headache in the four weeks	-0.036	-0.007	0.926	-0.789	0.718
Number of days in the last four weeks did not go to school because of headache	0.058	0.007	0.903	-0.883	0.999
Number of days in the last four weeks left school early because of headache	-0.266	-0.027	0.607	-1.281	0.749
Number of days in the last four weeks could not do things wanted because of	-0.720	-0.102	0.078	-1.522	0.081
In the last four weeks, parents lost time from work because of your headache	-2.406	-0.061	0.271	-6.698	1.886
Number of days in the last four weeks parents lost time from work because of your headache	0.182	0.025	0.658	-0.627	0.991
Four Weeks Impact Score	**-0.161**	**-0.183**	**<0.001**	**-0.247**	**-0.075**

CHAPTER FIVE – DISCUSSION

5.1 Discussion

This study is one of the first in our region to demonstrate the burden and impact of primary headache disorders on school aged children in Zambia. Specific strengths of this study include the use of validated questionnaires which were appropriately translated and back-translated for use in local languages, and the International Classification of Headache Disorders III criterion with the aid of a validated algorithm was used to diagnose the various headache disorders.

The included sites spanned two main regions across the country, Lusaka and Ndola, and included both government and private primary and secondary schools, and had a large sample size, therefore providing a good representation of the average Zambian child.

5.2 Overall Headache prevalence

The literature has suggested prevalence of headache in children ranging widely, from as low as 12.1% in one community-based door-to-door survey carried out, using a questionnaire based on the criteria of the International Headache Society from Tanzania (*Winkler et al, 2009),* which is most similar to our region, to 54.4% (95% CI 43.1-65.8) in a large meta-analysis of 64 studies spanning 32 countries (*Wöber-Bingöl, Ç, et al 2014*), to 89.3% in a study looking at one year prevalence of headaches in children and adolescents in Istanbul and Vienna (*Wöber-Bingöl Ç, et al 2014*).The study methodology and age group in Istanbul and Vienna was similar to the one reported in this survey.

The data out of this study suggests that primary headache disorders is on the higher end of the range in our region, with a one year prevalence at 87.3% among school aged children aged 7-17 years. This finding is particularly worth noting as headache is often not commonly reported as a complaint without a primary underlying cause like malaria or upper respiratory tract infections.

5.3 Overall Headache types

This survey categorised 6 primary headache types, based upon the International Classification of Headache Disorders III criterion with the aid of a validated algorithm.

Probable migraine headache and migraine headache were the most common headache types across both age groups and towns.

The findings can be explained by the fact that diagnostic criteria for adult migraine has clearly specified intensity, characteristics and symptoms, whereas children report symptoms or duration that might not be as exact as that reported by adults. For example, to diagnose migraine headache, the children would report having a headache lasting less than an hour to seventy-two hours as opposed to the specific four to seventy –two hours as required in the ICHD 3 criteria.

It was noted in this survey and the pilot study in Vienna and Istanbul on headache in the same age group , that the definite criteria to make a diagnosis of migraine or TTH in children could only be postulated and not made exactly as in adults.

In this study, the headache types that did not exactly fit in to either one criterion of migraine without aura and TTH were defined as probable migraine and probable TTH whereas *Wöber C et al* classified these headaches as undifferentiated headaches in the same age group. The prevalence of migraine headache (definite and probable) was 26.7% and that of TTH (definite and probable) was 12.9% (*Wöber C et al).*

Longitudinal studies by Antonaci et al in 2014 suggested, however, that a considerable proportion (8.3–71%) of children and adolescents with migraine evolve to TTH or vice versa, this could imply that the participants' headache types in this study were evolving and therefore had more probable than definite headache.

Both this survey and the one done by Wöber C et al used the ICHD 3 to diagnose the headache types.

5.4 Prevalence of primary headache disorders in school going children aged 7-11 years

Children aged 7-11 years old comprised of 28.2 % of the total sampled population. Undetermined headache was the most prevalent in this age group at 34%, followed by definite migraine at 32 % and definite migraine TTH at 31.2% of all reported headache.

A review of available literature indicated the following age-distributed prevalence of migraine: 3% in children between 3–7 years, 4-11% in those aged 7–11 years, and 8-23% in

11–15 year olds *(Stewart et al 1992).* The children in this survey displayed a higher prevalence of migraine headache.

Epidemiological data on TTH in young subjects suggest prevalence rates of between 10 and 24% (*Anttila et al, 2002*), compared to this, the current study is at 31.2% in this age bracket.

The higher prevalences in this in this study for this age group of both headache types could probably be attributed to the fact that the questionnaire mainly about a headache in the last four weeks and did not specifically ask if it was attributed to any illness during that time.

5.5 The prevalence of headache disorders in school going adolescents aged 12-17 years

Children aged 12-17 years old comprised of 64.7% of the total sample. Of this, 41.7% were male and 58.3% were female.

In this age group, the majority of participants that reported headache, 80% had probable TTH, followed by probable migraine at 71%. Definite migraine was 68%, and definite TTH was present in 69% of the population.

The 1992 study by Stewart et al reported migraine in 8-23% in 11–15 year olds which is lower than the findings here. In contrast, Among 1,876 adolescents in the Republic of Croatia, Sedlic et al in 2016 reported that TTH was most prevalent at 38.3 % and migraine was 12.8%.

5.6 Headache subtype according to gender

The results obtained show that in both age groups, more girls suffer from headache than boys. The latter suffered more from tension type headache at 43.5% and the girls at 56 %. Migraine headache was the most reported headache among girls. The prevalence of probable TTH and undetermined headache in both sexes was almost equal and more girls than boys had other headache types for longer periods.

It was also determined that more girls suffered from headache than boys.

