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FEVER AND SCHOOL ATTENDANCE AMONG BASIC SCHOOL CHILDREN IN ADENTAN MUNICIPALITY

BY

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DECLARATION

I, DENNIS NKANSAH APPIAH declare that this study is my original work carried out under the supervision of Dr. Samuel Oko Sackey at the department of Epidemiology and Disease Control and that, apart from the literature review that have been duly acknowledged in-here, this work has never been presented either whole or in part by anyone to any institution or school for the award of any other course or degree qualifications.

I also reaffirm that all sources of materials used and consulted in the course of this study have been duly acknowledged.

Signed…… Date:……

(STUDENT: DENNIS NKANSAH APPIAH)

Signed…….. Date:……

(SUPERVISOR: DR SAMUEL OKO SACKEY)

DEDICATION

I dedicate this work entirely to my father, Mr. Kingsley Kwaku Nkansah. Though you are not here anymore, I will always remember you. Thank you so much from the bottom of my Heart for everything that you have done for me. No child had a better father!

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Firstly, I am thankful to God for the strength given me throughout this study. It is by His Grace alone that I was able to successfully carry out this study.

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ABSTRACT

Introduction: Fever is a common presentation in children and oftentimes, it is a predictive marker for an underlying infection. School attendance plays an important role in a child's personal, social and academic development. It is estimated that, in Ghana, only 58% of children who enrol in class one make it to class six and in Adentan municipality, 27.3% of children have dropped out of school, which is a long – term consequence of school non – attendance and probably as a result of fever and fever – related diseases. The relationship between school attendance and fever has not been studied in any urban setting, despite the fact that non – attendance continues to be on the rise. Therefore the study seeks to determine the relationship between fever and school attendance among basic school children and to quantify this relationship.

Method: The study used a descriptive cross – sectional study to determine the prevalence of fever among basic school children, the contributing factors and the rates of school non – attendance due to fever among this group. A bivariate analysis test was fitted to examine the factors that influenced the occurrence of fever in the two weeks preceding the study and also used to determine the factors that contributed to school non – attendance among the basic school children.

Results: Prevalence of fever among basic school children was 57.97% and was affected significantly by disease occurrence among them which proved to be the single most important risk factor for fever. School attendance was influenced by age, socioeconomic status, zone of child's residence and lack of water as well as their attendance rates due to fever. School non – attendance rates due to fever was calculated to be 53.6% per term indicating that more than half of all school absences is caused by fever.

Conclusion: There was no direct relationship between occurrence of fever among basic school children in the two weeks preceding the study and school attendance.

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LIST OF ABBREVIATIONS

CDC: Centres for Disease Control and Prevention

CREATE: Consortium for Research on Educational Access, Transitions and Equity

GDHS: Ghana Demographic and Health Survey

GHS: Ghana Health Service

GSS: Ghana Statistical Service

ICF International: International Committee for the Fourth

ITNs: Insecticide – treated bed nets

NHIS: National Health Insurance Scheme

NSW: New South Wales

RTI: Respiratory Tract Infection

WHO: World Health Organization

WLGA: Welsh Local Government Association

1.0 INTRODUCTION

1.1 BACKGROUND

Fever is commonly defined as an increase in body temperature above the normal (37°C or 98.6°F), which allows for diurnal variation (NSW Health, 2010). There have been many definitions and arguments regarding which temperatures are best suited for describing fever, but most paediatricians agree on temperature range of 37.5°C – 38.5°C.

Fever or elevated temperature is one of the most common severe presentations in children worldwide, and a lot of these children are only unwell, but have a focus of infection that is identified on clinical examinations and analyses with the occurrence of fever (NSW Health, 2010). Feverish illness in children often indicates an underlying infection and it is the most common reason for a child to be taken to the hospital (Nice, 2013). Fever itself is not an illness, but a symptom of an infection. Sullivan & Farrar (2011) maintain that there is no evidence that fever itself contributes to worsening the course of an illness or that it is involved in long-term neurologic complications. Oftentimes, it is rather an indication that the body of the child may be fighting an infection. The elevated temperature turns on the immune system of the child which in turn, makes it more difficult for bacteria and viruses to grow (Garrison, Johnston, & Poncirolli, 2007).

