PREVALENCE AND FACTORS ASSOCIATED WITH FEVER-RELATED SCHOOL ABSENTEEISM AMONG SCHOOL-GOING CHILDREN IN ABIM DISTRICT, NORTH EASTERN UGANDA

BY

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Approval

This research dissertation has been approved by the research supervisors of the student

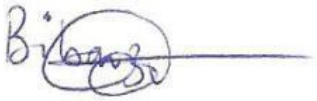
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Declaration

I hereby declare that the research study; 'Prevalence and Factors associated with fever related school absenteeism among school going children in Abim district, a school based cross sectional study' is my original work and has never been submitted to any institution for an award

Oyugi Francisco

Signature… 

Date: **2/09/2026**

Dedication

This Dissertation is dedicated to my loving mother, RIP Mrs. Apio Alice; thank you for your selfless support through my education of this program, RIP Mum

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List of acronyms

FI:	Febrile Illness
FY	Financial Year
HBM	Health Belief Module
ITN	Insecticide Treated Net
LLIN	Long Lasting Insecticide Nets
MoES	Ministry Of Education and Sports
MoH	Ministry Of Health
SDGS	Sustainable Development Goals
WASH	Water Sanitation and Hygiene
WHO	World Health Organization

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Operational definition

Fever-related school absenteeism: was defined as missing at least one school day due to fever during school days

Child: Individual below the age of 18 as define by 1995 Ugandan constitution

School going children. Pupil's age 10-17 years attending primary school, children below 10 years were excluded from the study because of their inability to recall fever-related school absenteeism episodes in the last 2 school terms

ABSTRACT.

Background: Fever-related school absenteeism remain a major a public health challenge globally affecting school going children worldwide. Evidence on school absenteeism largely focuses on malaria, with limited evidence on the prevalence and determinants of fever-related school absenteeism in rural North-Eastern Uganda. This study therefore aimed to determine the prevalence and factors associated with fever-related school absenteeism among school going children in Abim district, North Eastern Uganda.

Methods: A school-based cross-sectional study was conducted among 355 school going children aged 10-17 years in upper primary (P.5-P.7) in 5 selected primary schools in Abim district "between March and April 2025". Data was collected using semi- structured questionnaires in English or Leb-thur. Participants were selected through stratified random sampling. Information on socio-demographic characteristic was collected. Descriptive statistics and modified Poisson regression analyses was performed using STATA 18.0. Association between independent variables and fever related school absenteeism was reported as adjusted prevalence ratio with corresponding Confidence interval and $p<0.05$ considered statically significant

Results: A total of 355 participants with a mean age of 14 (SD 1.5) years were enrolled. More than half of participants were males (56%, n=199) and most of the learners 39% (n=136) were in P.5. Majority of the participants, 60.56% (n=215) missed school due to fever. Factors independently associated with fever-related school absenteeism were being in primary seven (aPR: 1.33, 95% CI=1.07-1.66, p=0.009), and learners who reported to their parents first whenever they had fever (aPR: 1.49, 95% CI=1.25-1.78, p= <0.001**)** whereas learners who have access to clean and safe drinking water at school were 0.79 times less likely to missed school due to fever (aPR: 0.79, 95% CI=0.62-0.99, p=0.048).

Conclusion: Fever-related school absenteeism was common among learners in Abim District, highlighting fever as an important barrier to regular school attendance. Absenteeism was associated with learners' class level, who they informed first when they had fever, and access to clean and safe drinking water at school. Schools and stakeholders should strengthen health education, access to safe water drinking water at school, and parental involvement in the timely management of fever. Strengthening school health monitoring and data quality can enhance planning, timely interventions and help reduce fever-related school absenteeism

"Key words" Fever-related school absenteeism, school-going children, Abim District, North Eastern Uganda

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This chapter presents the background and rationale for the study on prevalence and factors associated with fever-related school absenteeism among school-going children in Abim District, North-Eastern Uganda**.** It highlights the burden of fever and its impact on school attendance, identifies gaps in existing evidence, and presents the problem and justification for the study. In addition, the chapter further outlines the study objectives, research questions, conceptual framework, and significance, providing the basis for determining the prevalence of and factors associated with fever-related school absenteeism

1.1 Background

Fever remains one of the most common signs of illness among school going children and may result from a wide range of infections, such as malaria, respiratory tract infections, gastrointestinal infections, bacterial infections, viral infections, and parasitic infections (Crump *et al*., 2013). Globally, the World Health Organization estimated 247 million malaria cases in 84 malaria endemic countries, World Health Organization, (2022) world malaria report

In sub-Saharan Africa, fever continues to pose a major public health concern because infectious diseases remain common among children and can affect their daily activities, including school attendance, similarly malaria is one of the major causes of fever among school-going children in malaria-endemic areas of Africa (Nankabirwa et al., 2014a)

Although malaria is an important cause of fever, childhood fever has many other possible causes. School-going children may develop fever from respiratory, gastrointestinal, bacterial, viral, and parasitic infections (Crump *et al*., 2013). In many low-resource settings, the exact cause of fever may not always be established because access to laboratory and other diagnostic services is limited. This is particularly important when examining fever-related school absenteeism because a child may be absent from school because of fever without receiving a confirmed diagnosis of the underlying illness (Kjos *et al*., 2013). For this reason, fever-related school absenteeism can be

considered a broader measure of school absence associated with fever, regardless of the specific cause of the illness.

Fever directly contributes to school absenteeism because illness may reduce a child's physical ability and readiness to attend school, school going children with fever may experience weakness, headache, chills, body pain, fatigue, poor appetite, and difficulty concentrating. These symptoms may make it difficult for a school child to travel to school, remain in class, and participate fully in learning activities. Caregivers may also decide to keep a sick child at home to allow recovery, seek treatment, or prevent possible transmission of infection to other learners. Therefore, the severity and duration of illness, access to appropriate treatment, and caregiver decisions may influence both whether a child misses school and the number of days missed (Akram *et al*., 2026).

The effect of fever on school attendance is reflected in the number of learning days lost among affected children. Evidence from sub-Saharan Africa shows that fever and other childhood illnesses contribute substantially to school absenteeism. In Ghana, 65% of pupils who experienced fever missed school, resulting in 904.4 school days lost and an average of 2.4 school days lost per pupil (Tawiah *et al*., 2016)**,** whereas In Ethiopia, fever accounted for 88% school absenteeism rate and was also considered an significant contributor to school absenteeism among school children (Ashton *et al*., 2016)**.** In addition, a study by Macnab and others reported that school going children with presumed infectious illnesses missed considerable amounts of school time before the introduction of school-based malaria testing and treatment, the mean duration of school absenteeism was 6.5 school days (Macnab *et al*., 2016), Following the introduction of rapid diagnostic testing and treatment by trained teachers, the mean duration of absence among children who tested positive for malaria decreased to approximately 0.6 school days (Nankabirwa et al., 2014a). These findings indicate that the duration of school absence may depend not only on the occurrence of illness but also on the availability and timing of appropriate diagnosis and treatment.

Beyond the number of days missed, fever-related absenteeism represents lost opportunities for learning and participation, school going children who remains at home because of fever may miss classroom teaching, discussions, practical activities, assignments, assessments, and interaction with teachers and peers. When school absenteeism lasts for several days, it interrupts learning

continuity, evidence from African school populations identifies malaria and other infectious illnesses as important contributors to school absence and highlights the potential educational consequences of repeated illness among school-going children (Nankabirwa *et al*., 2014)

Fever related school absenteeism among school going children represents a loss of instructional time, for example a study by Jay and others found that chronic health conditions were associated with lower academic attainment, although there was limited evidence that school absence itself explained this relationship (Jay *et al*., 2023). Therefore, the concern in the present study is that fever-related school absenteeism may reduce learning time and disrupt learning continuity rather than directly causing poor academic performance.

The magnitude of fever-related school absenteeism may vary according to individual, household and school-related factors. The severity and duration of fever can determine how long a learner remains away from school, while parental knowledge, care-seeking practices and decisions about when a sick child should return to school may influence attendance (Akram *et al*., 2026). Access to timely diagnosis and appropriate treatment is also important because delays in receiving care may prolong illness and increase the number of school days missed. Evidence from Uganda demonstrates that bringing malaria testing and treatment closer to children through schools can reduce the duration of illness-related school absence (Nankabirwa *et al*., 2014). These findings highlight the importance of timely identification and management of febrile illnesses in reducing unnecessary loss of school time.

School and household environments may also contribute to fever-related school absenteeism. Poor water, sanitation and hygiene conditions can increase children's exposure to infectious diseases (Prüss-Ustün *et al*., 2014), while inadequate health education may limit knowledge about disease prevention, early recognition of illness and appropriate care-seeking, furthermore, household socioeconomic circumstances, distance to health facilities and the availability of parental support may further influence how quickly a child receives care and returns to school(Tawiah *et al*., 2016). Therefore, these factors are particularly relevant in rural communities where access to health services and other preventive resources may be limited.

Accurate information and evidence for school absence is also important, whereas school attendance records can provide useful information about illness affecting school-going children, particularly when absence is classified according to specific symptoms or conditions not a single study have produced such evidence of a school health data system. A systematic review study by Ashton and others, reported that syndrome-specific absenteeism had a stronger correlation with other infectious disease surveillance systems than all-cause absenteeism. This review suggested that recording the specific reason for absence can improve the usefulness of school attendance data as it help schools and health authorities quantify the burden and identify appropriate responses (Ashton *et al*., 2016)

In Uganda, malaria remains a major cause of fever related school absenteeism among school going children, despite continued efforts by government and partners to strengthen prevention, diagnosis and treatment. Uganda introduced the R21 malaria vaccine into its routine immunization Programe in 2025, targeting children in high and moderate-transmission districts as part of its broader malaria-control strategy. However, malaria prevention and control alone may not address all episodes of fever because fever can result from several other infections. *New release* (World Health Organization (WHO), 2025. *Uganda launches largest malaria vaccine introduction to date)*.

At the district level, the burden of fever-related school absenteeism remains hidden when health and education records are considered separately. In Abim District in North-Eastern Uganda, school-going children may experience fever and miss school while receiving treatment or recovering at home. However, there is limited recent district-specific evidence on the prevalence of fever-related school absenteeism and the factors associated with it among school-going children in Abim District. Existing health information systems may record children who seek care for fever or suspected malaria, while school attendance records may show that a child was absent without clearly documenting fever as the reason. As a result, the extent of fever-related school absenteeism and the factors contributing to it may not be well understood at the district level.

Despite evidence linking childhood illness to school absence, important knowledge gaps remain**.** First, much of the available evidence has focused on malaria-related school absenteeism rather than fever-related absenteeism as a broader outcome. Secondly, there is limited recent evidence

on the prevalence of fever-related school absenteeism among school-going children in rural north-eastern Uganda. Thirdly, there is limited information on the socio-demographic, behavioral, household, and environmental factors associated with fever-related school absenteeism in this setting. Finally, there is limited district-specific evidence describing the magnitude of fever-related school absenteeism and its associated factors among school-going children in Abim District

1.1.1Justification for this study

Conclusively, addressing these gaps is important because local evidence provides the basis for designing interventions that respond to the actual needs of children and schools. Without reliable information on the magnitude of fever-related absenteeism and the factors associated with it, schools, health authorities, and other stakeholders may find it difficult to identify appropriate and targeted responses. Evidence on the prevalence and associated factors can help inform strategies for early detection of illness, timely healthcare-seeking and disease prevention. Therefore, this study aimed to determine the prevalence and factors associated with fever-related school absenteeism among school going children in Abim District, North-Eastern Uganda.

1.2 Problem statement

Fever-related school absenteeism remains an important public health and educational concern among school-going children in Uganda, as febrile illnesses can limit school attendance and participation in learning. In Abim District, 65% of school children were reported to have been diagnosed with fever associated with conditions such as parasitic infections, gastrointestinal infections, and acute respiratory infections in 2023 District Health Information Software, (2024) database report for Abim district. Similarly, the 2023/2024 district annual report indicated that school absenteeism was 58%, with illness, child abuse and neglect, hunger, and lack of school fees among the reported contributing factors. Persistent absenteeism may disrupt learning and increase the risk of school dropout, particularly among girls (Nankabirwa *et al*., 2014). Nationally, the Ministry of Health reported that fever-related illness accounted for approximately 61% of school absenteeism in both rural and urban settings (MoH *annual report*., 2019). . Despite interventions such as immunization, health promotion, and water, sanitation and hygiene (WASH) programs, existing evidence in Uganda and sub-Saharan Africa has focused more on

malaria-related illness and absenteeism than on fever-related school absenteeism as a broader outcome. Furthermore, limited district-specific evidence exists on whether socio-demographic factors, including age, class level, and school residence status, and behavioral factors, such as mosquito-net use, latrine use, access to safe drinking water at school, and healthcare-seeking behavior, are associated with fever-related school absenteeism among children in rural north-eastern Uganda. This evidence gap limits the ability of schools, health workers, parents, and district authorities to identify relevant risk factors and design targeted interventions to prevent and reduce absenteeism associated with febrile illness. Persistent challenges, including gaps in implementation of child health policies, inadequate resources for health promotion, insufficient school WASH infrastructure, and limited access to healthcare services, may further contribute to poor health outcomes and school attendance (Mbonye et al., 2015), Kabaghe *et al*., 2017). Therefore, there is a need for locally generated evidence to quantify the burden of fever-related school absenteeism and identify factors associated with its occurrence. Such evidence can inform interventions to promote appropriate healthcare-seeking behavior, improve access to safe drinking water and adequate WASH facilities in schools, strengthen stakeholder involvement in the early identification and management of febrile illness, and ultimately reduce fever-related school absenteeism. This study was therefore conducted to determine the prevalence of and factors associated with fever-related school absenteeism among school-going children in Abim District, north-eastern Uganda.

1.3 Purpose of the study

To determine the prevalence and factors associated with fever-related school absenteeism among school going children in Abim district North Eastern Uganda.

1.4 Objectives of the study

1. To determine the prevalence of fever-related school absenteeism among school going children in Abim district North Eastern Uganda.
2. To assess factors associated with fever-related school absenteeism among school going children in Abim district North Eastern Uganda.