The higher prevalence of migraine headache in the females concurs with published literature which reports that in the ages 12 to 17 years, females had a higher prevalence of migraine at 6.4% compared with males at 4.0% (*Lipton et al, 2007).*

Stewart et al in 2008 also reported that before puberty, girls are afflicted with migraine at approximately the same rates as boys then after puberty the incidence of migraine in girls is higher which has been attributed to the effects of sex hormones on the pathophysiology of migraine. Migraine without aura peaks at age 10 to 11 in boys and age 14 to 17 in girls.

The results shown here tend to agree with what has been reported in the literature above.

5.7 The quality of life

Our study demonstrated that children with headache in Zambia demonstrate significant impact on quality of life. Surprisingly, however, in contrast to other studies and general perception, amongst our study population, the reported general prevalence of headache disorder subtypes did not yield statistically significant data on the number of days the pupils left school early due to headache, missed school days, number of days when medication was taken for headache or the number of days that parents did not go for work as a result of their child having a headache. The reason for this is unclear and many presumptions can be made, therefore prompting a follow up study on how headache is perceived in Zambian families.

The findings by *Wöber C et al* in 2018, on the quality of life, however , showed that the proportions of pupils who missed school lessons because of headache yesterday did not differ between the three groups (undifferentiated headache, migraine headache and TTH).

The impact on school attendance and leisure-time activities in the preceding 4 weeks was lower in undifferentiated headache than in migraine and TTH (*Wöber C et al, 2018*).

Participants with undifferentiated headache had better quality of life compared with participants with migraine and tension-type headache. However, participants with undifferentiated headache had worse quality of life compared with participants without headache.

CHAPTER SIX – CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The 1 year prevalence of headache in general was at 87.3% of the study population. Probable migraine was most common at 38.7% followed by migraine 17.1%.Girls (39.1%) suffered more probable migraine, although boys also displayed a high prevalence in probable migraine (38.1%), followed by probable tension-type headache (TTH) at 14.6%. A reduction in the quality of life was significantly associated with a longer duration of headache days, migraine headache and probable migraine headache whereas there was no significant association with other headache types.

6.2 Study Limitations

There were some limitations, most notably that the children enrolled were mostly adolescents, as several school Headmasters preferred that only the older children be interviewed for convenience.

Due to a larger class size, a larger proportion of participants were from Ndola; furthermore, both sites had a higher number of girls than boys on the register.

It took longer than anticipated to administer the questionnaires especially in the age group 7-11 years, particularly in Ndola compared to Lusaka in spite of the translated questions. The general perception was that the children understood the spoken language better than written. Therefore, it required the PI and the school teacher to literally explain each question to the children, extending the time required for administration. No significant difference was seen between the sites despite this difference in style an time of administration, however.

As this was a school based study with selection bias (school children only) the data may have limited applicability to the general paediatric population. The data collected was largely dependent on self- reporting which has a bias, especially in the preadolescent group.

Children aged 7-11 years old required extensive explanation and translation of the questions which also could have distorted the information collected.

The limited selection of classrooms, by some heads of schools to grades 3 and above (children aged above average 9 years old) may have created another bias.

Additionally, study restricted was to schools, it is difficult to distinguish if there are confounding factors such as the social- economic status of the children.

6.3 Recommendations

While conducting this study it was noted that the children in the schools suffered from headache but did not bring it to the attention of both the parents and the teachers in the schools. I therefore recommend the following:

1. Awareness on primary headache disorders in all institutions that care for children and adolescents. (Government and private schools and hospitals).
2. Based on the International Classification on Headache Disorders, a diagnostic algorithm can be formulated for health care workers from the health centers to tertiary institutions. This in turn can allow for the creation on evidence based management guidelines.
3. A community based study on primary headache, which includes social economic background must be done in order to possibly explain why the prevalence of headache is high compared to studies done elsewhere.

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APPENDICES

Appendix A: INFORMATION SHEET

A study on The Burden Attributable to Childhood and Adolescent Primary Headache Disorders in Zambia

Why am I giving you this form?

I am giving you this form, so as to give you information about the above-named study and also to give you a chance to ask questions about this study. Then you can decide if you wish to take part in this study that is trying to find out how often children in Zambia have headaches and how the headache affects their lives.

2. Who is carrying out this study?

Dr Nfwama Kawatu, is doing the study as part of paediatric specialist training at the University of Zambia, School of Medicine.

3. Background Information

You are being asked to take part in the above-mentioned study, whose aim is to find out how often children in Zambia have headaches and how the headaches affect their lives. Your child's participation in this study, will be enable us get the information that is needed in order to make relevant policies and interventions for this problem of headaches in Zambian children. We believe this is very vital information to all of us and you would help by participating in this study.

4. What will happen in this research study?

You will be answering a questionnaire with questions about the child and type of headaches experienced. This interview will take 45 minutes in the classroom. The information collected will be kept confidential.

5. Possible Problems

We believe that the processes being used will not be harmful to you and the child participating in this study. However, if we notice anything peculiar to you or your child

during or after information is collected, we will let you know and facilitate your (you and your child) seeking appropriate medical help at the nearest health facility.

6. Benefits

It is hoped that the study will help produce information on how often children in Zambia have Headaches and how the headache affects their lives. and will result appropriate measures being taken to control and treat the disease.

7. Participants are free to withdraw from the study at any time and free to decline any questions deemed sensitive.

8. Confidentiality

Your name will never be made public by the investigators. The medical record will be treated the same as all medical records at the health centers. A code number that makes it very difficult for anyone to identify you will identify the research information gathered during this study from you. All information will be stored in a secure place. Information from this study may be used for research purposes and may be published; however, your name will not be made public by the investigators**.** It is possible that, after the study is over, we may want to look again at the data collected during this study to help us answer another question. If this happens, still your name will not be made public by the investigators. The data will be stored for five (5) years and there after the data will be shredded and burnt/ destroyed.

9. Research Related Injury

In the event that a problem results from a study-related procedure, **Dr Nfwama Kawatu** in LUSAKA should be notified (0n **+260 976820383**) or contact the **ERES CONVERGE IRB** (see contact details section), and you or your child will be stabilized and facilitated to seek and receive appropriate medical care at the health facility.