A report by the World Health Organization (WHO) shows that infectious diseases are the biggest killer of young adults and children, accounting for over 13 million deaths in a year (Novignon & Nonvignon, 2012). Almost all infectious diseases have fever as a symptom. Although, fever may not be necessarily harmful, it initiates concern for parents, caregivers and health professionals. Fever presentations in children often lead to unscheduled physician visits, and wide use of over-

the-counter antipyretics (acetaminophen and ibuprofen) all in attempts by parents to normalize their ward's temperature (Sullivan & Farrar, 2011). This calls for concern in that, fever cannot alone determine the particular infection which the body may be fighting.

Fever often makes children morbid and inactive. Children with feverish symptoms such as headache, chills, cough, ear pain and poor appetite are mostly uncomfortable and do not feel well to attend school and hence participate in school activities. Due to this, most paediatricians recommend that they be given some time to recover from the fever before returning to school and treatment only be given when the fever makes them uncomfortable.

School non-attendance refers to habitual absence (excusable or inexcusable) from school and it is a serious public health issue for health professionals, physicians and educators (Kearney, 2008). It is an important risk factor for suicide attempt, perilous sexual behaviour, teenage pregnancy, violence alcohol, marijuana, tobacco and other substance use (Kearney, 2008). School plays a major and significant role in children's and adolescents' personal, social and academic development (Dube & Orpinas, 2009). A greater number of children are in school and most often, attend school consistently without any problems but some may skip certain classes, arrive late, miss school days and sometimes, do not attend school for a long time period (Havik, Bru, & Ertesvåg, 2014). Children engage in these negative behaviours for a lot of reasons, some of which are peer influences, lack of interest to school and financial constraints. Dube & Orpinas, (2009) maintain that healthy development of a child, which includes education and high school completion, is highly dependent on a child's consistency in attendance to school. The latter also report that school absenteeism is a heterogeneous behaviour, resulting from many valid and invalid reasons.

School non-attendance by reasons, can be put into two categories; legitimate and illegitimate (Havik et al., 2014; Ready, 2010). About 80% of school non-attendance is considered legitimate and this is primarily due to illnesses, holidays and family emergencies (Havik et al., 2014). Illegitimate reasons however, constituting the remaining percentage of school non-attendance are varied and range from child-motivated to non-child motivated reasons. Major reasons for school non-attendance also differ between urban and rural areas. In urban areas, absenteeism is largely due to illnesses and in rural areas; it is due to poverty, truancy and school refusal (Kearney, 2008; Mobin, Shakoor, Habib, & Qureshi, 2012).

School absenteeism due to infections is a serious problem facing both private and public schools in developing and developed countries (Azor-Martínez et al., 2014). This presents a major cause of concern for schools, teachers, public health experts and health professional. Thus, the solution to this problem requires the interplay of both ministries of education and health. A report by Lou, (2013) shows that school absenteeism is rampant among lower levels of education; kindergarten and primary school children.

In Ghana, illnesses continue to be a major threat to child survival and development; estimated number of deaths by cause (Diarrhoea – 5193, Measles – 1115, Malaria – 14365, Pneumonia – 5712 (Novignon & Nonvignon, 2012)). All of these diseases have fever as a major symptom.

Adentan municipality presents an urban setting in the Greater Accra region of Ghana where no studies have been done on school non-attendance and a focus on a particular reason why this problem persists. The study therefore seeks to find out the relationship between fever (a symptom of most underlying infections among children) and school non-attendance in an urban setting of Ghana.

1.2 PROBLEM STATEMENT

Globally, it is known that 1 out of every 5 elementary school students is involved in school non-attendance in urban sectors; and in rural areas, 1 out of 4 students can miss at least a month's worth of school, producing a relative percentage of 6 to 23 of basic school children engaged in non-attendance (Balfanz & Byrnes, 2012).

It has become increasingly clear that school non-attendance is mostly as a result of medical injury and illnesses from a number of studies (Bonilla et al., 2005; Fernando et al., 2003; Kearney, 2008; Thuilliez, 2010) and 80% of school non-attendance is primarily due to illnesses (Havik et al., 2014).