1.4.1 Research Questions

What is the prevalence of fever-related school absenteeism among school going children in Abim district North Eastern Uganda?

What are the factors associated with fever-related school absenteeism among school going children in Abim district North Eastern Uganda?

1.5. Scope of the study

The scope of the study was defined in terms of geographical area, content, target population, and time to provide clear boundaries for the research.

1.5.1 Geographical scope

The study was conducted in Abim District, located in the north-eastern part of Uganda within the Karamoja sub-region, the study covered five selected primary schools: Abim Primary School, Kiru Primary School, Orwamuge Primary School, Morulem Boys' Primary School, and Alerek Primary School. These schools formed the study sites from which participants were selected.

1.5.2 Content scope

The study main focused was to determine prevalence and factors associated with fever-related school absenteeism among school-going children**.** It examined the occurrence of fever, the number of school days missed because of fever, and factors that may influence fever-related school absenteeism among school going children. These factors included socio-demographic characteristics, mosquito-net use, sanitation and latrine use, access to clean and safe drinking water, healthcare-seeking behavior. The study specifically focused on fever-related school absenteeism and did not examine absenteeism caused by other conditions or non-health-related factors.

1.5.3 Population scope

The study targeted school-going children aged 10–17 years enrolled in Primary five to Primary seven in the five selected primary schools. A total of 355 learners participated in the study. School going children below and above the age bracket, not in primary five to seven were

exclude, and children who were not enrolled in the selected schools were outside the study population.

1.5.4 Time scope

Data was collected between March and April 2025. The study assessed participants' experiences of fever and fever-related school absenteeism within the recall period between May to December 2024. Therefore, the findings reflect the experiences and conditions of school-going children in the selected schools during the study period.

1.6. Significant of the study

The purpose of the study was to determine the prevalence and factors associated with fever-related school absenteeism among school going children's years in Abim district North Eastern Uganda. The findings of this study were of significant value to health and education planners, administrators, researchers, students, and members of the community. It contributed to strengthening the capacity of the district health and education departments in the prevention and management of febrile illnesses, thereby promoting children's well-being and enhancing their academic performance. Additionally, the study added to the existing body of knowledge on febrile illnesses and provided guidance to the Ministry of Health and the Ministry of Education and Sports in the development of appropriate strategies to address febrile illnesses among school-going children. Furthermore, the findings informed local governments and development partners in the formulation of relevant policies aimed at the prevention and management of febrile illnesses in schools. Lastly, the study offered researchers valuable insights into the prevalence of febrile illnesses and the associated factors contributing to school absenteeism among school-going children in Abim District.

1.7. Conceptual framework: Prevalence and factors associated with fever-related school absenteeism among school children

The adapted model conceptualizes fever-related school absenteeism as an outcome of the interaction between a child, household, environmental and behavioral factors and an intervening fever/illness pathway. Socio-demographic, environmental and behavioral factors constitute the explanatory variables and are linked to the occurrence and management of fever among school-

going children. Fever-related illness then functions as the intervening pathway, with the occurrence, severity and duration of illness determining the extent to which a child is unable to attend school. The resulting outcome is fever-related school absenteeism, operationalized as absence from school attributable to fever and measured by occurrence and number of school days missed. This structure is consistent with Kearney's interdisciplinary model, which recognizes school absenteeism as a multidimensional outcome influenced by factors operating at individual, family, school and wider environmental levels. Empirical evidence further demonstrates that illness characteristics, including fever and longer illness duration, are associated with prolonged school absence among children (Kearney., *et al* 2008)

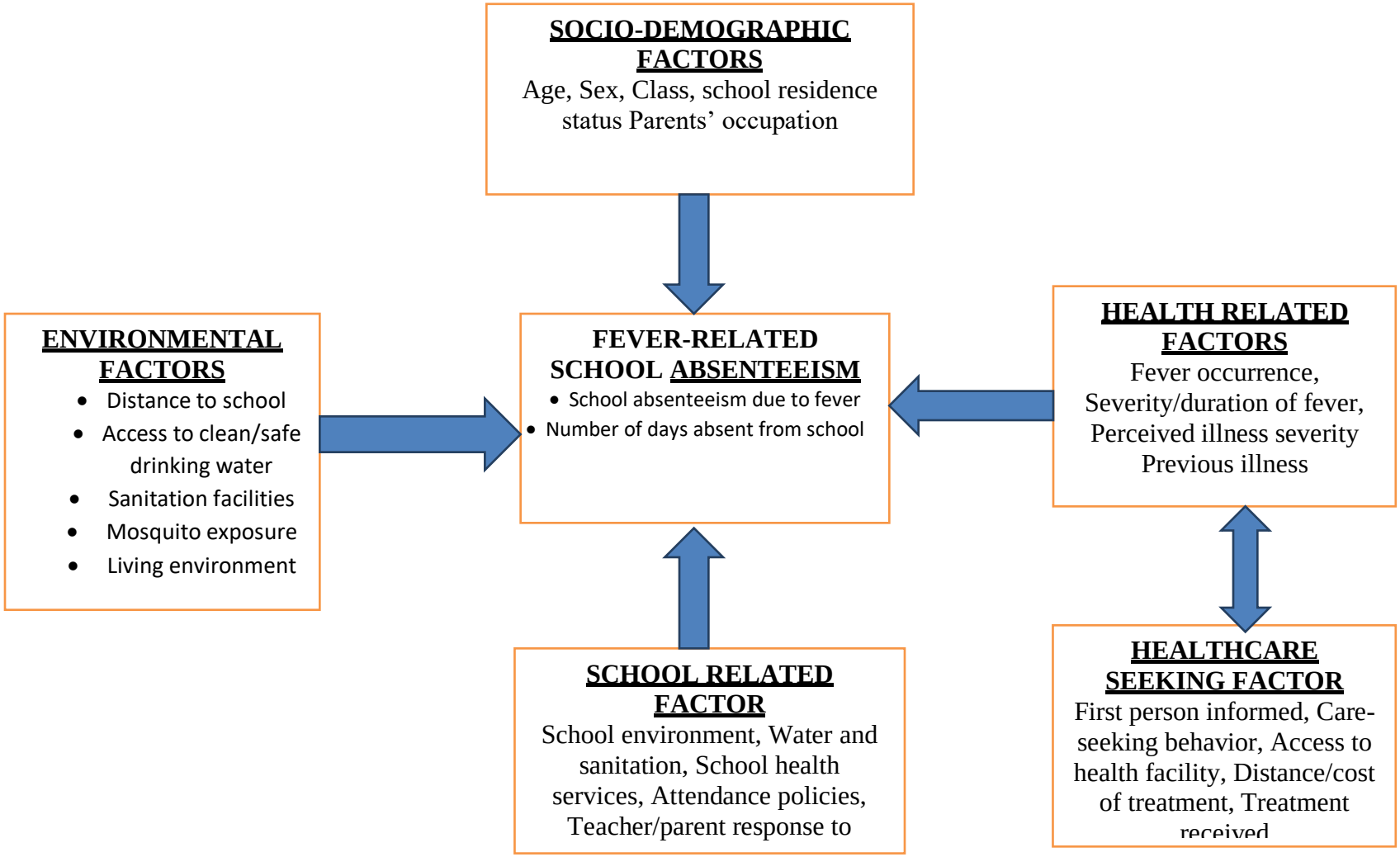


Figure 1: Conceptual framework showing the relationship between independent and dependent variables (adopted and modified from Kearney., et al 2008) An interdisciplinary model of school absenteeism in youth to inform professional practice and public po

CHAPTER TWO: LITERATURE REVIEW

2.0. Introduction

In this chapter the researcher discussed literatures related to fever-related school absenteeism among children and the focused was on the prevalence and factors associated with fever-related school absenteeism among school going children.

2.1 Objective 1: Prevalence of fever-related school absenteeism among school going children

Fever-related school children remain a public health concern among the school going children which negatively affects learners class attendance, according to Balfanz and others defines fever related school absenteeism as a learner's failure to attend school regularly due illness, financial difficulties, household responsibilities, negative peer influence and other social or environmental factors. Among these causes, illness is an important contributor because a child who develops a febrile illness may be physically unable to attend school or may be kept at home by a parent or caregiver until recovery. Repeated or prolonged illness can therefore result in the loss of several school days, which may affect learning and academic progress (Balfanz *et al*., 2012).

Evidence from different settings shows that fever is a major contributor to school absenteeism among children. For example, a study by Sarmiento-Senior and others reported that school going children have missed an average of 8.6 school days per year, with illnesses such as fever, colds and vomiting among the major reasons for absence, in addition the also identified non-health-related factors, including long distance between home and school, negative peer influence and poor weather during the rainy season (Sarmiento-senior *et al*., 2020). Similarly, Guan and others in their study found that 46.85% of learners missed school because of sickness, with malaria being the most commonly reported febrile illness, followed by flu and cough, furthermore, children who lived more than two kilometers from school were also more likely to be absent, therefore, these findings suggest that school absenteeism is influenced by both the health condition of the learner and the social and environmental circumstances in which the learner lives (Guan *et al*., 2016).

Furthermore, evidence from Ethiopia also demonstrates the close relationship between fever and school absence. In a school-based surveillance study involving 1,794 children from 908 households, 28% of reported school absences were attributed to illness. Among children who were absent because of illness, fever was the most commonly reported symptom, accounting for 88% of illness-related absences. However, only half of the children who reported fever as the reason for absence attended a health facility. This finding is important because it shows that fever-related school absenteeism may occur even when children do not reach formal health facilities. Consequently, health-facility records alone may underestimate the burden of febrile illness among school-going children (Ashton *et al*., 2016)

The importance of febrile illness as a cause of school absenteeism is further demonstrated by Amalu and Abang in their finding which reported that febrile illnesses accounted for 60% of fever-related school absenteeism among school going children (Amalu *et al*., 2016), in addition a study by Sarmiento-Senior and others also reported that fever accounted for 49.1% of school absenteeism, while other causes included common colds, stomach aches, diarrhea, injuries and headaches (Sarmiento-senior *et al*., 2020). Furthermore, a study by McLean and colleagues also demonstrated the effect of illness on school attendance, reporting that Influenza B accounted for 39% of illness episodes and 47% of school days missed, with 62% of affected children missing more than two days of school (McLean *et al*., (2017). Collectively, these studies agree that illness, particularly febrile and infectious illnesses, is an important cause of school absenteeism and can result in substantial loss of learning time.

However, the studies do not report the same prevalence or contribution of illness to school absenteeism. For example, (Sarmiento-senior *et al*., 2020) reported that 49.1% of school absences were due to fever, while (Amalu *et al*., 2016) reported a higher proportion of 60% for febrile illnesses. (Guan *et al*., 2016) on the other hand, reported that 46.85% of learners missed school because fever. These findings may appear different, but they do not necessarily represent direct disagreement. The studies examined different populations, settings and outcomes, and some considered all sickness-related absences while others focused specifically on fever. Therefore, the reported estimates should be interpreted according to the specific outcome measured rather than compared as though they measured exactly the same phenomenon.

The literature also shows that fever-related absenteeism is influenced by factors beyond the presence of illness itself. Emerson and others found that children's physical health and parental support were important predictors of absenteeism for example children who were unwell were more likely to miss school, while parental decisions could influence whether children returned to school quickly or remained at home for longer (Emerson *et al*., (2016). Similarly, a study by International also reported a 40% absenteeism rate, with higher absenteeism among orphans and vulnerable children. Poverty, household responsibilities and difficulties in meeting unexpected school-related expenses were identified as important contributors (International *et al*., 2017). These findings indicate that the occurrence of fever alone may not fully explain whether a child misses' school; household circumstances and caregiver decisions may determine whether an illness results in school absenteeism and how long the absence lasts.

The studies generally agree on the important role of fever in school absenteeism, but they differ in the importance given to particular contributing factors. (Sarmiento-senior *et al*., 2020) and . (Guan *et al*., 2016) emphasize illness together with distance and environmental conditions, while (Emerson *et al*., (2016) emphasis more on children's health and parental support and (International *et al*., 2017) focuses more on poverty, household responsibilities and vulnerability, These differences may be explained by variations in the populations studied, geographical settings, household conditions, school environments and the types of illnesses affecting children. For example, factors that strongly influence attendance among vulnerable children may not have the same influence among children in the general school population.

Significantly the study methodological differences may also explain the variation in findings i.e. most of the studies used different definitions of absenteeism. Some measured the proportion of children who missed school due to fever, while others measured the number of school days missed or the proportion of absences attributable to particular illnesses, in addition, the definition of fever also varied across all the studies reviewed, some studies considered general sickness, whereas others focused specifically on fever, febrile illness or a particular infection such as Influenza B, malaria or gastrointestinal infections, thirdly, difference in study population, age groups, sample sizes, geographical settings and recall periods. Furthermore, some studies relied on self-reported illness and school absenteeism, which may be affected by recall bias, while studies based on clinical or laboratory diagnosis may identify illnesses more accurately. Finally,

differences in how the severity and duration of illness were measured may influence the reported relationship between illness and school attendance.

These methodological differences are important when interpreting the existing evidence. A study reporting the proportion of children who ever missed school because of fever cannot be directly compared with a study measuring the proportion of all school days lost because of fever. Similarly, a study examining a specific infection such as influenza may produce a different estimate from one examining all febrile illnesses. Differences in recall periods may also affect estimates because learners or caregivers may have difficulty remembering minor illnesses or the exact number of school days missed. Therefore, variation across studies may reflect both genuine differences between populations and differences in how the studies were conducted.

The reviewed literatures provide a clear pathway linking febrile illness to school absenteeism, exposure to a disease-causing factor may result in infection and febrile illness; fever and associated symptoms may then reduce the learner's ability to attend school or lead caregivers to keep the child at home and prolonged illness can increase the duration of absenteeism. The likelihood and duration of absenteeism may then be influenced by other factors such as the severity of illness, malaria exposure, access to healthcare, healthcare-seeking behavior, household socioeconomic status, parental support, distance to school, sanitation and access to clean water. This shows that fever-related school absenteeism is a multifactorial outcome rather than a result of fever alone.