10. Contact Details

Should you want further information about this study or your rights as a participant please use the details provided below:-

Dr Nfwama Kawatu **Principle Investigator.** **University Teaching Hospital,** **Department of Paediatrics and Child Health.** **Mobile: +260-976820383** **Email: nfwama@gmail.com**	**The Secretary,** **ERES CONVERGE IRB,** **33 Joseph Mwila Road,** **Rhodes Park,** **LUSAKA.** **Telephone: +260 966765 503** **+260 955 755 634** **Email: eresconverge@yahoo.co.uk**

Appendix B: CONSENT FORM

(A study on The Prevalence and Burden Attributable to Childhood and Adolescent Headache Disorders in Zambia)

Participant

I, ……. (Participant's parent or guardian's, signature or thumb-print) have been informed about the study. I volunteer to have my child and I participate in the study. A copy of this form signed by me and one of the study investigators is being given to me.

Signature/Thumb: ……

Date (D/M/Y): ……

Interviewer

I have explained this research study to the Participant. I am available to answer any questions now or in the future regarding the study and the Participant's rights.

Signature of Investigator.

Signature: …….

Date (D/M/Y): …….

APPENDIX C: ASSENT INFORMATION SHEET

(A study on The Burden Attributable to Childhood and Adolescent Headache Disorders in Zambia)

1. Why are we giving you this form?

I am giving you this form, so as to give you information about the named study and also to give you a chance to ask questions about this study. Then you can decide if you would like to take part in this study that is trying to find out how often children in Zambia have Headaches and how the headache affects their lives.

2. Who is carrying out this study?

Dr. Nfwama Kawatu who is training to become a children's doctor

3. Background Information

Headache are a common problem in children your age with your condition. This is a study were we are trying to see how find out how often children in Zambia have Headaches and how the headache affects their lives. The doctor will give you a questionnaire to answer.

The importance of you taking part in the study is that you will assist the doctor to try and come up with information that will be useful in helping to treating children with headaches.

4. What will happen in this research study?

You will be answering a questionnaire with questions about you and type of headaches you experience. This interview will take 45 minutes in the classroom. The information collected will not be told to anyone.

5. Possible Problems

I believe that the processes being used will not be harmful to you and the child participating in this study. However, if I notice anything peculiar to you during or after information is collected, I will let you know and facilitate your seeking appropriate medical help at the nearest health facility.

6. Benefits

It is hoped that the study will help produce information on how often children in Zambia have Headaches and how the headache affects their lives and will result appropriate measures being taken to control and treat the disease.

7. Participants Rights

Participants are free to withdraw from the study at any time and free to decline any questions deemed sensitive.

8. Confidentiality

Your name will never be made public by the investigators. The medical record will be treated the same as all medical records at the health centers. A code number that makes it very difficult for anyone to identify you will identify the research information gathered during this study from you. All information will be stored in a secure place. Information from this study may be used for research purposes and may be published; however, your name will not be made public by the investigator**.** It is possible that, after the study is over, I may want to look again at the data collected during this study to help me answer another question. If this happens, still your name will not be made public by the investigator. The data will be stored for five (5) years and there after the data will be shredded and burnt/ destroyed.

9. Research Related Injury

In the event that a problem results from a study-related procedure, **Dr Nfwama Kawatu** in LUSAKA should be notified (0n **+260 976820383**) or contact the **ERES CONVERGE IRB** (see contact details section), and you or your child will be stabilized and facilitated to seek and receive appropriate medical care at the health facility.

10. Contact Details

Should you want further information about this study or your rights as a participant please use the details provided below.

Dr Nfwama Kawatu **Principle Investigator.** **University Teaching Hospital,** **Department of Paediatrics and Child Health.** **mobile: +260-976820383** **Email: nfwama@gmail.com**	**The Secretary,** **ERES CONVERGE IRB,** **33 Joseph Mwila Road,** **Rhodes Park,** **LUSAKA**. **telephone: +260 966765 503** **+260 955 755 634** **Email: eresconverge@yahoo.co.uk**

APPENDIX D: ASSENT FORM

(A study on The Burden Attributable to Childhood and Adolescent Primary Headache Disorders in Zambia)

Participant

I, …….. **(**Participant's name, signature or thumb-print) have been informed about the study. I volunteer participate in the study. A copy of this form signed by me and one of the study investigators is being given to me.

Signature/Thumb: ……

Date (D/M/Y) ……

Interviewer

I have explained this research study to the Participant. I am available to answer any questions now or in the future regarding the study and the Participant's rights.

Signature of Investigators & Printed Names Date of signature

Signature: ……

Date (D/M/Y): ……

Appendix E: Questionnaire

1. English version

Lifting The Burden

in Official Relations with
the World Health Organization

The Global Campaign against Headache

Child HARDSHIP
(Headache-attributed restriction, disability, social handicap and impaired participation) questionnaire

for mediated-group self-administration by children aged 6-11 years

Centre identifier (will be assigned centrally)	_____
School identifier (to be completed by the centre, use consecutive numbers starting with 1 in each centre)	_____
Class identifier (to be completed by the centre, use consecutive numbers starting with 1 in each school)	_____