A study conducted by Lawpoolsri et al., (2014) showed that, of 5000 students in 7 schools, approximately 1 – 10 % of students were absent each day. Of up to 100 students who missed school due to illnesses, approximately half had fever (Lawpoolsri et al., 2014).

It can be deduced from available information that school non-attendance rates are much higher in Africa than other continents; 4.5% in England (Jones, 2015), up to 10% in the United States of America (Balfanz & Byrnes, 2012), up to 15% in South Africa and as much as 50% in certain parts of Namibia (Weideman et al., 2007).

The Ghana national education sector report, (2014) states that, taking the number of school children who enrol in primary school to be 100%, only 40% of them make it to senior secondary schools. In rural areas of Ghana, school non- attendance is primarily due to truancy, school refusal and poverty, but in the urban areas under which Adentan Municipality falls; school attendance is primarily attributed to diseases, most of which present as fever. According to the Manual, (2011), the Ghana national education in 2007 reported that, 42% of those who enrolled

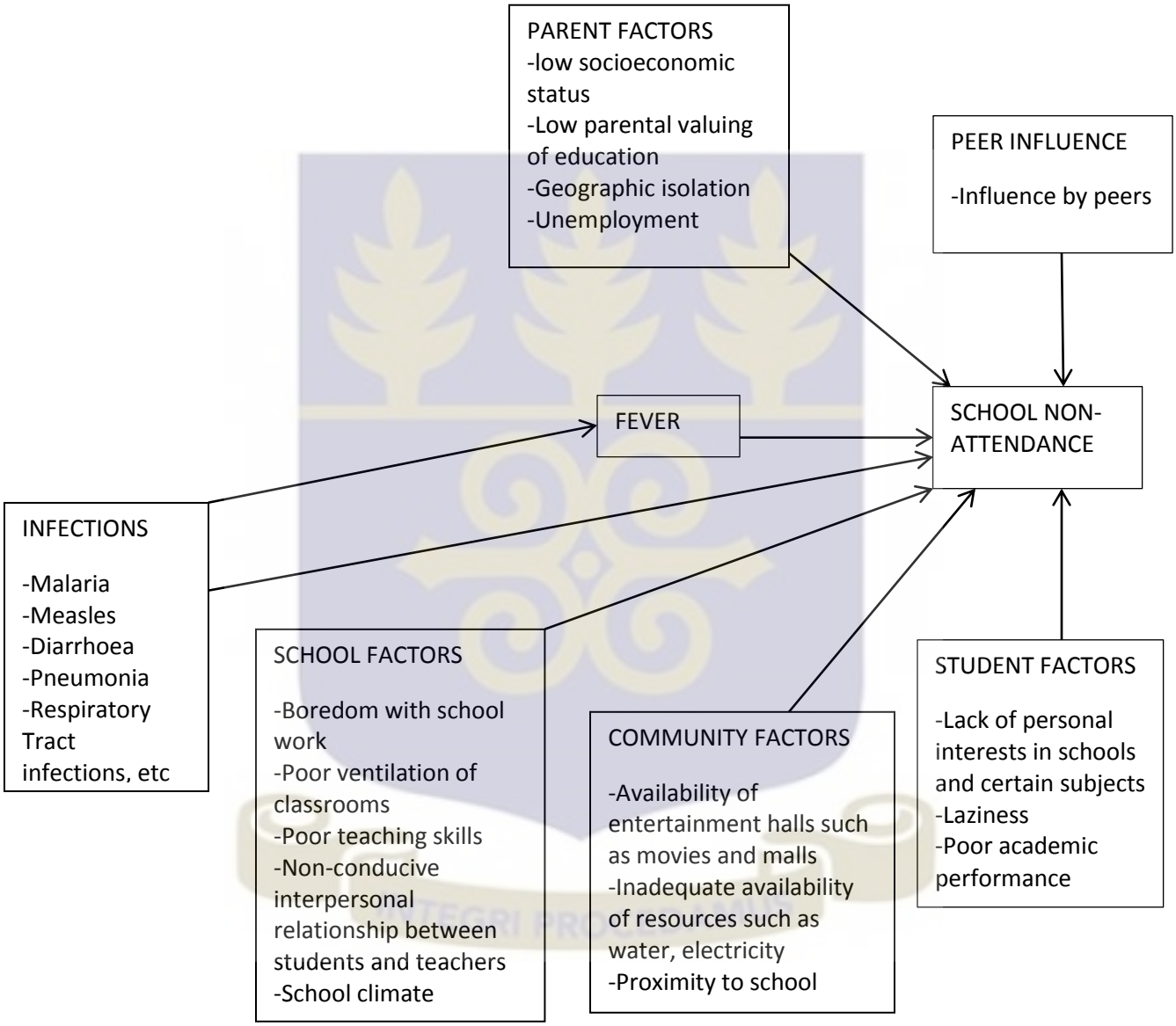
in class one did not make it to class 6, which in the urban setting is primarily due to illnesses, although other factors come into play.