Although previous studies have established that illness and fever are important causes of school absenteeism, the prevalence and factors associated with of fever-related school absenteeism among school-going children remain insufficiently understood in many rural settings**.** It is not clear from the existing literature how common fever-related absenteeism is among school-going children in Abim District, how many school days are lost because of fever, or which learner, household, school, environmental and healthcare-related factors are most strongly associated with absence. There is also limited evidence showing whether factors such as access to clean drinking water, mosquito-net use, healthcare-seeking behavior, sanitation, distance to school and caregiver practices influence the likelihood or duration of fever-related absence.

Previous studies provide important evidence but are inadequate to fully explained fever-related school absenteeism in Abim District because many focused on general school absenteeism, specific infectious diseases rather than fever-related absenteeism as a distinct outcome**.** In addition, the studies were conducted in different populations and settings and used different definitions, study designs, recall periods and methods of measuring fever and school absenteeism. As a result, their findings cannot be directly generalized to Abim District. Furthermore, few studies have examined the prevalence of fever-related absenteeism together with multiple potential determinants within the same school-going population.

Abim District requires investigation because locally generated evidence is needed to establish the extent to which fever contributes to school absenteeism and to identify the factors that place learners at greater risk of missing school because of fever. The district may have unique patterns of febrile illness, healthcare access, household socioeconomic conditions, water and sanitation, malaria exposure, school environments and distance to school that are not adequately represented in studies conducted elsewhere. A study in Abim District can therefore provide context-specific evidence on the prevalence of fever-related school absenteeism, and factors associated to fever related school absenteeism. Such evidence is important for designing appropriate intervention to address the challenge

2.2 Objective 2: Factors associated with fever-related school absenteeism among school going children

2.2.1. Behavioral factors associated with fever-related school absenteeism among school going children

2.2.1.1 Mosquito net use and fever-related school absenteeism among school going children.

Mosquito net ownership and consistent use are important malaria prevention measures, particularly among children living in malaria-endemic areas. Malaria is a common cause of fever among children and may result in school absenteeism when affected learners remain at home to recover or seek treatment. The World Health Organization recommends insecticide-treated nets (ITNs) as one of the key malaria prevention interventions because they reduce exposure to infectious mosquito bites World Health Organization., (2022) world malaria report. Evidence from a systematic review by Lengeler showed that ITNs can reduce malaria episodes by up to

50% and child mortality by approximately 20%. These findings suggest that consistent use of mosquito nets may reduce malaria-related fever and, consequently, reduce fever related school absenteeism among school-going children (Lengeler., *et al* 2016).

The protective effect of mosquito nets is also supported by studies conducted among children in malaria-endemic settings. A number of studies generally agree that ITNs and LLINs provide important protection against malaria when they are available and correctly used. However, the evidence also indicates that inadequate access, ownership and use of mosquito nets may leave children exposed to mosquito bites and malaria infection(Lengeler., *et al* 2016, Ujuju *et al*., 2022, Baume & Marin, 2007,). Ujuju *et al*, for example, reported that high malaria rates among male learners were associated with limited access to and ownership of ITNs. The study further linked inadequate access to large household sizes, where available nets had to be shared among several household members. For school-going children, such exposure may increase the likelihood of malaria-related fever, which can subsequently interfere with school attendance (Ujuju *et al*., 2022).

Similar findings were reported by Ndyomugyenyi and Kroeger, who found that approximately 65% of school children did not own or sleep under ITNs. The study identified affordability and difficulties accessing free government-provided nets as important barriers. Children who lived far from health facilities had greater difficulty accessing free mosquito nets. This finding is relevant to fever-related school absenteeism because inadequate access to malaria prevention measures may increase children's exposure to malaria and other febrile illnesses, potentially increasing the number of days they remain away from school (Ndyomugyenyi., *et al*. 2017). However, while a study by Ujuju *et al*. emphasized household size and limited ownership, a study by Ndyomugyenyi placed greater emphasis on affordability and access to health services. The studies therefore agree on the importance of access but differ in the specific barriers identified.

Evidence from the Batwa community in Uganda further demonstrates that ownership alone does not guarantee effective protection. Clark *et al* found that approximately 65% of school children did not own or use LLINs. The study identified the cost of nets and limited access to free government-distributed nets as important barriers. In addition, some adolescents who owned mosquito nets did not sleep under them because they lacked adequate awareness of the protective

benefits of nets. This finding adds a behavioral dimension to the relationship between mosquito net use, fever and school attendance (Clark *et al*., 2016). A learner may have a mosquito net but still remain exposed to malaria if the net is not used consistently. Such exposure may increase the risk of malaria-related fever and potentially contribute to absence from school.

The reviewed studies therefore show considerable agreement on the indirect pathway between mosquito net use and school attendance. Adequate access to and consistent use of ITNs can reduce exposure to malaria-carrying mosquitoes, which can reduce malaria infections and malaria-related fever. Reduced fever may, in turn, reduce the need for learners to remain at home to seek treatment and recover from illness, thereby influencing regular school attendance. However, the studies reviewed do not directly establish the extent to which mosquito net ownership and use influence fever-related school absenteeism among school-going children. Most studies have focused on malaria infection, ITN ownership, access or use rather than measuring school absence specifically attributable to fever.

The studies generally agree that mosquito nets are effective in reducing exposure to malaria and that consistent use is important for achieving their protective benefits while, None of these studies directly contradicts the effectiveness of mosquito nets. Instead, differences mainly occur in the reported levels of ownership and use and in the factors associated with non-use.

The differences may be explained by variations in study populations, geographical settings, household characteristics, socioeconomic conditions and access to health services. For example, Clark *et al*. (2016) focused on children in the Batwa community, while Ujuju *et al*. (2022) focused on male learners. Ndyomugyenyi and Kroeger (2007) examined school children in a different setting and emphasized access to free nets and affordability. Such differences in population and context may influence children's access to mosquito nets and their likelihood of using them consistently.

Methodological differences may also explain some of the variation. Lengeler (2016) used a systematic review and therefore combined evidence from several studies, while the other studies examined specific populations and settings. In addition, studies may have used different measures of mosquito net ownership and use. Ownership, access, sleeping under a net and consistent use

are not equivalent measures**.** A learner may own a mosquito net but fail to use it every night. Differences in study design, sample characteristics, age groups, sex, measurement methods and reliance on self-reported information may therefore contribute to differences in findings.

Although previous studies provide important evidence on malaria prevention and mosquito net use, several questions remain unanswered. In particular, there is limited evidence on whether and to what extent mosquito net ownership and use are associated with fever-related school absenteeism among school-going children. Previous research has largely examined malaria prevalence, malaria episodes, ITN ownership or ITN use as separate outcomes. Less attention has been given to the pathway linking mosquito net access and use, fever occurrence and the number of school days missed because of fever.

There is therefore a need for context-specific evidence from Abim District to understand the relationship between fever-related school absenteeism among school going children in abim district. The district's school-going children may experience different household, environmental, socioeconomic and health-service conditions from those reported in previous studies. Examining mosquito net ownership and use alongside fever-related school absenteeism can help determine whether inadequate malaria prevention may contribute to learners missing school because of fever. More broadly, investigating the prevalence and factors associated with fever-related school absenteeism will provide evidence on the burden of febrile illness among learners and the circumstances that contribute to missed school days. Such evidence can guide schools, families and health programs in developing appropriate malaria prevention, early treatment and school health interventions aimed at reducing preventable school absenteeism among children in Abim District.

2.2.1.2. Health care seeking behavior and fever-related school absenteeism among school going children.

Timely and appropriate healthcare-seeking is an important factor in the prevention and management of fever-related school absenteeism among school going children. The World Health Organization emphasizes the importance of early recognition of illness and prompt access to appropriate healthcare to reduce the complications and burden associated with fever-related school absenteeism (WHO., 2014). For school-going children, healthcare-seeking behavior may

also influence school attendance because the time taken to seek care and the appropriateness of treatment may affect the duration and severity of illness. When a febrile illness is not treated promptly, a child may remain unwell for several days, resulting in prolonged absence from school. Conversely, timely access to appropriate care may support faster recovery and earlier return to school. Healthcare-seeking behavior is therefore an important factor to consider when examining the prevalence and factors associated with fever-related school absenteeism.

Several studies agree that poor healthcare-seeking behavior is associated with negative health and educational outcomes among children. A study by Kanungo found that poor healthcare-seeking behavior among school children affected school attendance and identified limited access to healthcare services as an important contributing factor, particularly in rural and low-resource settings (Kanungo *et al*., 2015). Similarly, a study by Nankabirwa reported that poor health-seeking behavior among children was associated with negative effects on academic performance (Nankabirwa *et al*., 2014). Although the two studies examined different outcomes, their findings are consistent in showing that failure to obtain timely healthcare can prolong the effects of illness and interfere with children's participation in school. These findings are particularly relevant to fever-related absenteeism because children experiencing fever may miss school while recovering, seeking treatment, or waiting for their condition to improve.

Evidence from sub-Saharan Africa further demonstrates the importance of access and household factors in determining whether children receive healthcare when they become ill. A study by Coalson and others reported that long distances to health facilities, low levels of caregiver education, and limited awareness of available health services were associated with poor healthcare-seeking behavior, in addition, the study also reported a 35% decline in healthcare-seeking associated with these barriers (Coalson *et al*., 2019). This finding agrees with Kanungo who also identified limited access to health services as an important barrier. However, the studies differ in the factors they emphasized furthermore the study also focused more broadly on access to healthcare in rural and resource-limited settings (Kanungo *et al*., 2015), whereas Coalson and others highlighted the combined influence of distance, caregiver education and awareness of available services, these differences suggest that barriers to healthcare-seeking may vary according to the characteristics and circumstances of school going children.

Other studies have identified factors that promote appropriate healthcare-seeking behavior, for example a study by Kizito and others found that affordable healthcare, nearby health facilities, respectful treatment by health workers, and timely provision of services encouraged better healthcare-seeking (Kizito *et al*., 2012), similarly a study by Rönner and colleagues found that children with better knowledge and understanding of infectious diseases, personal health, and preventive measures were more likely to seek healthcare when necessary (Rönner *et al*., 2023). These findings complement the evidence from Kanungo and Coalson. While studies by Kizito and Rönner mainly identified barriers to seeking care, and conditions that can facilitate timely care. Overall, these studies indicate that healthcare-seeking is influenced by both individual and household factors, such as knowledge and caregiver education, as well as health-system factors, including cost, distance, availability and quality of services.

The reviewed studies therefore show considerable agreement, rather than direct disagreement, on the importance of healthcare-seeking behavior. Most studies agree that poor access, long distance to health facilities, high healthcare costs, inadequate knowledge, limited caregiver education and poor awareness of available services can delay or discourage care-seeking (Nankabirwa *et al*., 2014, Kizito *et al*., 2012, Kanungo *et al*., 2015, Rönner *et al*., 2023, Coalson *et al*., 2019) .

They also agree that accessible, affordable and acceptable health services, together with adequate knowledge, can encourage timely healthcare-seeking. The apparent differences between studies mainly concern the relative importance of individual factors rather than disagreement about whether timely healthcare is important. For example, Rönner and collegues placed greater emphasis on children's knowledge, while Coalson and others emphasized distance, caregiver education and awareness and Kizito and colleagues focused more on affordability, proximity and the quality of services.

These differences may be explained by variations in the study populations, geographical locations, socioeconomic conditions and healthcare systems in which the studies were conducted. Children living in rural areas may face greater challenges related to distance and transportation than those living close to health facilities. Similarly, children from households with limited financial resources may experience greater difficulty paying for consultation, medicines or transportation. Differences in caregiver education and children's knowledge may also affect the

ability to recognize fever as a condition requiring medical attention. Therefore, the factors associated with healthcare-seeking behavior in one setting may not have the same effect in another setting.

Study methodological differences may also account for variation in the findings, studies may have differed in their study designs, sample sizes, study populations, age groups and methods used to measure healthcare-seeking behavior. Some studies may have assessed whether care was sought after a child became sick, while others may have examined the timeliness, source, affordability or appropriateness of care. In addition, reliance on self-reported information from children or caregivers may introduce recall or social desirability bias. Differences in the type and severity of illness considered may also influence findings because caregivers may respond differently to mild fever compared with severe or persistent fever. These methodological differences make direct comparison between studies difficult and may partly explain the variation in the reported factors.

Healthcare-seeking behavior has a clear potential link with fever-related school absenteeism**.** Fever may result from malaria and other infectious and non-infectious conditions, and affected learners may remain at home because they are unable to participate in school activities, because they require care from parents/guardians, or need to seek treatment. When healthcare is sought late, illness may persist and increase the number of school days missed. In contrast, timely and appropriate treatment may reduce the duration of illness and facilitate an earlier return to school. However, healthcare-seeking behavior alone may not explain school absenteeism alone, however, other factors including the severity of fever, household decision-making, cost of treatment, distance to health facilities, availability of medicines, school policies and caregiver perceptions of illness, may also influence whether a child attends school while ill or remains at home.

Despite the available evidence, what remains unknown is the extent to which healthcare-seeking behavior contributes specifically to fever-related school absenteeism among school-going children. Most previous studies have examined healthcare-seeking as an outcome or have focused on general child health, malaria or academic performance. Few have directly examined the relationship between healthcare-seeking practices, the occurrence of fever and the number of school days missed because of fever. Consequently, there is limited evidence on whether delayed

care, source of treatment, parental involvement, distance to health facilities, treatment costs and caregiver or learner decision-making are associated with fever-related school absenteeism.

Previous studies are therefore inadequate to fully explain the situation in Abim District because they were conducted in different populations and settings and often focused on healthcare-seeking or malaria outcomes rather than fever-related school absenteeism. In addition, differences in study populations, measures of healthcare-seeking and definitions of illness limit the extent to which their findings can be directly applied to school-going children in Abim District. The existing literature provides useful evidence on possible factors but does not adequately establish the prevalence of fever-related school absenteeism or the factors associated with it among learners in the district.