Respondent identifier (to be completed by the centre, use consecutive numbers starting with 1 in each class)		_____
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** ☐ **girl** ☐
Screen questions		
4	Have you ever had a headache? (please tick one box)	**no** ☐ **yes** ☐
5	Have you had a headache in the last year? (please tick one box)	**no** ☐ **yes** ☐ 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)	☐ **less than 1 hour**	☐ **1-2 hours**	☐ **2-4 hours**	☐ **more than 4 hours**
7	How bad is your headache usually? (please tick one box)		☐ **not bad**	☐ **quite bad**	☐ **very bad**
8	Which best describes your headache? (please choose the one that is closest, and tick one box)		☐ **throbbing or pulsating (like the heart beat)**		☐ **pressing**
9	Is your headache usually on only one side of the head, in the middle or on both sides? (please tick one box)		☐ **on one side**	☐ **in the middle**	☐ **on both sides**
10	Does exercise (like walking or climbing stairs) make your headache worse? (please tick one box)		**no** ☐		**yes** ☐
11	Do you avoid exercise (like walking or climbing stairs) when you have a headache? (please tick one box)		**no** ☐		**yes** ☐
12	With your headache, do you usually feel sick (as though you may throw up)? (please tick one box)		**no** ☐		**yes** ☐

13	With your headache, are you usually actually sick (do you throw up)? (please tick one box)	**no** ☐ **yes** ☐
14	When you have a headache, do you prefer to be in the dark? (please tick one box)	**no** ☐ **yes** ☐
15	When you have a headache, do you prefer to be in the quiet? (please tick one box)	**no** ☐ **yes** ☐

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 four weeks**.

18	On how many days **in the last four weeks** 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 four weeks** 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 four weeks** 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 four weeks** 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 four weeks** 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 four weeks**, 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** ☐ **yes** ☐ _____ **days**

Yesterday questions

24	Did you have a headache **yesterday**? (please tick one box)	**no** ☐ **yes** ☐ If you answered no, please go straight to question 27.		
25	How bad was it? (please tick one box)	☐ **not bad**	☐ **quite bad**	☐ **very bad**

26	Did you miss school yesterday? (please tick one box)	☐ **no**	☐ **yes, I left early**	☐ **yes, I did not go**

More impact questions

Please think about the **last four weeks** to answer these questions.

27	I was afraid of having a headache (please tick one box)	☐ **never**	☐ **Sometimes**	☐ **often**	☐ **Always**
28	My parents did not let me do things because of my headaches (please tick one box)	☐ **never**	☐ **Sometimes**	☐ **often**	☐ **Always**
29	I could not concentrate because of my headaches (please tick one box)	☐ **never**	☐ **Sometimes**	☐ **often**	☐ **Always**
30	I was sad because of my headaches (please tick one box)	☐ **never**	☐ **Sometimes**	☐ **often**	☐ **Always**
31	I was able to cope well with my headaches (please tick one box)	☐ **never**	☐ **Sometimes**	☐ **often**	☐ **Always**

32	I wanted nobody to notice my headaches (please tick one box)	☐ **never**	☐ **Sometimes**	☐ **often**	☐ **Always**

The remaining questions are for **everyone**, with or without headaches.

Quality of life questions

Please think about **your life in the four weeks** to answer these questions.

33	I felt ill (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **Always**
34	I was tired and worn-out (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **Always**
35	I felt full of energy (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **Always**
36	I had fun and laughed a lot (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **Always**

37	I was bored (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **Always**
38	I felt alone (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **Always**
39	I was scared (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **Always**
40	I felt pleased with myself (please tick one box)	☐ **never**	☐ **Sometimes**	☐ **often**	☐ **Always**
41	I felt fine at home (please tick one box)	☐ **never**	☐ **Sometimes**	☐ **often**	☐ **Always**
42	I got along with my friends (please tick one box)	☐ **never**	☐ **Sometimes**	☐ **often**	☐ **Always**
43	I felt different from other children (please tick one box)	☐ **never**	☐ **Sometimes**	☐ **often**	☐ **Always**

44	Doing my schoolwork was easy (please tick one box)	☐ **never**	☐ **Sometimes**	☐ **often**	☐ **Always**

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

Appendix F: Questionnaire for ages 12 – 17 (English)

Lifting The Burden

in Official Relations with
the World Health Organization

The Global Campaign against Headache

Adolescent HARDSHIP (Headache-attributed restriction, disability, social handicap and impaired participation) questionnaire

for mediated-group self-administration by adolescents aged 12-17 years

Centre identifier (will be assigned centrally)		_____
School identifier (to be completed by the centre, use consecutive numbers starting with 1 in each centre)		_____
Class identifier (to be completed by the centre, use consecutive numbers starting with 1 in each school)		_____
Respondent identifier (to be completed by the centre, use consecutive numbers starting with 1 in each class)		_____
1	What is today's date	_____/_____/_____ **day / month / year**
Questions about you		
2	How old are you?	_____ **years**
3	Are you male or female? (please tick one box)	**male** ☐ **female** ☐
Screen questions		
4	Have you ever had a headache? (please tick one box)	**no** ☐ **yes** ☐

5	Have you had a headache in the last year? (please tick one box)	**no** ☐ **yes** ☐ 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)	☐ **less than 1 hour**	☐ **1-2 hours**	☐ **2-4 hours**	☐ **more than 4 hours**
7	How bad is your headache usually? (please tick one box)		☐ **not bad**	☐ **quite bad**	☐ **very bad**
8	Which best describes your headache? (please choose the one that is closest, and tick one box)		☐ **throbbing or pulsating (like the heart beat)**		☐ **pressing**
9	Is your headache usually on only one side of the head, in the middle or on both sides? (please tick one box)		☐ **on one side**	☐ **in the middle**	☐ **on both sides**

10	Does exercise (like walking or climbing stairs) make your headache worse? (please tick one box)	**no** ☐ **yes** ☐
11	Do you avoid exercise (like walking or climbing stairs) when you have a headache? (please tick one box)	**no** ☐ **yes** ☐
12	With your headache, do you usually feel sick (as though you may throw up)? (please tick one box)	**no** ☐ **yes** ☐
13	With your headache, are you usually actually sick (do you throw up)? (please tick one box)	**no** ☐ **yes** ☐
14	When you have a headache, do you prefer to be in the dark? (please tick one box)	**no** ☐ **yes** ☐
15	When you have a headache, do you prefer to be in the quiet? (please tick one box)	**no** ☐ **yes** ☐