The Ghana national education report also showed that the official literacy level among children at the end of primary six is 26%. Adentan Municipality presents a total of about 24584 children, from ages 0 to 14, with children of school going age numbering 14714, but only about 10695 children are actively in school, the rest (4019 children), representing 27.3% are out of school, which is a long term effect of school non-attendance (Havik et al., 2014; Simpeh & Owusu-Afriyie, 2014). Even with those in schools, not all of them complete junior high schools. School non – attendance has severe consequences on the child (low illiteracy rate leading to employment problems), on the family (high dependency) and on the nation (uneducated youth who will become an economic burden). The reasons for non – attendance could be associated with socioeconomic status, truancy, illnesses, and school refusal among others.

Fever, which is a major cause of school non-attendance, has not been quantified in any urban setting, hence the need for the study. The results from the study would help to know the percentage of students engaged in school non-attendance due to fever and hence aid to institute mechanisms to ensure that all children are able to attend school throughout.

1.3 CONCEPTUAL FRAMEWORK

FIG 1: CONCEPTUAL FRAMEWORK OF THE RELATIONSHIP BETWEEN FEVER AND SCHOOL ATTENDANCE AMONG BASIC SCHOOL CHILDREN IN ADENTAN MUNICIPALITY



1.3.1 NARRATIVE ON CONCEPTUAL FRAMEWORK

Oftentimes, fever occurrences initiate a reason to miss school. Clinical episodes of fever have been utilized as a predictive marker for determining the rate of school attendance among children. Infections in children often limit their ability to do anything and hence, attend school. Fever is used as an indicator to determine symptoms of developing diseases and illnesses. School factors including infrastructure and equipment, and learning atmosphere also influence school attendance directly. A subtle and learning atmosphere together with improved educational infrastructure contributes enormously to learning and thus, enhances the rate of school attendance. Community factors such as availability of water, electricity and transportation have a direct effect on school attendance. Non – access to these often contribute to lateness and school non – attendance. Student factors such as laziness and lack of personal interest in studies affect school non – attendance, as students often do not feel the need to attend school. School children who have peers exhibiting negative behaviours to school many tend to emulate these attitudes and thus, can engage in school non – attendance.

1.4 JUSTIFICATION

Fever as a major and common clinical indication managed by paediatricians and health care providers, accounts for one-third of all presenting conditions in children (Sullivan & Farrar, 2011). Being a symptom for many diseases and a cause of school non-attendance in mostly, urban and growing communities, fever presents a lot of challenges to children, parents, schools and health service providers.

There is however inadequate research and knowledge about the impact of fever as a major cause of school non-attendance and its prevalence among school children. Such knowledge is

important to determine the need for stronger action to reduce school non-attendance by addressing negative effects of fever.

To prevent long-term school non-attendance, which presents serious consequences such as school drop-outs, employment and mental problems, schools and teachers have to identify and address both legitimate and illegitimate non-attendance at an early stage (Havik et al., 2014). Oftentimes, this is seen as the work of schools and teachers alone, but this conviction is in error and will require services of health professionals to ultimately address the problem at the roots.

Within this context, relationship between health and school has not been studied carefully despite the fact that non-attendance continue to be on the rise, with indications of health of these children accounting for this problem (Thuilliez, 2010).