Abim District therefore requires specific investigation to generate local evidence on the burden and determinants of fever-related school absenteeism among school-going children. Understanding the prevalence of absenteeism and how it relates to healthcare-seeking behavior, access to health services, caregiver characteristics and other factors can help identify barriers that may be contributing to missed school days. Such evidence is important for informing appropriate school health, health education, referral and early-treatment interventions aimed at reducing preventable absence from school among children in Abim District.

2.2.1.3. Latrine use and fever-related school absenteeism among school going children.

Adequate water, sanitation and hygiene facilities are important for protecting school-going children from infectious diseases and maintaining regular school attendance, school going children spend a considerable amount of time at school, and poor sanitary facilities and limited access to clean drinking water at school can increase their exposure to disease-causing pathogens through contaminated water, food, hands, soil and surfaces. A study by Trinies and others reported that school-going children are at increased risk of infections associated with poor sanitation and hygiene, particularly gastrointestinal infections, in addition the study also found that school-based WASH interventions reduced the risk of gastrointestinal infections by 29%, therefore improved water, sanitation and hygiene in schools can reduce children's exposure to infectious diseases and may help reduce illness-related school absence (Trinies *et al*., 2016).

Several studies agree that poor water, sanitation and hygiene are important contributors to illness among school going children, for example, a study by Ramani and others reported that 22.1% of diarrheal infection among school children was associated with open defecation, lack of clean water and inadequate access to handwashing facilities (Ramani *et al*., 2017). Similarly, a study by Sharma and others also found that 20% of school children who missed class experienced diarrhea which was also associated to poor sanitation, open defecation and an inadequate number of latrine stalls (Sharma *et al*., 2022). These findings are consistent with (Trinies *et al*., 2016), which demonstrated that improving WASH conditions can reduce infectious diseases. Together, the studies suggest that inadequate sanitary facilities, unsafe water and poor hygiene practices can increase children's risk of illness which reduced their ability to attend school regularly.

Evidence from African settings also shows that knowledge and hygiene practices are important alongside the availability of sanitary facilities. A study by Mulubirhan and Abera reported that 91.1% of students had inadequate knowledge of proper latrine use and 71% had inadequate knowledge of appropriate handwashing practices. Poor knowledge may result in inappropriate hygiene behaviors and high-risk exposure to water born and water-based infection by school going children (Mulubirhan *et al*., 2014), therefore, this finding complements the findings of Ramani and others which emphasized environmental and infrastructural conditions. The two studies therefore suggest that the risk of infection may result from both inadequate facilities and inadequate knowledge or practices**.** Providing latrines and water alone may not be sufficient if learners do not understand or consistently practice appropriate hygiene behaviors.

Studies from Uganda provide further evidence of the relationship between sanitation and fever among school children. According to the Ministry of Health reported 61% prevalence of gastrointestinal infections among school going children was associated low latrine coverage in rural schools, similarly, Akello and colleagues reported 82.5% of diarrheal infections among school children were due to poor hygiene, inadequate sanitation, and lack of access to clean water (Ministry of Health 2022, Akello *et al*., 2007). These findings are generally consistent with evidence from other African settings, including Ramani, Sharma and Mulubirhan and colleagues. However, the reported magnitude of illness differs across studies. Such differences may reflect variation in school infrastructure, access to water, sanitation practices, environmental conditions and the characteristics of the children studied.

The reviewed studies show substantial agreement that poor WASH conditions increase children's exposure to infectious diseases and can contribute to school absence. Trinies and others demonstrated the potential benefit of WASH interventions, while studies for Ramani, Sharma, Mulubirhan Akello and colleagues identified inadequate sanitation, unsafe water, poor handwashing facilities, inadequate latrine use and poor hygiene knowledge as important factors associated with fever among school going children

There is no strong evidence of direct disagreement among these studies. Instead, the differences are mainly related to the type of risk factor emphasized and the magnitude of illness reported. For example, Ramani and others in their study focused on open defecation, clean water and handwashing facilities, whereas Sharma and Adhikari emphasized inadequate latrine capacity and poor sanitation conditions meanwhile Mulubirhan and others placed greater emphasis on learners' knowledge and hygiene practices, while Trinies and others examined the effect of WASH interventions on gastrointestinal infections. These differences are complementary because they demonstrate that sanitation-related disease is influenced by several interconnected factors rather than by a single condition.

The variation in findings may be explained by differences in the study populations, geographical settings, school environments and availability of resources**.** Schools with adequate numbers of well-maintained latrines, reliable access to safe water and functional handwashing facilities may have lower exposure to infectious diseases than schools with inadequate facilities. Similarly, learners' hygiene practices may differ according to their age, knowledge, household environment and health education. Rural and resource-limited schools may face additional challenges related to the construction, maintenance and cleaning of sanitation facilities. These contextual differences can influence both disease occurrence and school attendance.

Study methodological differences may also explain variations in the reported findings. The reviewed studies have used study designs, sample sizes, populations and methods of measuring sanitation, hygiene and illness. Some studies assessed environmental conditions such as latrine availability, water supply and handwashing facilities, while others relied on reported episodes of diarrhea or other illnesses. Differences in the definition and measurement of illness can produce different estimates of disease prevalence.

The period over which fever and absenteeism were measured may also influence findings. For example, studies using a short recall period may produce different estimates from those asking children or caregivers to remember fever over several weeks or months. Self-reported information may also be affected by recall bias, in addition, studies that measure the presence of a latrine may not adequately assess whether the facility is functional, clean, accessible, private and acceptable to learners. Therefore, simply reporting the number of latrines may not provide a complete picture of actual sanitation conditions.

There is also an important methodological difference between studies examining associations and those evaluating interventions**.** For example, a study by Trinies and others examined the effect of WASH interventions, whereas other studies mainly assessed the relationship between existing sanitation conditions and fever among school going children. Intervention studies can provide stronger evidence about the potential effect of improving WASH conditions, while cross-sectional studies are useful for identifying associations but cannot always establish whether poor sanitation directly caused the illness or absenteeism observed. These differences should be considered when comparing the findings.

The relationship between water, sanitation, hygiene and fever-related school absenteeism can be understood through the pathway from poor WASH conditions to infection, illness and school absence. Inadequate sanitation, unsafe water and poor hygiene can increase exposure to infectious organisms. Some infections associated with these conditions may cause fever, while others, such as uncomplicated diarrhea, may occur without fever. When a child develops a febrile infection, the illness may prevent the learner from attending school, Therefore, poor WASH conditions may indirectly contribute to fever-related school absenteeism by increasing exposure to infections that can present with fever.

The availability of clean and safe drinking water is particularly important in this pathway. When learners lack access to safe water at school, they may consume contaminated water and become exposed to infectious organisms. Similarly, inadequate or poorly maintained latrines may encourage open defecation or discourage learners from using the available facilities. This can contaminate the school environment and increase the risk of disease transmission. Limited access

to hand-washing facilities and inadequate knowledge of appropriate handwashing practices may further increase transmission between learners.

Poor sanitation may therefore be an important environmental factor associated with the prevalence and duration of fever-related school absenteeism. A learner who develops a febrile illness may miss one or several school days depending on the severity and duration of the illness. However, the relationship is not necessarily direct. Fever-related absenteeism may also be influenced by the cause of fever, severity of illness, healthcare-seeking behavior, access to treatment, parents' decision, for this reason, sanitation should be examined together with other individual, behavioral factors when determining the factors associated with fever-related school absenteeism.

Although previous studies provide evidence that poor WASH conditions are associated with infectious diseases and school absence, what remains unclear is the specific relationship between WASH conditions and fever-related school absenteeism among school-going children**.** Most available studies have focused on diarrhea, gastrointestinal infections, general infectious diseases or overall school absenteeism. They have not sufficiently examined whether factors such as access to safe drinking water, availability and use of latrines, hand-washing facilities and hygiene practices are associated specifically with learners missing school because of fever.

There is also limited information on the extent to which these factors contribute to the prevalence and duration of fever-related school absenteeism**.** For example, it is not clear whether learners who lack access to safe water or adequate sanitation experience fever more frequently or miss more school days than learners attending schools with better WASH conditions. This remains an important area for investigation.

The previous studies are valuable but do not fully answer the research question addressed in the present study. First, most of the studies mainly focused on diarrheal or gastrointestinal diseases rather than febrile illness. Secondly, some of the studies examined sanitation conditions and disease occurrence without specifically measuring the number of school days missed because of fever. thirdly, differences in study settings, populations, definitions of illness and methods of measuring sanitation make it difficult to apply their findings directly to school-going children in

Abim District. In addition, evidence from intervention studies demonstrates that WASH improvements can reduce some infections, but this does not by itself establish the extent to which individual WASH factors are associated with fever-related school absenteeism in a particular population.

Abim District requires specific investigation because evidence from other settings may not fully represent the sanitation, water access, hygiene practices and health conditions experienced by learners in the district. Rural schools may face challenges related to adequate and functional latrines, safe water supply, maintenance of sanitation facilities and hygiene promotion. Understanding these local conditions is important for determining whether they are associated with fever-related school absenteeism.

The current study therefore seeks to address this gap by determining the prevalence and factors associated with fever-related school absenteeism among school-going children in selected primary schools in Abim District**.** Assessing sanitation and hygiene-related factors alongside other potential determinants will help establish whether environmental conditions within schools are associated with learners missing school because of fever. The findings can provide context-specific evidence to inform school health, WASH, disease prevention and health education interventions aimed at reducing preventable febrile illness and school absenteeism among children in Abim District.

2.2.1.4. Water source use and fever-related school absenteeism among school going children.

Access to clean and safe drinking water is an important requirement for maintaining good health and ensuring regular school attendance among children. Schools that lack reliable access to safe water may expose learners to waterborne pathogens and increase the risk of infectious diseases. According to a study by Prüss-Ustün and others reported that 12% proportion of school-aged children and surrounding households in low-income settings depend on unsafe drinking water and therefore increasing their exposure to water-related diseases (Prüss-Ustün *et al*., 2014). Similarly, a study by Freeman and others also found that limited access to clean water increases the risk of waterborne infections (Freeman *et al*., 2014). In Uganda, UBOS (2023) revealed that 58.3% of school children in rural areas do not have access to clean and safe drinking water at school,

therefore, these findings suggest that inadequate access to safe water is not only a public health concern but may also affect children's ability to attend school consistently when water-related infections lead to illness.

Several studies provide further evidence that the quality of water available to school children can influence their exposure to infectious diseases. For example a study by Alam and collegues found that water sources used in schools can be contaminated with pathogens, including *Salmonella* and *Escherichia coli*, particularly where waste management and sanitation systems are inadequate (Alam *et al*., 2022). In addition, Monje and others also reported that 27% of school children aged 6–17 years had been diagnosed with cholera which reflects a high burden of cholera among school children and linked this to contaminated water sources (Monje *et al*., 2020). Furthermore, a study by Worrell and others also 40% prevalence of helminth infections among school children and associated this burden to unsafe water and poor sanitation practices (Worrell *et al*., 2016). Although these studies focused on specific waterborne infections rather than febrile illness, they provide an important pathway through which unsafe water may contribute to fever-related school absenteeism. Some infectious diseases associated with contaminated water can present with fever, weakness, abdominal symptoms or other illness that may require a child to remain at home, seek treatment or recover before returning to school. Therefore, inadequate access to safe drinking water may indirectly increase the likelihood and duration of fever-related school absenteeism.

The relationship between water access and school attendance is also supported by studies examining illness among school children, for example a study by Freeman and others emphasized that improved access to safe water can reduce exposure to waterborne diseases and support healthier school environments. Similarly, studies by Ramani and Sharma showed that poor water, sanitation and hygiene conditions were associated with infectious illnesses among school children and missed school activities (Sharma *et al*., 2022, Ramani *et al*., 2017). Although these studies mainly examined diarrheal illness rather than fever-related absenteeism, they demonstrate that preventable infections occurring in school-aged children can influence school participation and attendance. This is relevant to the present study because fever may occur as part of several infectious illnesses and can result in a child being kept at home, particularly when the illness is severe or requires care and treatment.

Overall, the studies largely agree that inadequate access to clean and safe water increases children's exposure to infectious diseases and can negatively affect their health and school participation. There is no strong direct disagreement among the reviewed studies regarding the importance of safe water. However, the studies differ in the diseases they investigated, the level of risk reported and the way the relationship between water and illness was measured. For example, Alam and Mukarrom mainly focused on contamination of school water sources, while Monje and colleagues examined cholera, and Worrell and others assessed helminth infections, while Freeman and others in their study considered the broader relationship between water access and waterborne diseases. These differences do not necessarily represent conflicting findings; rather, they reflect differences in the outcomes and populations studied (Freeman *et al*., 2014, Worrell *et al*., 2016, Monje *et al*., 2020, Alam *et al*., 2022).

The variation in findings may also be explained by differences in the school and community environments in which the studies were conducted. Schools may differ in the availability, reliability and quality of water sources, sanitation infrastructure, waste disposal practices and hygiene facilities. Seasonal changes may also affect water availability and contamination. In addition, differences in household socioeconomic conditions, children's hygiene practices and the distance to alternative water sources may influence exposure to unsafe water. Consequently, the health effects of inadequate water access may vary between communities and schools.

Study methodological differences also help explain the variation across studies. Some studies assessed access to water**,** while others assessed the microbiological quality or contamination of water sources mean while others measured specific health outcomes such as cholera, diarrhea or helminth infections. The definition of "safe water" may therefore differ between studies; some researchers have classified water according to its source, while others determined the safety through laboratory testing. All the studies also used different study design, sample characteristics, age groups, geographical settings, recall periods and methods used to identify illness. Others studies relying on self-reported illness. These methodological differences should be considered when comparing the reported prevalence and associations.

Importantly, most of the existing studies have examined water access and specific infectious diseases**,** rather than directly examining the relationship between access to safe drinking water

and fever-related school absenteeism**.** Therefore, the pathway from water access to fever-related absence remains only partly understood. A possible pathway is that inadequate access to safe water increases exposure to infectious pathogens; infection may result in febrile illness; the illness may then cause a learner to remain at home, seek healthcare or require time to recover, resulting in missed school days. However, this relationship is not necessarily direct because not all waterborne diseases cause fever, and fever can result from many other causes, including malaria and respiratory or other infections. Other factors, such as healthcare-seeking behavior, availability of mosquito nets, sanitation, socioeconomic conditions, caregiver decisions and severity of illness, may also influence whether a child misses' school and how long the absence lasts.