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?	_____ **day(s)**

	(please enter the number of days, between 0 and 7)	
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 four weeks**.		
18	On how many days **in the last four weeks** did you have a headache? (please enter the number of times, between 0 and 28)	_____ **day(s)**
19	On how many days **in the last four weeks** did you take medicine or pills because of headache? (please enter the number of times, between 0 and 28)	_____ **day(s)**
20	On how many days **in the last four weeks** did you not go to school because of your headaches? (please enter the number of times, between 0 and 20)	_____ **day(s)**
21	On how many days **in the last four weeks** did you leave school early because of your headaches? (please enter the number of times, between 0 and 20)	_____ **day(s)**
22	On how many **days in the last four weeks** 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 four weeks**, 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** ☐ **yes** ☐ _____ **day(s)**

Yesterday questions

24	Did you have a headache **yesterday**? (please tick one box)	**no** ☐	**yes** ☐ If you answered no, please go straight to question 27.	
25	How bad was it? (please tick one box)	☐ **not bad**	☐ **quite bad**	☐ **very bad**
26	Did you miss school yesterday? (please tick one box)	☐ **no**	☐ **yes, I left early**	☐ **yes, I did not go**

More impact questions

Please think about **the last four weeks** to answer these questions.

27	I was afraid of having a headache (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**
28	My parents did not let me do things because of my headaches (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**

29	I could not concentrate because of my headaches (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**
30	I was sad because of my headaches (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**
31	I was able to cope well with my headaches (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**
32	I wanted nobody to notice my headaches (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**

The remaining questions are for **everyone**, with or without headaches.

Quality of life questions

Please think about **your life in the last four weeks** to answer these questions.

33	I felt ill (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**

34	I was tired and worn-out (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**
35	I felt full of energy (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**
36	I had fun and laughed a lot (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**
37	I was bored (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**
38	I felt alone (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**
39	I was scared (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**
40	I felt pleased with myself (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**

41	I felt fine at home (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**
42	I got along with my friends (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**
43	I felt different from other children (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**
44	Doing my schoolwork was easy (please tick one box)	☐ **never**	☐ **sometimes**	☐ **often**	☐ **always**

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

Appendix G: Questionnaire (Chinyanja)

Kunyamula Mutolo

mogwirizan ndi bungwe loyanganira pa za ummoyo wa anthu pa ziko lonse a World Health Organization

Kumenyera pa za kudwala kwa mutu

Mafunso ozifunsa mothandiziwa mu ma sukulu a mu Zambia

(zaka zochoka pa 7 kufika pa 17)

Chizindikiriso cha sukulu (ichi chizindikilo chilembedwe kuchokela pa olemba amodzi)		_____
Chizindikiro cha kalasi (chilembedwe na sukulu monga mwa maikidwe a kazindikilidwe ka ma kalasi a pa sukulu)		_____
1	Nanga ni sikuli la pa mwezi liti lelo?	_____/_____/_____ **tsiku / mwezi / chaka**
Mafunso ya za iwe		
2	Uli na zaka zingati?	_____ **zaka**
3	Sanka ngati ndiwe mwamuna olo mkazi? (chonde chonga mu ka bokosi)	**mwamuna** ☐ **mkazi** ☐
Mafunso opatusa		
4	Kodi unakhalapo na mutu? (chonde chonga mu ka bokosi)	**iyayi** ☐ **eye** ☐
5	Unankhalapo na mutu muchaka chimodzi chapita? (chonde chonga mu ka bokosi)	**iyayi** ☐ **eye** ☐ Ngati wayanka kuti iyayi chonde lumpa uyende ku funso ya numba 33.

Mafunso ya kazibidwe

Aya mafunso ya Kamba molinganiza pa mutu wako.

6	Kodi mutu wako utenga nthawi bwanji ukayamba kubaba? (chonde chonga mu ka bokosi)	☐ **mochepa ola imozi**	☐ **ola imozi kufika ku ma ola awili**	☐ **ma ola awili kufika ku ma ola anai**	☐ **kupita ma ola anai**
7	Nanga mutu ubaba moipa bwanji nthawi iliyonse? (chonde chonga mu ka bokosi)		☐ **osati moipa**	☐ **moipa**	☐ **moipa maningi**
8	Nanga nichiti chamene chinga kambe mwamene mutu wako ubabila? (sanka chili pafupi maningi uchonge)		☐ **kuponda kapena kuthwa monga mwamene mtima ugundira**		☐ **kusindila**
9	Nanga kubaba mutu kambili umveka mbali chabe imozi, cha pakati olo mbali zonse zibili za mutu? (chonde chonga mu ka bokosi)		☐ **mbali imozi**	☐ **pakati**	☐ **mbali zibili**
10	Nanga kuchita vintu (monga kuyenda kapena kukwela pa mwamba pama steyazi) vimalenga mutu kuti unyanye? (chonde chonga mu ka bokosi)			**iyayi** ☐ **eye** ☐	
11	Kodi ngati mutu ubaba, uma leka kuchita vintu monga kuyenda nangu kukwela pa masteyazi? (chonde chonga mu ka bokosi)			**iyayi** ☐ **eye** ☐	

12	Na mutu wako, umamvela mseluselu monga unga luke? (chonde chonga mu ka bokosi)	**iyayi** ☐ **eye** ☐
13	Namutu wako kodi umadwala (mpakana waluka)? (chonde chonga mu ka bokosi)	**iyayi** ☐ **eye** ☐
14	Ngati mutu ubaba kodi umasankha kunkala mu mfinzi? (chonde chonga mu ka bokosi)	**iyayi** ☐ **eye** ☐
15	Ngati mutu ubaba kodi umasanka kunkala palibe chongo? (chonde chonga mu ka bokosi)	**iyayi** ☐ **eye** ☐

Mafunso ya mailo (zulo)

16	Nanga unadwalapo mutu mailo? (chonde chonga mu ka bokosi)	**iyayi** ☐ **eye** ☐ Ngati wayanka kuti iyayi chonde lumpa uyende ku funso ya numba 19		
17	Nanga una baba moipa bwaanji? (chonde chonga mu ka bokosi)	☐ **osati moipa**	☐ **moipa**	☐ **moipa maningi**
18	Mailo sunayende ku sukulu? (chonde chonga mu ka bokosi)	☐ **iyayi**	☐ **ninayenda koma nina chokako**	☐ **eye sininayendeko**

			msanga	

Mafunso ya mwamene mutu ulenga kuti uvutike pa vintu va umoyo wako

Mafunso yokonkapo niya zovuta zamene mutu wako uleta pa umoyo wako.