Adentan Municipality also presents an urban setting, with children forming the greater parts of household and the municipality also consist of a number of basic schools. Although an urban area, it has components of a rural area which provides a subtle atmosphere for the study. To prevent the burden on the individual, the family and the economy, it is imperative to know the number of pupils whose gradual drop out from school is as a result of illnesses so that interventions can be focused on such areas.

RESEARCH QUESTIONS

- What is the relationship between fever and school non – attendance among basic school children in Adentan Municipality?
- What is the rate of fever occurrence among basic school children in Adentan municipality?
- What factors predispose these children to fever?
- What is the rate of non-attendance among basic school children in Adentan municipality?

1.5 OBJECTIVES

1.5.1 GENERAL OBJECTIVES

- To determine the relationship between fever and school non – attendance among basic school children in Adentan municipality.

1.5.2 SPECIFIC OBJECTIVES

- To determine the prevalence of fever among basic school children
- To identify the factors contributing to the prevalence of fever among basic school children.
- To determine the rates of school non – attendance due to fever among basic school children

2.0 LITERATURE REVIEW

2.1 INTRODUCTION TO LITERATURE REVIEW

This chapter represents knowledge and findings on fever, prevalence and burden of fever, febrile illnesses among children, school attendance, causes and reasons for school non – attendance. Pertinent literatures were searched and reviewed thoroughly using scientific databases such as pubmed, google scholar, sciencedirect, hinari and JSTOR, among others. Keywords put into these search engines included "fever AND children", "fever", "school non – attendance", "fever AND children AND school absenteeism" "causes of fever AND children" "causes of absenteeism AND children" among others. Other scientific books, journals and articles containing relevant information on subject matter were reviewed thoroughly and information used and cited accordingly.

2.2 PREVALENCE OF FEVER IN CHILDREN

Fever presentations are most acute in children and are a major concern. The most common causes of fever in children include both minor and life-threatening infections of the respiratory system, urinary system, gastrointestinal tract, or central nervous system (Mai, 2013). Because of the less immunity children have against infections, fever may have severe complications on them. Fever is a major contributor to public health problems in sub – Saharan Africa and it is a symptom of diseases especially predominant among children under the age of five (Novignon & Nonvignon, 2012). Included among such diseases are malaria, diarrhoea, polio, typhoid, tuberculosis, measles and respiratory tract infection. These diseases contribute the bulk of all child mortality in Africa.

Axillary, (2007) reported that if a child has a fever, he/she may feel warm, appear flushed, or sweat more than usual and may be more thirsty than usual, however some children feel fine when they have a fever. Therefore, it is imperative to know some associating signs before taking the child to the hospital. Some of these signs include;

- Looks very ill, is usually drowsy or is very fussy
- Has symptoms such as stiff neck, severe headache, severe sore throat, severe ear pain, an unexplained rash or repeated vomiting or diarrhoea
- Has had a seizure
- A child five years and older with temperature above 104°F or higher which persists after 2 hours of home treatment ((Massachusetts Department of Public Health, 2007).

From these signs, it can be deduced that the behaviour a child exhibits tells more about the severity of the illness rather than the degree of fever. Cannon, (2013) states that fever is responsible for approximately 15% of all hospital visits for children up to the age of six, with reason being that its appearance is considered a medical emergency as it raises concern for febrile seizures which occur in 2 – 4 % of children under 5 years. Paediatricians estimate that young pre – schoolers can have a range of five to ten infections each year, which thwart school going.

Of 60 children followed up in a study conducted by Wurster, Carlucci, Feder, & Edwards, (2011) to assess the long – term follow up of children with periodic fever, more than 70% of them had presentations of the symptoms of fever including sore throat and chills. Periodic fever occurrences were recorded in most individuals of the study populations and various children exhibited varying degrees of fever at different points in time of the follow – up period. The study

showed that development of fever is somewhat inevitable in children at some point in time and may be quite problematic depending on the length of duration of its presentation.

Semba, de Pee, Ricks, Sari, & Bloem, (2008) reported that there is 58.7% prevalence of fever as a risk factor for anaemia among a sample of 32873 children aged 6 – 59 months from poor homes living in urban slums over a 3 – year period. Most children living in poor homes are highly prone to factors leading to prevalence of fever and fever – related diseases. Slum conditions which are characterized mostly by deprived housing conditions also are serious factors for causing and increasing prevalence of fever. The study also compares with the prevalence of fever and related risk factors in Southeast Asia, which was recorded to be 65%. Prevalence of fever and diarrhoea as risk factors for anaemia is three times higher in developing countries than in America and Europe (Semba et al., 2008).