Despite evidence that access to clean and safe water is important for preventing infectious diseases among school children, what remains unknown is the extent to which access to safe drinking water is associated specifically with the prevalence and duration of fever-related school absenteeism among school-going children. Previous studies have mainly focused on water contamination, diarrhea, cholera, helminth infections. While these studies provide evidence of the health consequences of unsafe water, they do not adequately explain how water access contributes to children developing fever or missing school because of fever, nor do they sufficiently describe the number or duration of school days lost.

Previous studies are therefore inadequate for fully explaining the factors associated with fever-related school absenteeism because they often examine individual health conditions or environmental risks separately. They also differ in their measurement of water safety, illness and school absenteeism, making direct comparison difficult. In addition, evidence from other geographical areas may not reflect the conditions in Abim District, where water availability, school infrastructure, sanitation practices, disease patterns, household circumstances and healthcare access may differ. There is therefore a need for context-specific evidence that examines safe water access together with other potential determinants of fever-related school absenteeism.

Investigating this relationship in Abim District is important because understanding the prevalence and factors associated with fever-related school absenteeism can help identify preventable causes of fever among school going children. Examining access to clean and safe drinking water

alongside other learner, parents, school and health-related factors will provide a broader understanding of why children miss school because of fever. Such evidence can guide schools, health authorities and other stakeholders in identifying appropriate measures to reduce preventable febrile illness, minimize missed school days and support regular school attendance among children in Abim District.

2.2.1.5. Summary of the literature review

The reviewed literature shows that mosquito-net use, latrine use, healthcare-seeking behavior, and access to safe water are important factors associated with fever-related school absenteeism, most of the Studies generally agree that consistent mosquito-net use reduces malaria exposure, while proper latrine use, good hygiene, safe water, and timely healthcare seeking can reduce illness and improve regular school attendance. However, majority of the studies differ in factors significantly associated with fever related school absenteeism, in the literature reviewed factors such as access and affordability of mosquito nets, sanitation conditions, distance to health facilities, healthcare costs, caregiver knowledge, and availability of safe water. These differences may be explained by variations in study settings, populations, seasons, disease patterns, and definitions of illness and school absenteeism. What remains unclear is how these factors independently and collectively influence fever-related school absenteeism, particularly the number of school days missed. Existing studies often focus on malaria, diarrhea, general school absenteeism, or individual health factors rather than fever-related school absenteeism as a specific outcome. There is therefore a need for context-specific evidence from Abim District to determine the prevalence and factors associated with fever-related school absenteeism among school-going children.

CHAPTER THREE: METHODS

3.0 Introduction

This chapter presents the methods that were used by the researcher to answer the research questions. It covers the research design, the study area, target population, sample size, study variables, sampling methods/techniques, data collection methods and tools, reliability and validity, data analysis, measurement of variables, ethical considerations, and the limitations of the study.

3.1 Study design and setting

A school-based cross-sectional study was conducted in five selected primary schools was in Abim District between March to April 2025, the study involved collecting information on fever related school absenteeism among school children for the past two school terms in 2024. Learners in upper primary aged 10 to 17 years were asked about the weather they missed school due to fever in the past two terms and if yes how many days did, they miss because of fever this is because they were considered able to recall past episodes of fever related school absenteeism within that period. The study applied a quantitative approach for both data collection and analysis. Data was gathered using structured, close-ended questionnaires to determine the prevalence of febrile illness and the factors associated with fever related school absenteeism among school-going children.

Geographically, Abim district is located in North-Eastern Uganda and lies between latitude 2°70'N and longitude 33°66'E. It is bordered by Agago District to the west, Otuke and Kapelebyong to the south, Napak to the east, and Kotido to the north. The district has an estimated population of 107,966 people, with children aged 0–17 years making up about (59.6% n=63,746) of the total population (NPHC, 2017). Most residents (84.1%) live in rural areas with limited access to schools and medical services, while only 15.9% live in peri-urban settings. The district is predominantly inhabited by the Ethur ethnic group (85%), followed by the Iteso (6%), Langi (5%), and Acholi (4%). The residents mostly practice subsistence farming, growing crops such as sorghum, maize, millet, peas, pumpkins, cucumbers, beans, cassava, sunflower, simsim (sesame), groundnuts, upland rice, and sweet potatoes. Some households also engage in hunting to supplement their food sources.

The main reason for choosing Abim District as the study area is because it is among the districts in the Karamoja region with a high rate of school absenteeism about 58% as reported in the 2023/2024 Financial Year District Education Department report. Common causes of absenteeism include child abuse, illness, lack of school fees, and insecurity. Additionally, the district faces serious resource constraints due to limited budget allocations to the education and health sectors.

3.2 Study population

The study population consisted of school-going children aged 10 to 17 years enrolled in upper primary classes. This category of pupils was selected because they are more likely to recall past episodes of fever, they have experienced during the previous one to two school terms.

3.3 Target population

The study targeted school-going children in upper primary classes (Primary 5 to Primary 7), aged between 10 and 17 years, from five selected primary schools in Abim District. Learners in upper primary were selected because they were considered capable of recalling past episodes of fever experienced during the last one to two school terms in 2024

3.4 Inclusion criteria

- Learners aged 10 to 17 years enrolled in upper primary (Primary 5 to Primary 7)
- Learners aged 10 to 17 years who were present at school during the data collection period

3.5 Exclusion criteria

- Learners aged 10 to 17 years who were in lower primary (Primary 1 to Primary 4)
- Learners aged 10 to 17 years who were unable to participate because of severe illness, cognitive impairment or communication difficulties.
- Learners aged 10 to 17 years who were absent from school during the time of data collection

3.6 Sample size determination

Using Krejcie and Morgan 1970 table for sample size determination, with a study population of 1,875 learners (P.5-P.7) from the randomly sampled five primary schools in Abim district, the minimum sample size was estimated to be 320. The table assumes a 95% confidence level, 5% margin of error, and 50% population proportion and the adjusted sample size was 355 participants. The method was used because it is internationally recognized, it does not give

fractional respondent, it's tested and easy to use method in determining sample size the respondent breakdown is illustrated in table 1 below

Table 1: Sample Size Distribution

S/NO	Sample schools	Population (N) (p/5-p/7)	Respondent sample size(S)	Sampling technique
1	Abim Primary School	385	80	Stratified sampling
2	Kiru primary school	382	70	Stratified sampling
3	Orwamuge primary school	365	73	Stratified sampling
4	Morulem boys' primary school	375	66	Stratified sampling
5	Alerek primary school	368	66	Stratified sampling
		1875	355	

Source: ***Class registers of P/5-P/7 2025***

Table 2: Response Rate of Study Participants

S/N	Selected School	Sample Size	Response	Response rate
1	Abim Primary School	80	80	100%
2	Kiru primary school	70	70	100%
3	Orwamuge primary school	73	73	100%
4	Morulem boys' primary school	66	66	100%
5	Alerek primary school	66	66	100%
OVERALL TOTAL		**355**	**355**	**100**

Source: *Field data 2024*

As shown in Table 2, the researcher achieved a 100% response rate. According to Fosnacht and colleagues (2013), a response rate of 75% is generally considered adequate for generalizing study findings.

3.7 Sampling technique.

A stratified sampling technique was used to ensure that learners from all five selected primary schools had an equal opportunity to participate in the study. The sampling frame was obtained from the official school enrolment registers for Primary Five to Primary Seven in each selected school in Abim District. The class registers provided the names and class levels of all eligible

learners which was used to establish the total study population, across the five schools a total of 1,875 eligible learners in P5–P7 were obtained to establish a study population.

The overall sample size of 355 learners was determined before selecting individual respondents. The sample was then proportionately allocated to the five schools according to the number of eligible learners in each school. The allocated sample consisted of 80 learners from Abim Primary School, 70 from Kiru Primary School, 73 from Orwamuge Primary School, 66 from Morulem Boys' Primary School, and 66 from Alerek Primary School, giving a total of 355 learners. The enrolment registers for each school therefore served as the sampling frames from which the required number of learners was selected.

Within each school, all eligible P5–P7 learners listed in the enrolment register were assigned unique identification numbers. Learners were then selected randomly from the list using the unique identifier until the allocated sample size for that school was reached. For example, 80 learners were randomly selected using the unique identifier from the list of eligible P5–P7 learners at Abim Primary School. The same procedure was followed in the other four schools. This approach ensured that learners were selected fairly from each school and that the final sample reflected the distribution of eligible learners across the five schools

3.8 Data collection technique

A structured questionnaire was used to collect quantitative data from the participants. This technique was appropriate because it allowed the researcher to collect standardized information on prevalence and factors associated with fever-related school absenteeism from all participants using the same questions and response options, making the data suitable for statistical analysis and comparison.

The questionnaire was administered in English or Leb-thur (Luo) according to each participant's preference. Interviews were conducted between 8:00 AM and 5:00 PM in quiet and private areas within the schools to minimized interruptions and protect privacy and confidentiality. Before the main data collection, the questionnaire was pretested among 20 school-going children at Aneo-Ber Primary School**,** which was not part of the study, to assess clarity, understanding, and language appropriateness. The tool was revised based on the pretest findings, and the data collection team was trained and used standardized procedures to ensure consistency.

At the end of each day, completed questionnaires were reviewed for completeness and consistency, and the data collection team held a brief meeting to address any challenges and maintain the quality of data collected throughout the study.

3.9 Data collection tools

A structured questionnaire was used to collect quantitative data on prevalence and factors associated with fever-related school absenteeism among school-going children. The questionnaire was developed from the study objectives and relevant literature and contained mainly close-ended questions. It had three sections covering socio-demographic characteristics, prevalence and factors associated with fever-related school absenteeism**.** The questionnaire was developed in English and translated into Leb-thur (Luo) to support participants' understanding and preference.

The questionnaire was pretested among 20 learners at Aneno-Ber Primary School**,** which was not included in the main study. Pretesting assessed the clarity, relevance, sequence, and language appropriateness of the questions, and necessary adjustments were made before data collection. Content validity was ensured through alignment with the study objectives and literature and review by the research supervisors. Reliability was strengthened through pretesting, revision of unclear questions, and standardization of questionnaire administration.

Before interviews, participants were informed about the study purpose, procedures, duration, possible risks, benefits, confidentiality, and their right to refuse or withdraw without penalty. Written consent and assent were obtained before participation. Questionnaires were administered in English or Leb-thur according to the participant's preference, while privacy and confidentiality were maintained throughout data collection.

3.10 Data collection procedure

Before data collection, the researcher obtained introductory letters and permission from Gulu University, the Chief Administrative Officer, District Education Officer, and Senior Assistant Secretary of Abim District. The researcher then conducted pre-visits to the selected schools to introduce the study to the headteachers, explain the study objectives and procedures, and agree on suitable dates and times for data collection. The researcher prepared all study materials, including consent and assent forms, structured questionnaires, stationery, and the sampling frames obtained from the selected schools. Before data collection, research assistants were trained for 2 days on

the study objectives, questionnaire administration, ethical requirements, and procedures for maintaining confidentiality and data quality.

On each data collection day, the researcher and data collection team arrived at the school in the morning and met the headteacher and relevant class teachers. The purpose, procedures, and requirements of the study were explained, and the class registers were used to identify learners who had been selected through the sampling procedure. The selected learners were gathered and given a clear explanation of the study, including their rights to participate voluntarily and to withdraw at any time without consequences. Written informed consent from the responsible guardians/teachers and assent from participating learners were obtained before administering the questionnaires.

The structured questionnaires were administered by the researcher and trained data collection team to learners from Primary 5 to Primary 7 between 8:00 AM and 5:00 PM during the data collection period. The questionnaires collected information on demographic characteristics, prevalence of fever-related school absenteeism**,** including factors that may influence fever-related school absenteeism. Each questionnaire was administered in a quiet and private area within the school to minimize interruptions, protect privacy, and allow learners to provide accurate responses. The same procedures and instructions were followed across all five schools to improve consistency and reduce differences arising from the data collection process.

3.10.1 Quality control measures

Several measures were taken to ensure data quality. The data collection team was oriented on the study tools and procedures before data collection. The questionnaire was pretested to identify unclear questions and improve its suitability for the study population. Each completed questionnaire was checked daily for completeness, consistency, and accuracy before the team left the school. Any missing or unclear responses were identified and addressed immediately where appropriate. Daily meetings were also held with the data collection team to review progress, discuss challenges, and maintain consistency in questionnaire administration. Extraneous factors were minimized by using the same questionnaire, standard instructions, similar interview conditions, and the same data collection procedures across all participating schools. Interviews were conducted in quiet areas and, as much as possible, away from teachers and other learners to reduce influence on participants' responses.

Ethical standards were observed throughout the data collection process. Permission to conduct the study was obtained from the relevant authorities before visiting the schools. Participation was voluntary, and learners were informed about the purpose of the study before providing assent. Participants were informed that they could decline to participate or withdraw at any time without penalty. Confidentiality and privacy were maintained by conducting interviews in private areas and avoiding the collection of unnecessary personal identifiers. Completed questionnaires were securely handled and accessed only by authorized members of the research team. All participants were treated respectfully, and the data were collected strictly for the purposes of the study.

3.11 Study Variables

3.11.1 Demographic characteristics of the study respondents

Demographic information was collected through face-to-face interviews conducted by trained research assistants. The researcher recorded details such as sex, age, school residency status, gender, class level, parents' occupation, distance from home to school, and religion.

3.11.2 Prevalence of fever-related school absenteeism among school going children in Abim district

Fever-related school absenteeism among school going children was defined as a pupil who was absence throughout the school day due to fever, Sarmiento-senior *et al*., (2020). Fever-related School absenteeism was treated as the main outcome variable and measured using a single self-reported question: "In the past two terms, did you miss school because of fever?" The possible answers were "Yes" or "No," making the variable dichotomous. For those who answered "Yes," a follow-up question asked: "How many days did you miss school due to fever?" with responses categorized as "1-3 days" or "more than 4 days." Those who answered "No" were marked as "not applicable."