Mafunso yabili yoyamba ni ya vamene vinachitika pa **wiki yasila**.

19	Ni masiku yangati muli **wiki yasila** yamene unadwala mutu? (chonde lemba numba ya masiku amene unadwala mutu, kuhoka pa 0 kufika pa 7)	_____ **masiku**
20	Ni masiku yangati muli **wiki yasila** yamene unamwa mankwala kapena mapilisi chifukwa cha mutu? (chonde lemba numba ya masiku amene unadwala mutu, kuhoka pa 0 kufika pa 7)	_____ **masiku**

Mfunso yamene yakonkapo yafunsa vamene unapitamo pa **mawiki 4 yasila apa.**

21	Ni masiku yangati muli **mawiki 4 yasila apa** yamene unadwala mutu? (chonde lemba namba ya masiku amene unadwala mutu pakati pa 0 na 28)	_____ **masiku**
22	Ni masiku yangati muli **mawiki 4 yasila apa** yamene unamwa mankwala kapena mapilisi chifukwa chakudwala mutu? (chonde lemba namba ya masiku amene unadwala mutu pakati pa 0 na 28)	_____ **masiku**
23	Ni masiku yangati muli **mawiki 4 yasila apa** yamene siunayende ku sukulu chifukwa chakudwala mutu? (chonde lemba numba ya masiku, pakati pa 0 na 20)	_____ **masiku**
24	Ni masiku yangati muli **mawiki 4 yasila apa** yamene unakomboka msanga kusukulu chifukwa chakudwala mutu?	_____ **masiku**

	(chonde lemba namba ya masiku, pakati pa 0 na 20)	
25	Ni masiku yangati muli **mawiki 4 yasila apa** yamene sunachite vinthu vamene wenze kufuna kuchita chifukwa chakudwala mutu? (chonde lemba namba ya masiku, pakati pa 0 na 28)	_____ **masiku**
26	Pa **mawiki 4 yasila apa**, kodi makolo ako sanali kupita ku nchito chifukwa chodwala mutu kwako? (chonde chonga bokosi imozi, ngati wachonga lemba namba yamasiku yamene sibanapite kunchito)	**iyayi** ☐ **eye** ☐ _____ **masiku**

Conde pitiliza kuganiza pa **mawiki 4 yasila apa** kuyanka aya mafunso.

27	Nenze kuyopa kudwala mutu (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**
28	Makolo yenzo nilesa kuchita chilichonse chifukwa chodwala mutu (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**
29	Nenze kukangiwa kunkazikika mumaganizo ndaba yakudwala mutu wanga (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**
30	Nenze wosakondwa ndaba ya mutu wanga (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**

31	Nina kwanisa kunkala chabe bwino nodwala mutu kwanga (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**
32	Sinenze kufuna kuti munthu ali yense azibe za kudwala mutu kwanga (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**

Mafunso a Muyeso

Aya mafunso ni ya **aliyense**, ali nawi, olo alibe matenda ya mitu. Chonde ganiza **paza umoyo wako pa mawiki 4 yasila apa,** kuti uyanke mafunso aya.

33	Nenze nina dwalapo (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**
34	Nenze nina lema nakumvela kusililatu (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**
35	Nenze kumvela mphamvu (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**
36	Nenze kumvela kukondwela nakuseka maningi (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**
37	Nenze kumvela ulesi (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**

38	Nenze kumvela nilineka (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**
39	Nenze kumvela mantha (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**
40	Nenze kumvela wokondwela pa neka (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**
41	Nenze kumvela chabe bwino kunyumba (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**
42	Nenze kusobela chabe bwino na banzanga (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**
43	Nenze kumvela kusiyana na bana benangu (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**
44	Kuchita nchito yanga yaku sukulu chenze chonipepukila (chonga mu bokosi imozi)	☐ **nikalibe**	☐ **nthawi zina**	☐ **kambili**	☐ **nthawi zonse**

Uku ndiye kusila kwa mafunso. Zikomo kwa mbili pakuyankha.

Appendix H: Questionnaire (Bemba)

Ukutula ichisendo

Pamo nakabungwe akalolesha pabumi bwabantu bonse mwisonde

isambililo ilelolesha pa bulwele bwamutwe mwisonde lyonse

Amepusho ayo amabungwe yengaipusha mumasukulu yamu Zambia

(imyaka 7-17 years)

Ichishibisho chesukulu (abakalemba apa bene be sambililo iyi)		_____
Ichishibisho chamu class (abengalemba apa bapa sukulu ukubomfya ama saini babomfya abene)		_____
1	Bushiku nshi lelo?	_____/_____/_____ **ubushiku/ umwenshi /umwaka**
Amepusho pali mwe		
2	Mukwete imyaka inga?	_____ **imyaka**
3	Muli banakashi nangula abaume? (chongeni mukabokoshi kamo)	**abaume** ☐ **abanakashi** ☐
Amepusho yakwishibilako nga namukwatako amalwele ayaliyonse		