A study conducted by Kandala, Emina, Nzita, & Cappuccio, (2009) showed that a low prevalence of childhood diarrhoea, acute respiratory infection and fever was observed in the western provinces of the Democratic republic of Congo, whereas a relatively high prevalence was observed in the South – eastern provinces although each disease had a distinct geographical pattern of variation. The disparity of the prevalence in the two provinces was explained to be as a result of socioeconomic factors and the geographical location of each province. This supports the claim that socioeconomic status and location of the child are factors for influencing the prevalence of fever.

Research findings by Kanté et al., (2015) indicate fever prevalence in a quarter of 2077 children under 5 years in rural Tanzania two weeks before the commencement of their study, which aimed to identify factors influencing the differences in prevalence of fever, diarrhoea and acute respiratory infection.

Of a study conducted by Jin et al., (2013) to determine the prevalence of headache, which is a fever symptom, among children in Shanghai, it was observed that 466 (9.8%) of 4812 had experienced headaches in the past three months. The proportion of children with headaches also varied with age and this can be a very useful measure for determining if the child will be presented with fever.

Ghana Statistical Service (GSS), Ghana Health Service (GHS), & ICF International, (2015) in the recent demographic and health survey conducted in 2014 determined a fever prevalence of 14% among children under 5 years.

Studies however show that fever occurrences are disappearing from some countries. Zaman, Choudhury, Rahman, & Ahmed, (2015) reported that observed prevalence of some fever – related diseases such as Rheumatic fever is disappearing from Bangladesh. Prevalence calculated was 0.6 cases per 1000. Although fever rates continue to be on the rise in some countries, its numbers have dwindled tremendously in other areas, possibly due to intervention measures focused on these areas.

Kandala, Magadi, & Madise, (2006) reported in a study that investigated the spatial distribution of diarrhoea and fever prevalence in children in Malawi that, these ailments are the leading cause of child mortality and morbidity in sub – Saharan Africa and the spatial pattern of their prevalence is emphasized by the role of remoteness as well as climatic, environmental and geographic factors on morbidity. Prevalence of fever is influenced by changes in seasonal distributions (Badu, Brenya, Timmann, Garms, & Kruppa, 2013).

2.3 FACTORS LEADING TO FEVER PREVALENCE

A lot of factors influence the prevalence of fever among children. The factors that influence the prevalence of fever are reflected in the factors that contribute to the prevalence of infectious diseases with fever as underlying symptom.

Children, particularly those less than 5 years are especially at a higher risk of getting fever (Gahutu et al., 2011; Ghana Statistical Service (GSS) et al., 2015; Monasch et al., 2004). As a result, a lot of advocacy has been done, placing emphasis on ensuring that these children sleep under mosquito nets (Onyeneho, 2013).

One major factor that influence fever prevalence is socioeconomic status. Wealthier households are less likely to encounter fever and fever-related diseases because they can afford and establish methods that counter the risk of getting these diseases. Chuks & Aboh, (2007) deduced from their research that a considerable reduction in poverty levels would tremendously improve prevalence of malaria and hence, fever. A study by Novignon & Nonvignon, (2012) showed that children from wealthier households reported lower prevalence of fever in Ghana, Nigeria and Kenya. The latter also concluded that poverty does not only influence prevalence of fever at the macro level, but also at the individual and household levels and that policies directed towards preventing childhood fevers should take a close account of issues of poverty alleviation. Risk factors for malaria are suggestive of low socioeconomic status (Gahutu et al., 2011).

Findings made by (Uttah, Etta, Iboh, Ajang, & Ukpong, 2013) show that malaria and respiratory tract infections together are responsible for most (59.4%) of fever cases, therefore successful control of both infections greatly reduces the burden of fever. Since fever is a symptom of a disease, the infections that showcase fever presentations cannot be ruled out as determinants of fever prevalence. Occurrence of malaria is an important risk factor for fever (CDC, 2012).