3.11.3 Factors associated with fever-related school absenteeism among school going children

These factors were considered predictor variables and measured through several questions. For example, "Do you know the appropriate person to seek for treatment whenever you are feverish?" response recorded as yes or No. "do you know where to seek treatment from whenever you are sick?" response recorded as Yes or No. "Whenever you have fever/Sickness whom do inform first?" Response recorded as; teacher/matron, parent, friends. "Where do you always seek treatment from whenever you are sick or have fever?" response recorded as school nurse, traditional healer, clinic, home remedy and hospital/health facility. "How long do you take to seek

for treatment whenever you feel that you have fever?" response recorded as <1 da, 2-4 days and more than 4 days. "Do you own a mosquito net?" Response recorded as yes or No. If yes, "do you regularly sleep under a mosquito net?" Responds will recorded as yes, no and not applicable. "Do you use latrine from school?" Response recorded as yes or No. "Do you wash your hands with soap and water after using the latrine?" Response recorded as yes or No. "Where do you get water for drinking and cooking from school?" Response recorded as tap, unprotected stream, borehole, rain water. "Is the water at school always clean and safe for drinking?" Response recorded as yes or no. "how far is your home from school" response recorded as >1km, 1-3km, <3km, not applicable, "how do you travel to school" response recorded as walk on foot, use bicycle/boda-boda, use public transport, not applicable, "how much time do you take to reach your school" response recorded as >1hr, 1-2hr, <3hr and not applicable

3.12 Data analysis

Quantitative data were checked for completeness, accuracy, and consistency before coding and entry into Microsoft Excel 2010. The data were cleaned by checking for missing values, duplicate entries, and coding errors. Two electronic copies of the cleaned dataset were maintained for backup, while only one copy was used for analysis. The final cleaned dataset was then exported to Stata version 18 for statistical analysis.

Descriptive analysis was conducted to summarized the characteristics of the study participants and key study variables. Categorical variables were presented using frequencies and percentages**,** while continuous variables were summarized using means and standard deviations where the data were approximately normally distributed. The prevalence of fever-related school absenteeism was calculated as the proportion of children who reported missed school due to fever

At bivariate level, each independent variable was assessed for its association with fever-related school absenteeism using modified Poisson regression with robust standard errors because the prevalence ratio was above 10%**.** The strength of association was reported using crude prevalence risk ratios (cPRR) with 95% confidence intervals (CI). Variables with a p-value 0.02 at the bivariate level, together with variables considered important from previous literature, were considered for inclusion in the multivariable analysis. The p-value of 0.02 was used at this stage to allow potentially important variables to be retained for further assessment.

At multivariable level, modified Poisson regression with robust standard errors was used to identify factors independently associated with fever-related school absenteeism among school going children**,** while controlling for potential confounding factors. Variables considered important include age, sex, school residence status, and distance from home to school, were included in the model where appropriate. The adjusted prevalence risk ratios (aPRR) with 95% CIs were used to measure the strength and direction of associations. Statistical significance was considered at p= 0.05**.** Results were presented using tables and appropriate narrative descriptions to make the findings clear and easy to interpret.

3.13 Ethical considerations

Ethical approval was obtained from the Gulu University Research and Ethics Committee before the study began. Permission was sought from the Chief Administrative Officer and the District Education Office of Abim District Local Government. The researcher also obtained approvals from the sub-county chiefs where the schools are located, and from the respective headteachers. Class teachers signed consent forms, while the respondents were provided with assent forms to sign before interviews were conducted. To maintain confidentiality, unique codes were used to identify each respondent.

3.14 Strength of the study

- This study provides important evidence on febrile illness and fever-related school absenteeism among school-going children in Abim District, addressing a key health and education concern that can affect school attendance and learning.
- Similarly, the use of a school-based cross-sectional design involving 355 learners from five primary schools enabled the study to obtain information directly from the target population and estimate the level of fever-related absenteeism.
- In addition, the application of systematic random sampling helped reduce selection bias, while using questionnaires in both English and Leb-thur supported better understanding and accurate responses from participants.
- Furthermore, the use of modified Poisson regression was appropriate for identifying factors independently associated with fever-related absenteeism, with adjusted prevalence ratios, confidence intervals, and p-values strengthening the interpretation of the findings.
- Lastly, the study identified practical factors for intervention, particularly the importance of clean and safe drinking water, providing useful evidence to strengthen school WASH services, health education, and school-based health interventions in Abim District

3.15 Limitation and delimitation of the study

The following limitation were anticipated for the study Some study respondents were anticipated to have difficulty recalling fever episodes they experienced during the last two terms of the 2024 academic year, in addition anticipated a limitation with regards to the self-report bias, cross-sectional design, selection bias. To address this, the researcher ensured that all questionnaires to be administered by a trained research assistant, ensure research questions were clearly understood before participants responded. Additionally, the study variables were explained in simple language, both in English and Leth'thur, to improve understanding.

3.16 Delimitation of the Study

The study focused on school-going children enrolled in five selected primary schools in Abim District. It examined the prevalence of fever-related school absenteeism and selected socio-demographic and behavioral factors, including age, sex, class level, residence status, mosquito-net use, latrine use, healthcare-seeking behavior, and access to safe drinking water at school. The study used a school-based cross-sectional design with retrospective recall and collected information on fever-related absenteeism within the specified recall period. Children who were not enrolled in the selected schools and absenteeism due to reasons unrelated to fever were outside the primary scope of the study.

3.17 Extraneous Variables and Measures Taken to Reduce Their Effects

Several factors that were not the main variables of interest could have influenced fever-related school absenteeism and potentially affected the study findings. These included seasonal variation, type and severity of febrile illness, household socioeconomic status, nutritional status, previous illness, access to healthcare services, distance to health facilities, parental knowledge, household water and sanitation conditions, medication use, and school-level differences in health and WASH services. Recall and reporting bias could also have occurred because information on previous fever episodes and school absence was obtained retrospectively from learners.

To minimize these effects, the study used a standardized structured questionnaire, clearly defined the study variables and recall period, trained data collectors, and applied consistent data-collection procedures across all selected schools. Where possible, questions were phrased in simple language to improve understanding and reduce misclassification. The study also included

relevant socio-demographic and behavioral variables in the analysis to account for potential differences between participants.

3.18 Assumptions of the Study

The study assumed that participants accurately recalled and reported episodes of fever and related school absence during the specified recall period. It also assumed that learners understood the questions and provided truthful responses. The study further assumed that the selected schools and participants provided a reasonable representation of school-going children in the study setting and that the study instruments adequately captured the major factors associated with fever-related school absenteeism. These assumptions were necessary for interpreting the findings, although violations of some assumptions, particularly accurate recall and reporting, could have influenced the results.

3.19. Dissemination plan

The study findings on the prevalence and factors associated with febrile illness and school absenteeism due to fever among school children in Abim District were shared with key stakeholders, including government officials, healthcare professionals, the district education committee, political leaders, NGOs, and community members. Key activities included organizing community meetings, school presentations, and stakeholder workshops to discuss the results and recommendations.

The findings were also shared through policy briefs for decision-makers, as well as simplified materials like posters, job aids, journal articles, and conference presentations to promote wider understanding. The dissemination plan ensured inclusive engagement, clear messaging, and practical recommendations, supported by a six-month timeline, a dedicated budget for materials and logistics, and mechanisms to monitor the impact of dissemination efforts.

CHAPTER FOUR: RESULTS

4.0 Introduction

This chapter presents the findings of the study on the prevalence of and factors associated with fever-related school absenteeism among school-going children in Abim District. The findings are presented according to the study objectives, beginning with the socio-demographic characteristics of the participants, followed by the prevalence of fever-related school absenteeism and the factors associated with the outcome. Descriptive statistics are presented using frequencies and percentages, while associations with fever-related school absenteeism are presented at bivariate and multivariate analysis to measure the association between predictor and outcome variables. The results are summarized in tables and figures to facilitate clear interpretation and comparison of the findings.

4.1 Socio-Demographic characteristics of the participants

A total of 355 school-going children participated in the study, with a mean age of 14 years (SD = ±1.5). The more than a haft 56% (n = 199) of the respondents were male, while females were 44% (n = 156). Most of the learners were in Primary Five (39%, n = 139), followed by Primary Six (35%, n = 126), and Primary Seven (25%, n = 90). A significant number of learners (70%, n = 248) reported that their parents were not employed. More than half of the participants (53%, n = 189) were day scholars. Among these, 49% (n = 93) traveled between 1 to 2 kilometers to reach school, 26% (n = 49) traveled less than 1 kilometer, while 25% (n = 47) traveled more than 2 kilometers (see table 3).

Table 3: Socio-Demographic Characteristics of Participants

Variable/Response	Frequency (n=355)	Percentage (%)
School		
Kiru Primary school	70	(20%)
Orwamuge Primary school	73	(21%)
Abim Primary School	80	(23%)
Morulem Boys Primary school	66	(19%)
Alere primary School	66	(19%)
Age mean (SD, Years)	14 (1.5)	(1.5)
Sex		
Male	199	(56%)
Female	156	(44%)
Class		
P.5	139	(39%)
P.6	126	(35%)
P.7	90	(25%)
Parents' occupation		
Unemployed	248	(70%)
Employed	107	(30%)
School resident status?		
Boarding	167	(47%)
Day's scholars	188	(53%)
Distance of school from home?		
Less than 1KM	49	(26%)
1-2KM	93	(49%)
Above 2KM	47	(25%)
How do you travel to school?		
Walk on foot	189	(53%)
Currently in Boarding	166	(47%)

4.2 Objective 1. To determine the prevalence and factors associated with fever-related school absenteeism among school going children in Abim district North Eastern Uganda

4.2.1. Prevalence of fever-related school absenteeism among school going children in Abim district North Eastern Uganda

Out of the 355 school-going children who participated in the study, a majority (60.56%, n = 215) missed school due of fever and among those who missed school, most (62%, n = 134) of the learners were absent for less than three days.

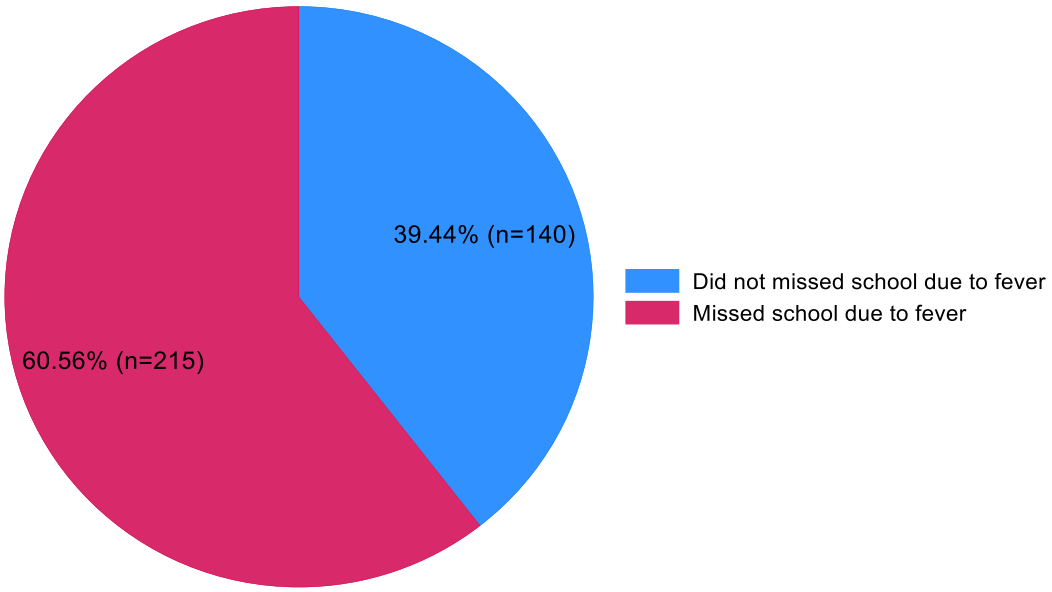


Figure 2: Pie-chat showing prevalence of fever-related school absenteeism among school going children in Abim District, North Eastern Uganda

4.3 Objective 2. To assess factors associated with fever-related school absenteeism among school going children's in Abim district North Eastern Uganda

At bivariate analysis, several factors were found to be statistically significantly associated with fever-related school absenteeism among school-going children and these include the learner's class, who leaners inform first when they experience fever, mosquito net ownership, regular use of mosquito nets, and access to clean and safe drinking water at school.

Learners in Primary Seven were 1.38 times more likely to miss school due to fever compared to those in Primary Five and six (cPR = 1.38, 95% CI: 1.12–1.70, p = 0.003). Similarly, learners who inform their parents first whenever they have fever were 1.44 times more likely to miss school than those who informed their teachers (cPR = 1.44, 95% CI: 1.23–1.68, p < 0.001).

Children who owned mosquito nets were 0.82 times less likely to miss school due to fever than those who did not own one (cPR = 0.82, 95% CI: 0.69–0.97, p = 0.018). similarly, learners who regularly slept under mosquito nets were 0.79 times less likely to miss school due to fever than those who did not (cPR = 0.79, 95% CI: 0.67–0.93, p = 0.05).

Finally, children who drunk clean and safe water at school were 0.67 times less likely to miss school due to fever compared to those who did not have access to clean water (cPR = 0.67, 95% CI: 0.55–0.82, p < 0.001) as seen in table 5 below.

4.3.2 Factors independently associated with fever-related school absenteeism among school going children in Abim district

Using multivariate modified Poisson regression analysis, factors that were independently associated with fever-related school absenteeism among school children were learner's class, who leaners inform first whenever they experience fever, and access to clean and safe drinking water at school. The results showed that pupils in Primary Seven were 1.33 times more likely to miss school due to fever compared to those in Primary Five and Six (aPR = 1.33, 95% CI: 1.07–1.66, p = 0.009). Additionally, learners who inform their parents first whenever they experience fever were 1.49 times more likely to miss school due to fever compared to those who informed their teachers or friends (aPR = 1.49, 95% CI: 1.25–1.78, p < 0.001) *as seen in table 5 below.*

Lastly, learners who attended schools with clean and safe drinking water were 0.79 times less likely to miss school due to fever than those in schools without safe water (aPR = 0.79, 95% CI: 0.62–0.99, p = 0.048).