4	Bushe mwalilwalapo umutwe? (chongeni mukabokoshi kamo)		**awe** ☐		**ehe** ☐
5	Bushe mwali lwalapo umutwe mumwaka uyu wapitapo? (chongeni mukabokoshi kamo)		**awe** ☐ Nganamwasuka ati awe, mutolokele kulipusho namba 33		**ehe** ☐
Amepusho ayalelolesha pa mutwe uyu					
6	Bushe umutwe mumfwa wikala akashita akatali shani ilingiline? (chongeni mukabokoshi kamo)	☐ **taufika 1 hour**	☐ **limbi 1-2 hours**	☐ **nangula 2-4 hours**	☐ **ukuchilafye na 4 hours**
7	Bushe umutwe wenu ukalipa ububi shani? (chongeni mukabokoshi kamo)		☐ **Taukalipa ububi sana**	☐ **sana**	☐ **sana sana**
8	Bushe kumwalanda ati ulakalipa musango nshi umutwe wenu? (salenipo ichipalileko pali aya amasuko elo)		☐ **ulapuma (kwati mutima)**		☐ **ukuchitikisha**
9	Bushe umutwe wenu ukalipila kumbali imo, pakati kamutwe nangula konse konse? (chongeni mukabokoshi kamo)		☐ **imbali imo**	☐ **pakati kamutwe**	☐ **konse konse**

10	Bushe kuchita ama ekisasaizi (kwati ukwenda nangula ukukwela imitanto nangula ama steyaz) ku lapanga umutwe wenu ukukalipilako? (chongeni mukabokoshi kamo)	**awe** ☐ **ehe** ☐
11	Bushe mulabutuka ama ekisasaizi (kwati ukwenda nangula ukukwela ama steyaz) nganamumfwa umutwe? (chongeni mukabokoshi kamo)	**awe** ☐ **ehe** ☐
12	Nganamukwata umutwe, bushe ilingiline mulomfwa kwati namulwala (kwati mulefwaya ukuluka)? (chongeni mukabokoshi kamo)	**awe** ☐ **ehe** ☐
13	Nganamukwata umutwe, bushe mulalwala ilingiline (mula luka)? (chongeni mukabokoshi kamo)	**awe** ☐ **ehe** ☐
14	Nganamukwata umutwe, bushe mulafwayapo ukuba umwafita? (chongeni mukabokoshi kamo)	**awe** ☐ **ehe** ☐
15	Nganamukwata umutwe, bushe mulafwayapo ukuba umuli tondolo? (chongeni mukabokoshi kamo)	**awe** ☐ **ehe** ☐
Amepusho yalelolesha pali mailo		
16	Bushe mwalikwetepo umutwe **mailo**? (chongeni mukabokoshi kamo)	**awe** ☐ **ehe** ☐ Ngamwachasuka ati awe, kabiyeni kulipusho namba 19

17	Wakalipile ububi shani? (chongeni mukabokoshi kamo)	☐ **taukalipa ububi sana**	☐ **sana**	☐ **sana sana**
18	Bushe mwalifilwa ukuya kusukulu mailo? (chongeni mukabokoshi kamo)	☐ **awe**	☐ **ehe, lelo nalikombo ka bwangu**	☐ **awe nshaileko**

Amepusho yalelolesha pali ubwafya umutwe uleta pabumi bwenu

Amepusho yalekonkapo yalelolesha pali ubwafya umutwe mulwala uleta pa bumi bwenu.

Amepusho ayakubalilapo yabili, yalelolesha **pa mulungu wapitapo**.

19	Ninshiku shinga **umulungu uyu wapitapo** lintu mwakwetepo umutwe? (lembeni inshiku ukufuma 0 kufikilafye pa 7)	**inshiku _____**
20	Ninshiku shinga shintu mwanwinepo umuti **mu mulungu uyu wapitapo** pa mulandu wamutwe? (lembeni inshiku ukufuma 0 kufikilafye pa 7)	**inshiku _____**

Amepusho yalekonkapo yalelolesha **pa milungu 4 yapitapo**.

21	Ninshiku shinga **pa milungu 4 yapitapo** shintu mwakwetepo umutwe? (lembeni imiku ukufuma pa 0 ukufikafye na pa 28)	**inshiku _____**

22	Ninshiku shinga **pa milungu 4 yapitapo** shintu mwanwinepo umuti pa mulandu wamutwe? (lembeni imiku ukufuma pa 0 ukufikafye na pa 28)	**inshiku _____**
23	Ninshiku shinga **pa milungu 4 yapitapo** intu mwafililwe ukuya kusukulu pa mulandu wamutwe? (lembeni imiku ukufuma pa 0 ukufikafye na pa 20)	**inshiku _____**
24	Ninshiku shinga **pa milungu 4 yapitapo** intu mwakombweke bwangu kusukulu pamulandu wamutwe? (lembeni imiku ukufuma pa 0 ukufikafye na pa 20)	**inshiku _____**
25	Ninshiku shinga **pa milungu 4 yapitapo** intu mwafililwe ukuchite fintu mwalefwaya ukuchita pamulandu wamutwe? (lembeni imiku ukufuma pa 0 ukufikafye na pa 28)	**inshiku _____**
26	**Pa milungu 4 yapitapo**, bushe umutwe wenu walilengelepo abafyashi benu uku chelwa kunchito nangula ukukanaya olo ukukomboka bwangu? (chongeni mukabokoshi kamo, ngamwachonga ati ehe, lembeni inshiku shintu muposa)	**awe** ☐ **ehe** ☐ **inshiku _____**

Taleni mutontokanyepo **pa milungu 4 yapitapo** kutila mwingasuka amepusho aya.

27	Nalitinine uku kwata umutwe (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**
28	Abafyashi bandi balinkanya ukuchita ifintu pamulandu wa mutwe (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**

29	Nalifilwa ukutontokanya bwino mulandu wa mutwe wandi (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**
30	Naumfwile ububi pamulandu wa mutwe (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**
31	Nali ukwanisha bwino bwino umutwe wandi (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**
32	Nshalefwaya umuntu uuli onse ukwishiba kuti ninkwata umutwe (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**

Amepusho pabunonshi bwabumi

Amepusho yalekonkapo yabonse, abakwete umutwe nabalya abatabakwete. Taleni mutontokanyepo **pa milungu 4 yapitapo** kutila mwingasuka amepusho aya.