Fever and fever-related diseases (infections) endemic communities' record high prevalence of fever. Adentan municipality has fever represented in 80% of its top ten diseases (Adentan Municipal Assembly, 2013). This statistic is supportive of the findings made by Gahutu et al., (2011), which say that communities which are endemic for infectious diseases have high prevalence of fever. People dwelling in highly urbanized areas are exposed to multiple risk factors for respiratory diseases, ranging from indoor air pollution and passive smoking to inhalation of dangerous organic and inorganic compounds (Zanuzdana, Khan, Brinkel, & Kraemer, 2013).

One other factor is housing and residential characteristics. This includes; privacy, shared facilities, ventilation, odours, type of house, housing repair status among others. A study conducted by Udofia, Yawson, Aduful, & Bwambale, (2014) show that housing and residential characteristics such as the aforementioned contribute enormously to the prevalence of infections and illnesses and that housing improvement, which enhances privacy has the potential to promote health and prevent infections. Novignon & Nonvignon, (2012) report that the use of improved toilet facility reduces the prevalence of fever.

Malnutrition is also a risk factor for fever prevalence. Malnutrition which includes protein-energy malnutrition weakens the immunity of the child and thus, exposes the child to fever and its related diseases. Results obtained from a study conducted by Friedman et al., (2005) show that malnutrition places children at higher risk of malaria-related morbidity. Ehrhardt et al., (2006) also conclude that malnutrition is a fundamental factor contributing to malaria-associated morbidity.

School practices also influence prevalence of fever and fever-related diseases especially in basic school children. Azor-Martínez et al., (2014); Nandrup-Bus, (2009) reported that infections in

basic school children greatly reduced when a hand hygiene program utilizing sanitizing gel was carried out.

2.4 BURDEN OF FEVER

Infectious diseases cause 68% of all deaths among children under age five, with pneumonia contributing about 18% of infectious deaths followed by Diarrhoea (15%), Malaria (8%) and measles (6%) (Novignon & Nonvignon, 2012). Fever is a common prominent attribute of imported infections from the tropics, about 40% of which will typically be "tropical", about 35% "cosmopolitan" and about 25% undefined or other causes (Bleeker-Rovers, van der Meer, & Beeching, 2009). Fever presents a great deal of concern to healthcare providers, paediatricians and parents in the management of it. Al-Eissa et al., (2000); Al-Nouri, (2005) reported that parental misconceptions about fever reflect the lack of active health education in our community. These misconceptions sometimes lead parents to administer various drugs upon slight temperature increase of their wards, which may in turn worsen the child's condition. Although, fever is common among children especially under the age of 5, its occurrence among young adults and elderly cannot be downplayed. According to Edwards, (2006), high fever impairs polymorphonuclear leukocyte; which are released to fight against infections, increases mortality in septic shock, imposes cardiac stresses and neurologic symptoms and causes discomfort. These detrimental effects of fever burden just not the individual but to a larger extent result in economic losses and less productivity due to fever-related morbidity and mortality. The burden of fever is observed in the burden of diseases with fever as a major symptom (Novignon & Nonvignon, 2012). However, fever-related mortality is greatest in Africa; therefore it is imperative to put in a lot of efforts, policies and strategies to reduce the prevalence of fever and fever-related diseases. Below is a table listing the estimated numbers of deaths by cause in children under age five in 4 African countries namely; Ghana, Kenya, Nigeria and Sierra Leone.

TABLE 1: **Estimated numbers of deaths by cause in children under age five**

COUNTRY	Diarrhoea	Measles	Malaria	Pneumonia
Ghana	5193	1115	14365	5712
Kenya	38802	1568	20666	30406
Nigeria	201368	707	217357	177212
Sierra Leone	8904	2027	5520	8444

Source: Adapted from Novignon & Nonvignon, (2012).

2.5 SCHOOL NON-ATTENDANCE AMONG BASIC SCHOOL CHILDREN

School non-attendance is a common occurrence among students and can be observed especially in the lower levels of education, among children (Mobin et al., 2012). Non-attendance among children is as a result of reasons and associating factors, some of which are legible and others illegible.