Table 4: Factors associated with fever-related school absenteeism among school going children in Abim district, North Eastern Uganda.

Variables	All 355 (100.0%)	Missed school due to fever: Yes 215 (60.6%)	Missed school due to fever: No 140 (39.4%)	cPRR (95%Confidence Interval)	P-Value	aPRR 5%Confident Interval)	P-Value
Class							
P.6	126 (35.49%)	66 (30.70%)	60 (42.86%)	**Reference**	**Reference**	**Reference**	**Reference**
P.5	139 (39.15%)	84 (39.07%)	55 (39.29%)	1.15(0.93-1.43)	0.191	1.41(0.84-1.29)	0.707
P.7	90 (25.35%)	65 (30.23%)	25 (17.86%)	1.38(1.12-1.70)	**0.003**	1.33(1.07-1.66)	**0.009**
Whom to inform first whenever you have fever							
Teacher	275 (77.46%)	154 (71.63%)	121 (86.43%)	**Reference**	**Reference**	**Reference**	**Reference**
Friend	13 (3.66%)	7 (3.26%)	6 (4.29%)	0.96(0.57-1.61)	0.881	1.01(0.62-1.66)	0.967
Parent	67 (18.87%)	54 (25.12%)	13 (9.29%)	1.44(1.23-1.68)	**<0.001**	1.49(1.25-1.78)	**<0.001**
Do you own a mosquito net							
No	127 (35.77%)	87 (40.47%)	40 (28.57%)	**Reference**	**Reference**	**Reference**	**Reference**
Yes	228 (64.23%)	128 (59.53%)	100 (71.43%)	0.82(0.69-0.97)	**0.018**	0.95(0.70-1.29)	0.753
Do you sleep under mosquito net regularly							
No	146 (41.13%)	101 (46.98%)	45 (32.14%)	**Reference**	**Reference**	**Reference**	**Reference**
Yes	209 (58.87%)	114 (53.02%)	95 (67.86%)	0.79(0.67-0.93)	**0.005**	0.87(0.64-1.19)	0.396
Is the water from school safe and clean for drinking?							
No	17 (4.79%)	15 (6.98%)	2 (1.43%)	**Reference**	**Reference**	**Reference**	**Reference**
Yes	338 (95.21%)	200 (93.02%)	138 (98.57%)	0.67(0.55-0.82)	**<0.001**	0.79(0.62-0.99)	**0.048**

CHAPTER FIVE: DISCUSSION

5.0 Introduction

This chapter discusses the study findings on the prevalence and factors associated with fever-related school absenteeism among school-going children in Abim District North Eastern Uganda**.** The findings are interpreted in relation to the study objectives and compared with evidence from previous studies conducted in Uganda and other settings. The discussion highlights similarities and differences between the current findings and existing evidence, explores possible explanations for the observed patterns, and considers their implications for public health and school-based interventions. The chapter also identifies key findings that may inform strategies to prevent and reduce fever-related school absenteeism among school-going children

5.1. Summary of key findings and implications

This study aimed to assess the prevalence and factors associated with fever-related school absenteeism among school-going children in Abim District. The findings revealed significant associations between the learners' class level, the learners inform first whenever they experience fever, and access to clean and safe drinking water at school. This chapter presents a detailed discussion of these findings, compares them with existing literature, and explores their implications for public health intervention.

5.2 Objective 1: Prevalence of fever-related school absenteeism among school going children in Abim district, North Eastern Uganda

The study found that a larger proportion of school-going children in Abim District have miss school due to fever between May to December 2024. This finding indicates that fever-related illness was a significant contributor to school absenteeism among school going children. The high prevalence is consistent with the reported burden of fever among school-going children in Abim District, where the 2024 Health Management Information System (HMIS) reported a 65% prevalence of fever. However, the HMIS figure reflects reported fever morbidity and should not be interpreted as a direct measure of fever-related school absenteeism. The finding is also supported by evidence from Malawi, where malaria and other febrile illnesses were reported as important causes of illness among schoolchildren and were associated with

school attendance (Halliday *et al*., 2020). On the other hand, two studies have reported lower prevalence of fever-related school absenteeism among school-going children, for example, a study conducted by (Sarmiento-senior *et al*., 2020), reported a lower proportion of fever-related school absenteeism, the lower prevalence could be attributed to differences in study populations, disease patterns, study designs, outcome definitions, recall periods and methods of data collection. The present study assessed learners' self-reported fever-related school absence between May to December 2024 (two terms), thereby capturing episodes that could have been managed either at health facilities or at home, whereas some previous studies relied on school attendance records or medically attended illnesses (McLean *et al*., 2017).. In addition, fever is a nonspecific symptom that can result from several infectious conditions, as demonstrated by (Capeding *et al*., 2013), making direct comparison with studies based on laboratory-confirmed diseases inappropriate. Seasonal variation in febrile illnesses may also influence the frequency of school absenteeism, while retrospective with recall reporting may introduce some recall bias. Overall, the higher prevalence demonstrates a considerable burden of fever-related school absenteeism among school-going children in Abim District and highlights the importance of strengthening prevention, early recognition and timely management of febrile illnesses to support regular school attendance.

5.3: Objective 2: Factors associated with fever related school absenteeism among school going children in Abim district, North Eastern Uganda

The study identified three statistically significant factors associated with fever-related school absenteeism i.e., being in Primary Seven, learners who inform their parents first when experiencing fever, and access to clean and safe drinking water at school. Learners in Primary Seven were 1.33 times more likely to miss school due to fever than those in Primary Five. This finding suggests that absenteeism increased with class level, although the cross-sectional design used in this study does not establish that being in Primary Seven can cause school absenteeism, therefore, differences in exposure to infectious diseases, daily movement and social interaction, as well as differences in health-seeking and attendance decisions, may partly explain this association. The finding is consistent with evidence from Pakistan, where higher parental perceptions of children's susceptibility to viral illness were associated with increased odds of school absenteeism (aOR 1.86), supporting the role of perceived illness risk in school-attendance decisions (Akram *et al.*, 2026).

The study also found that learners who informed their parents first when they developed fever were 1.49 times more likely to miss school than those who informed their teachers. This finding is more likely to reflect the response to illness than a direct effect of reporting to parents. Parents may respond to fever by keeping the child at home for observation, treatment or recovery, particularly where fever is perceived as a sign of potentially serious illness. This interpretation is supported by Ravanipour *et al.,* (2014) who found that mothers commonly expressed concern about childhood fever and a need for rapid action and protection (Ravanipour *et al.,* 2014, Emerson *et al.,* 2016, Akram *et al.,* 2026).

Finally, learners who had access to clean and safe drinking water at school were 21% less likely to experience fever-related absenteeism (aPR 0.79) than those without such access. This finding supports the public-health importance of safe school water, although the association should not be interpreted as proof that water access directly prevents fever because the study was cross-sectional and other factors may influence both water access and illness. Safe water can reduce exposure to pathogens responsible for waterborne infections and support better hygiene practices. Evidence from a cluster-randomized school WASH trial found that comprehensive improvements involving water supply, sanitation and hygiene reduced diarrheal disease among pupils in water-scarce schools, although effects varied according to the intervention and setting (Freeman *et al.,* 2014). Overall, these findings indicate that fever-related school absenteeism is influenced by both learner characteristics and responses to illness, as well as the school health environment. The results therefore support strengthening school-based health education, appropriate parental and teacher responses to childhood fever, and reliable access to safe drinking water as components of efforts to reduce fever-related school absenteeism in Abim District.

5.4 Study strength

- This study provides important evidence on fever-related school absenteeism among school-going children in Abim District, addressing a key health and education concern that can affect school attendance and learning.
- Similarly, the use of a school-based cross-sectional design involving 355 learners from five primary schools enabled the study to obtain information directly from the target population and estimate the level of fever-related school absenteeism.

- In addition, the application of stratified sampling helped reduce selection bias, while using questionnaires in both English and Leb-thur supported better understanding and accurate responses from participants.
- Furthermore, the use of modified Poisson regression was appropriate for identifying factors independently associated with fever-related absenteeism, with adjusted prevalence ratios, confidence intervals, and p-values strengthening the interpretation of the findings.
- Lastly, the study identified practical factors for intervention, particularly the importance of clean and safe drinking water, providing useful evidence to strengthen school WASH services, health education, and school-based health interventions in Abim District.

5.5 Study limitation

This study findings may not be full representation of all school-going children in Abim District attending primary school, as not all schools were included in the sample. Moreover, the research was conducted only among learners in upper primary (Primary Five to Primary Seven), which limits the generalizability of the findings to the entire population of primary school learners. Additionally, some learners had transferred from other districts and were unable to accurately recall their illness experiences during the previous school term, which may have introduced recall bias and affected the reliability of the data

5.6 Implications for Public Health Interventions

The findings of this study have important implications for public health interventions aimed at reducing school fever-related school absenteeism among school-going children in Abim District and similar settings. Interventions should place greater focus on learners in primary school, particularly those in upper primary, in order to improve their health and school attendance, ultimately enhancing academic performance.

Effective strategies may include: Implementing health education and health promotion programs to improve both parents' and learners' knowledge and awareness of the various causes of fever in children. Providing clean and safe drinking water in schools to help prevent waterborne diseases such as typhoid and diarrhea and Strengthening access to

healthcare services for school-aged children to ensure early detection and prompt management of fever.

Furthermore, future research should be conducted across all primary schools and include learners from all grade levels. This would provide a more comprehensive understanding of the impact of fever-related school absenteeism on children's learning and school attendance.

5.6 Conclusion

This study found a high prevalence of fever-related school absenteeism among school-going children in Abim District, with 60.56% of the learners reporting at least one episode of absence from school due to fever during the recall period. The study identified three factors significantly associated with fever-related school absenteeism and this include; class level, who learners inform first when they developed fever, and access to clean and safe drinking water at school. Learners in Primary Seven had higher chance of missing school due to fever compared with those in Primary Five, while the learners who inform their parents first also have a high risk of missing school due to fever as compared to those who inform their teachers and friends. In contrast, access to clean and safe drinking water at school was associated with a lower likelihood of fever-related school absenteeism. Overall, the findings indicate that fever-related school absenteeism was common among the study participants and was associated with selected learner- and school-level factors.

5.7 Recommendation

To address the high prevalence of febrile illness among school-going children in Abim District and similar settings, stakeholders from both the education and health sectors at district and national levels should work together to implement the following key recommendations:

- **Integrate health education in to school curriculum.** The Ministry of Education should incorporate health education topics into the school curriculum, with a specific focus on the causes, prevention, and management of febrile illnesses. Special attention should be given to upper primary learners, particularly those in Primary Seven, who appear to be more vulnerable. This can be further supported through the

establishment of school health clubs and promotion of peer-led health initiatives to reinforce key health messages.

- **Ensure Access to Clean Water and Sanitation Facilities.** All schools should have access to safe drinking water, clean toilets, and functional handwashing stations. These facilities are crucial for preventing waterborne illnesses such as diarrhea and typhoid, which are common causes of fever among children.
- **Strengthen School-Based Health Outreach Services.** Schools should collaborate with nearby health facilities to offer regular health services, including malaria testing, deworming, and vaccination programs. Teachers should receive basic health training to enable them to identify symptoms of illness and ensure that affected learners receive timely care or referrals.
- **Promote Parental Involvement**. Parents play a vital role in maintaining their children's health. Schools and health authorities should conduct community awareness campaigns to educate parents on the importance of seeking prompt medical care when a child develops a fever.

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APPENDICES

APPENDIX I: BUDGET

SN	Item Description	Unit	Quantity	Unit cost	Amount
1	**Stationary**				
2	Printing papers	Reams	6	25,000	150,000
3	Note books	Dozen	1	20,000	20,000
4	Pens	Box	1	20,000	20,000
5	Pencils	Box	1	15,000	15,000
6	Rubbers	Box	1	5,000	5,000
7	Typing, printing and Photocopying of the research	Lumpsum	1	200,000	200,000
8	Binding proposals and thesis	Lumpsum	1	300,000	300,000
	Sub total				**710,000**
	Field Work/Consultation				
1	Training researcher assistants	Number	4	50,000	200,000
2	Data collection	Number	20	30,000	600,000
	Compensation for study respondent	Number	350	5000	1,750,000
3	Communication airtime and internet data	Lumpsum	1	500,000	500,000
	Data analysis	Lumpsum	1	700,000	700,000
	Dissemination	Lumpsum	3	250,000	750,000
	Manuscript writing	Lumpsum	1	500,000	500,000
	Sub total				**5,000,000**
	Grand total				**5,710,000**

APPENDIX II: WORK PLAN

ACTIVITY	Oct-Dec 2023	July-Oct 2024	Nov2024	Dec2024	Jan2025	JAN2025	Feb-March2025	April2025	May - 2025
Topic identification and approval									
Proposal review (Chapter 1, 2 and 3)									
Develop research instrument and review									
Pre-test of research instruments									
Data collection									
Data processing and analysis									
Research report writing/1st Draft									
Review of thesis									
Presentation of Final Draft									
Thesis Defense									
Report approval									
Submission of final copies									

APPENDIX III: KREJCIE AND MORGAN TABLE

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

APPENDIX IV: INFORM CONSENT

Version 2. Informed Consent Form for guidance of Participants below the age of 18years

Tittle of the study: Prevalence and factors associated with fever-related school absenteeism among school going children in Abim district

Name of Investigator: Mr. Oyugi Francisco

Institutional details: Gulu University

Phone No: +256(0)778780775

E-mail Address: Oyugifrancisco@@gmail.com

Introduction

My name is ***Oyugi Francisco*** a student of Gulu University pursuing Masters in Public Health. As part of my study program, I am conducting a study entitled, "prevalence and factors associated with fever-related school absenteeism among school going children in Abim district." You have been randomly selected to participate in this study and therefore the purpose of this consent is to request you for your valuable time and cooperation to respond to the following questions, please be assured that the information you will provide will be kept and treated with highest confidentiality and will be used only for academic purposes, before we will proceed feel free to asked any question in regards to this study and thereafter you will be given a copy of informed consent to sign where a copy will remain with you for reference.