33	Naliumfwile ukulwala (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**
34	Nalinakile ububi sana (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**

35	Nali umfwa kwati ninkwatisha amaka (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**
36	Nali uwansansa nokuseka sana (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**
37	Nali tendwa (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**
38	Na leumfwa kwati nabafye neka pachalo (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**
39	Nalikwete umwenso (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**
40	Nali umfwa bwino nemwine (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**
41	Nali umfwa bwino kung’anda (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**
42	Nali umfwana naba nandi (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**

43	Nali umfwa kwati nshali ngabana bambi (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**
44	Ukuchita ifyakusukulu kwalinakile (chongeni mukabokoshi kamo)	☐ **awe**	☐ **limo limo**	☐ **ilingiline**	☐ **lyonse**
Apa epapwila amepusho aya. Natotela pakwasuka.					

Appendix I: Letter of clearance from GPPF4

UNIVERSITY OF ZAMBIA

SCHOOL OF MEDICINE

Telephone : +260211252641
Telegram: UNZA, Lusaka
Telex: UNZALU ZA 44370

P.O Box 50110
Lusaka, Zambia

Email: assistantdeanpgmedicine@unza.zm

2 December 2016

Ms. Nfwama Kawatu
Department of Paediatrics and Child Health
School of Medicine
UNZA
LUSAKA

Dear Ms. Kawatu,

RE: GRADUATE PROPOSAL PRESENTATION FORUM

Following the presentation of your dissertation entitled **"The Prevalence and Burden Attributable to Childhood and Adolescent Headache Disorders in Lusaka Urban and Ndola Rural School Children aged 7-17 years"** your supervisor has confirmed that the necessary corrections to your research proposal have been done.

You can proceed and present to the Research Ethics.

UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE
02 DEC 2016
ASSISTANT DEAN (PG)
P.O. BOX 50110, LUSAKA.

Yours faithfully,

Dr. S.H. Nzala
ASSISTANT DEAN, POSTGRADUATE

cc: HOD, Department of Paediatrics and Child Health

Appendix J: Permission letter from Lusaka Provincial Education Office (PEO)

All communications should be addressed to the Provincial Educational Officer and not to any individual by name

Telephone: +260 -211- 250655/251220
Fax: +260-251009

In reply please quote:

No. .....
PEO/LR/101/28/2

REPUBLIC OF ZAMBIA

MINISTRY OF GENERAL EDUCATION
OFFICE OF THE PROVINCIAL EDUCATION OFFICER
LUSAKA REGIONAL HEADQUARTERS
PRIVATE BG RW 21E
LUSAKA

6th February, 2017

Dr. Nfwama Kawatu
University of Zambia
School of Medicine
LUSAKA.

RE: INTRODUCTORY LETTER: DR. NFWAMA KAWATU

This serves to introduce the above mentioned student currently pursuing a Master of Paediatrics and Child Health under the School of Medicine University of Zambia

Dr. Nfwama Kawatu would like to conduct a questionnaire based research entitled "The **Prevalence and Burden Attributable to Childhood and Adolescent Primary Headache Disorders Aged 7 – 17 years** in Lusaka.

Appendix J: Permission letter from Ndola Provincial Education Office (PEO)

All correspondence should be addressed to the
District Education Board Secretary

Telephone: +260 212 612277 / 622 047

In reply please quote

No. .....

REPUBLIC OF ZAMBIA
MINISTRY OF GENERAL EDUCATION

DISTRICT EDUCATION BOARD SECRETARY
P.O. Box 71970
NDOLA

9th February, 2018

All Headteachers
Secondary and Primary Schools
NDOLA DISTRICT

RE: INTRODUCTORY LETTER: DR. NFWAMA KAWATU

I hereby write to introduce **Dr. Nfwama Kawatu** a student pursuing Master of paediatrics and Child Health under School of Medicine from the University of Zambia.

Dr. Nfwama Kawatu would like to conduct a questionnaire based research entitled **Prevalence and Burden Attributable to Childhood and Adolescent Primary Headache Disorders aged 7-17 years.**

Kindly assist her.

Your usual co-operation is always appreciated.

Terry Changwe
District Education Board Secretary
NDOLA
/emp

Appendix K: ERES Approval Letter

ERES CONVERGE

33 Joseph Mwilwa Road
Rhodes Park, Lusaka
Tel: +260 955 155 633
+260 955 155 634
Cell: +260 966 765 503
Email: eresconverge@yahoo.co.uk

I.R.B. No. 00005948
F.W.A. No. 00011697

5th June, 2017

Ref. No. 2017-Mar-001

Principal Investigator
Dr. Nfwama Kawatu
University Teaching Hospital
Private Bag RW1X,
LUSAKA.

Dear Dr. Kawatu,

RE: BURDEN ATTRIBUTABLE TO CHILDHOOD AND ADOLESCENT PRIMARY HEADACHE DISORDERS IN LUSAKA URBAN AND NDOLA RURAL SCHOOL CHILDREN AGED 7-17 YEARS.

Reference is made to your corrections dated. The IRB resolved to approve this study and your participation as Principal Investigator for a period of one year.

Review Type	**Ordinary**	Approval No. **2017-Mar-001**
Approval and Expiry Date	Approval Date: 5th June, 2017	Expiry Date: 4th June, 2018
Protocol Version and Date	Version - Nil	4th June, 2018
	English, Nyanja	4th June, 2018

Specific conditions will apply to this approval. As Principal Investigator it is your responsibility to ensure that the contents of this letter are adhered to. If these are not adhered to, the approval may be suspended. Should the study be suspended, study sponsors and other regulatory authorities will be informed.