Brief description of the sponsors of the research project

Febrile illness is a global public health problem, with fever being recognized as a condition as early as 3000 BC, according to the world health organization, approximately 247 million cases of malaria mortality and morbidity was reported in 84 endemic countries (WHO, 2022), the greatest burden was observed in Africa and Asians countries. In Africa, a study conducted by Walldorf and others on malaria in Malawi found out that malaria accounted for 31% of the school days missed among learners aged 10-17 years (Walldorf *et al*., 2015).

Similarly, in Uganda a study by Nankabirwa and other on malaria among school aged children found out that malaria accounted for 40% of school days missed and the highest burden was observed in the rural areas where there is limited access to health care (Nankabirwa *et al*., 2014). A study conducted by McLean, Walldorf and other found out that, the high prevalence of febrile illness among school going children is associated with poor sanitation and hygiene, low socioeconomic status of the parents, limited access to healthcare services like vaccination and immunization services, (Walldorf *et al*., 2015, McLean *et al*., 2017). To date Fever-related school absenteeism among school going children is not widely studied and therefore with limited data the gap provides a justification for the study, therefore this study aims to determine the prevalence and factors associated with febrile illness and school absenteeism among the school going children in Abim district.

Purpose

This study will seek to determine the prevalence and factors associated with Fever-related school absenteeism among school going childrens years in Abim district, The study findings will help the district health and education departments improve on how to manage febrile illness to reduce school absenteeism, and enhance children's well-being and academic performance

Procedures

Your children's or learners Participation in this study will be voluntary and therefore learners will be free to participate or not participate. Children will be selected systematically selected from the class register with a random start point and if the child agree to participate in the study, they will be asked to respond to research questions which will take approximately **20-30 minutes**, during this interview, children/learners will answer questions about your knowledge on febrile illness symptoms and treatment, factors associated with febrile illness, school absenteeism due to febrile illness and environmental factors like how distance from school from home influence school absenteeism due to febrile illness among school going children in your school, while answering the questions, it is okay to skip any question that a child do not want to answer, although we would very much like to get your views on all the questions. Children/learners are also free to end the interview at any time you want without

any negative consequences to you. Children/learners will not be denied services for not participating in this study.

Who will participate in the Study?

Leaner/ children who are currently in school age 10-17 years in upper primary (P/5-P/7) has been chosen to participate in the study because of their ability to remember the past episodes of fever in the past one to two terms of 2024, learners will be asked questions that will last for approximately **25-30** minutes, a total of 350 children/learners from five selected primary school in Abim district will take part in the study

Risks or Discomforts

There is no foreseeable risk of harm or discomfort that will arise from learners/children participation in this study. The only risk or discomfort will be the inconvenience in terms of time spent during the interview

Benefits

By participating in this study, children/learners will provide credible and valuable information on prevalence of febrile illness among school going children and how best febrile illness can be managed to reduce the rate of school absenteeism among school going children in Abim district on a personal level, children/learners may find it beneficial to be able to share their own experiences on the impact of febrile illness on their academic performance

Confidentiality

Your learners/children's identity will not be revealed to any one as we shall only use codes to identify participants. Information obtained will only be accessible by the research team. Soft copies of the data will be protected by password and hard copy files will be kept under lock and key. Confidential information will only be accessed by the principal investigator.

Alternatives:

Your learners/children do not have to participate in this study if he/she is not interested.
Learners/children will not lose any benefit in case of no participation.

Cost: There will not be any additional cost incurred as a result of participating in this study.

Questions:

Learners/children will be allowed to ask any questions related to the study as a research participant, learners/children participating can contact the principal investigator, Oyugi Francisco on telephone number +256778780775 or email on oyugifrancisco@gmail.com

Statement of voluntariness:

Participation in the research study is voluntary and learners/children may join on their own free will. Leaners/children has a right to withdraw from the study at any time without penalty. If you have any issues pertaining to your rights or learners/children rights to participate in the study, please contact the Chairperson, Gulu University Research Ethics Committee, Dr. Julaina

A. Obika Tel: No., 0772964491; email: j.obika@gu.ac.ug ; or the Uganda National Council for

Science and Technology, on plot 6 Kimera road, Ntinda, Kampala on Tel 0414705500

Statement of consent

I have read/listened to and understood the study information provided above. I have understood what is going to be done, the risks, the benefits involved and my rights and leaners rights as a participant in this study. I understand that my decision permits my learners to participate in this study will not affect me or learners in any way. In the use of this information, my learners/children identity will be concealed. I am aware that my learners/children may withdraw at any time. I understand that by signing this form, I do not waive any of my legal rights or learners' rights but merely indicate that I have been informed about the research study in which my learners voluntarily agree to participate. A copy of this form will be provided to me.

Name of child:……Date:…….....

Name ……Signature/thumbprint of participant……Date

Name……. Signature of

witness……Date……

Name……. Signature of

interviewer……Date…….

APPENDIX V: INFORM ASSENT FORM

Version 2. INFROM ASSENT FORM (FOR CHILDREN 8 YEARS TO 17 YEARS AND PERSONS INCAPABLE OF SELF DETERMINATION**)**

Introduction

My name is Oyugi Francisco, a public Health professional, studying at the department of Public health, Gulu university located in Gulu East Pece-Laroo division

I am conducting a study on prevalence and factors associated with febrile illness and school absenteeism among school going children in Abim district. Febrile illnesses have long been a significant contributor to the global disease burden, with fever being recognized as a condition as early as 3000 BC, El-Radhi and others on the history of fever found out that societal and cultural perceptions of fever varied worldwide, for instance, while many in developing countries attributed fever to evil spirits, Therefore Febrile illness are often cause by a number of pathogens such as bacterial, fungal, parasitic and viral infections, clinically fever in children presents with high body temperature, vomiting, headache, cough and flu, diarrhea among others, fever in children can be managed by sleeping under mosquito net, timely identification and treatment, drinking clean and safe water, and proper waste disposal

Objectives of the study

This study seeks to determine prevalence's and factors associated with Fever-related school absenteeism among school going children in Abim district the study findings will help the district health and education departments improve on how to manage febrile illness to reduce school absenteeism, and enhance children's well-being and academic performance

Study procedure

In this study school going children age 10-17 both boys and girls from upper primary will be free to participate or not participate. Children will be systematically selected from the class register with a random start point and if the child agree to participate in the study, they will be asked to respond to research questions which will take approximately **20-30 minutes**, during this interview, children/learners will answer questions about your knowledge on febrile illness symptoms and treatment, factors associated with febrile illness, school absenteeism due to febrile illness and environmental factors like how distance from school

from home influence school absenteeism due to febrile illness among school going children in your school, while answering the questions, it is okay to skip any question that a child do not want to answer, although we would very much like to get your views on all the questions. Children/learners are also free to end the interview at any time they want without any negative consequences to them. Children/learners will not be denied services for not participating in this study.

Benefits

By participating in this study, you will provide credible and valuable information on prevalence of febrile illness among school going children and how best febrile illness can be managed to reduce the rate of school absenteeism among school going children in Abim district on a personal level, you may find it beneficial to be able to share their own experiences on the impact of febrile illness on their academic performance

Compensation

Participation in this study is absolutely voluntary you will be free to participate or not without any penalty. Learners will be given a book and a pencil for their participation because the study will be conducted within the school which will not require any movement

Risks or Discomforts

There is no foreseeable risk of harm or discomfort that will arise from learners/children participation in this study. The only risk or discomfort will be the inconvenience in terms of time spent during the interview

Confidentiality

Any information obtained from you that identifies you by name will be kept private and secure in a locked place and will be accessed only by the principal investigator, the research team or Gulu University Research and Ethics Committee (GUREC) members. We will not identify you by your name. The soft copy of the information obtained from you will be kept in a password- protected computer that is only accessible by the research team and the GUREC members.

Participants' rights

Your participation in this study is entirely voluntary and refusal to participate will not in any way make you be discriminated against. You are free to withdraw from the study at any stage in case you feel that your rights are not being respected or if you are not comfortable with the

study procedure. If you choose to withdraw, all your information previously collected will be destroyed and not used as part of the data analysis or dissemination. In case you still have more questions regarding this study, you may call Oyugi Francisco the principle investigator on telephone contact 0778780775 or via email oyugifrancisco@gmail.com. In case of any questions regarding confidentiality or your rights as a study participant please contact the Chairperson of Gulu University Research and Ethics Committee, Dr. Julaina A. Obika Tel: No., 0772964491; email:
j.obika@gu.ac.ug ; or the Uganda National Council for Science and Technology, on plot 6 Kimera road, Ntinda, Kampala on Tel 0414705500

Assent statement

I have been informed of this study on prevalence and factors associated with febrile illness and school absenteeism among school going children in Abim district, the study will participants will include children age 10-17 years in upper primary five to primary seven who are currently at school studying within Abim district and this study will be a cross sectional retrospective and school based. I have been given enough explanation about the study procedures, benefits, risks, and my rights as a participant in this study. I am aware that participation in this study is entirely voluntary and that I can withdraw, without prejudice, from the study at any stage in case I do not feel comfortable with the procedure or study. I understand that it will not affect my access to the healthcare that I will receive from this health facility or any other social services/facilities that I intend to access/visit. I therefore accept to take part in this study as a study participant.

Name of child/Respondent	**Signature/ thumbprint**	**Date**
……	……	

Investigator 's/ research assistant's name	**Signature**	**Date**
……	……	

Name of Witness	**Signature/thumbprint**	**Date**
……	……	

APPENDIX VI: STRUCTURED QUESTIONNAIRE GUIDE

Introduction and Consent

Hello Respondent.

My name is ***Oyugi Francisco*** a student of Gulu University pursuing Masters in Public Health. As part of my study program, I am conducting a study entitled, "Prevalence and factors associated with fever-related school absenteeism among school going children in Abim District." You have been randomly selected for this study. This is therefore, to request you for your valuable time and cooperation to respond to the following questions. Please be assured that the information you will provide will be kept and treated with highest confidentiality and will be used only for academic purposes. (Please tick option/s that matches your response)

SECTION A: DEMOGRAPHIC CHARACTERISTIC OF RESPONDENCE

1. **Age. how old are you?**

   i. Enter actual age ☐

2. **Sex. How do you identify your sex?**

   i. Boy ☐

   ii. Girl ☐

3. **Gender: How do you identify your gender?**

i. Male ☐

ii. Female ☐

4. Class: Which class are you in?

i. P5 ☐

ii. P6 ☐

iii. P7 ☐

5. Parents occupation: What is the occupation of your parents?

i. Employed ☐

ii. Unemployed ☐

6. School resident: do you stay at school or go home every day?

i. Boarding ☐

ii. Days' scholar ☐

7. If Day's scholar, how far is your home from school?

i. Less than 1km ☐

☐

☐

ii. 1-2km

iii. Above 2km

iv. N/A

8. **If a day's scholar, how do you travel to school every day?**

i. Walk ☐

ii. Bicycle/boda-boda ☐

iii. Public means(vehicle) ☐

iv. N/A

SECTION B; SCHOOL ABSENTEEISM DUE TO FEBRILE ILLNESS

1. In the past two terms, did you miss school due to Fever

i. Yes ☐

ii. No ☐

2. If yes, how many days have you missed school because you were sick?

i. 1-3 Days ☐

ii. >4 Days ☐

iii. if no, N/A ☐

SECTION B: FACTORS ASSOCIATED WITH FEBRILE ILLNESS AND SCHOOL ABSENTEEISM

1. Do you know the appropriate person to seek treatment from whenever you are feverish?

   i. Yes ☐

   ii. No ☐

2. Do you know where to seek treatment from whenever you are sick?

   i. Yes ☐

   ii. No ☐

3. **Where do you always seek treatment from whenever you have fever?**

   I. School nurse ☐

   II. Traditional healer ☐

   III. Clinic ☐

   IV. Home remedy ☐

   V. Health facility/hospital

4. **Whenever you have fever, whom do you inform first?**

   i. Teacher/matron ☐

   ☐

   ☐

i. Parent

ii. Friends

8 How long do you take to seek for treatment whenever you feel that you have fever?

i. <1 day ☐

ii. 2-4 days ☐

iii. More than 4 days ☐

9 Do you own a mosquito net?

i. Yes ☐

ii. No ☐

10 If yes, do you regularly sleep under a mosquito net?

i. Yes everyday ☐

ii. No ☐

iii. N/A ☐

If No or sometimes why----------

---

11 Do you use latrine from school?

i. Yes, ☐

ii. No ☐

12 Do you wash your hands with soap and water after using the latrine?

i. Yes, ☐

ii. No ☐

13 Where do you get water for drinking and cooking from school?

i. Tap/pipe water ☐

ii. Unprotected well/stream/river ☐

iii. Borehole ☐

iv. Rainwater collection ☐

14 Is the water at school always clean and safe for drinking?

i. Yes ☐

☐

ii. No

ENVIRONMENTAL FACTORS/Applicable to only pupils who are days scholars

1. **How far is your home from school?**

i. >1km ☐

ii. 1-3Km ☐

iii. <3Km ☐

iv. Not Applicable for pupils in boarding section ☐

2. **How do you travel to school?**

i. Walk on foot ☐

ii. Use bicycle and boda-boda ☐

iii. Use public transport ☐

iv. Not Applicable for pupils in boarding section ☐

3. **How much time do you take to reach your school?**

i. <1 hour ☐

ii. 1-2 hours ☐

iii. >3 hours ☐

iv. Not Applicable for pupils in boarding section ☐

THANK YOU FOR YOUR PARTICIPATION IN THIS STUDY!

APPENDIX VII: MAP OF ABIM DISTRICT SHOWING THE STUDY LOCATIONS