2.5.1 TYPES OF SCHOOL NON-ATTENDANCE

Cortis, Zahra, & Farrugia, (2014) categorise non-attendance into 5 main types: unauthorised non-attendance with parental knowledge, school refusal/school phobia, truancy, school transience and authorised school attendance. Unauthorised non-attendance with parental knowledge occurs when a parent or guardian is fully aware of the child's non-attendance at school. This mostly occurs during times when the child is exploited at home, needed to help raise income in family. Here, the school receives no prior notice of the child's absence.

The second type is school refusal/school phobia. With school refusal, Cook & Ezenne, (2010) make a distinction from truancy such that, the child refuses to attend school even in the face of persuasion and punitive measures from parents and school. This could be as a result of dislike of certain teachers, laziness, and fear of being bullied. This form of absenteeism is highly

associated with social and medical disorder which involves continuous non-attendance at school, excessive anxiety and physical complaints (Cortis et al., 2014). School refusal is often used as the major term for illegitimate school non-attendance (Kearney, 2008). It is estimated that approximately 5 – 28% of all school-aged children exhibit refusal behaviour at one time or another making it a considerable challenge for schools (Havik et al., 2014).

The third type of school non-attendance is truancy, which refers to intentional absence from school without the knowledge and permission of the parent or guardian. Cook & Ezenne, (2010) reported that oftentimes the truant leaves home under the pretence of going to school, but turns away and engages in out-of-school activities. Truancy is believed to be an indicator for future behavioural and psychological problems (Cortis et al., 2014). Although, truancy poses a serious problem for schools and parents, its numbers typically underestimate total absenteeism. Truancy is considered a different type of non-attendance which is characterized by poor motivation for school (Havik et al., 2014).

The fourth is school transience, which occurs when a parent or guardian withdraws his ward unexpectedly from school without providing the school with contact and transfer details of the forwarding school (Cortis et al., 2014).

Authorised non-attendance represents another type, which occurs when the child is allowed to miss school due to various reasons. The reasons include sickness, medical and dental treatment, bereavement, domestic circumstances, religious observance, court appearances, weddings and travelling with the family in emergency situations (Cortis et al., 2014).

2.5.2 CAUSES OF SCHOOL NON-ATTENDANCE

The causes of school non – attendance are varied and widespread. Whilst most researchers would want to categorise them, others simply list them together. Sarkodie, Ntow-gyan, Bempong, &

Saaka, (2014) categorise them into 5 factors: student factors, parent factors, school factors, community factors and peer factors. Student factors are those that are motivated by the student and are therefore factors that prone them to truancy. Also, poor academic performers often lack interest in attending school (Gupta & Lata, 2014; Sarkodie et al., 2014). Another example of a student factor leading to school non – attendance is laziness. Most often, students wake up early to prepare for school and there are days whereby there is not the desire to attend school. As such, students can deliberately miss school on such days.

Parent factors are those factors causing school non – attendance, which the parents are aware of. Examples include too much pampering and poor socioeconomic background and financial support (Gupta & Lata, 2014; Ready, 2010). Parental factors also include low parental valuing of education, geographic isolation and unemployment (Cook & Ezenne, 2010; Sackey, 2007). A study report by Cook & Ezenne, (2010) indicated that children from low – income homes who had taken vocabulary tests were one year behind in terms of educational attainment than those from middle – income homes.

School ought to provide a sound and convenient learning environment. However, some factors within the school could also influence absenteeism. Some factors are poor ventilation of classrooms, congested and lack of furniture (Sarkodie et al., 2014), poor teaching skills, non-conducive interpersonal relations between students and teachers and poor food canteen (Gupta & Lata, 2014). School climate as a factor represents a contextual factor for school absenteeism as it refers to student feelings of connectedness to their school and extent of support a student feels regarding academic and social needs among others (Kearney, 2008). Other factors in the school contributing to school non – attendance, are boredom with school work, being bullied, threatened or engaging in school fights and insufficient school support and welfare (Cook & Ezenne, 2010).

The community of the child and the location of the school also cause school non-attendance. Community factors include availability of entertainment halls such as movies and malls, differing community attitudes (Gupta & Lata, 2014) contribute strongly to school non-attendance. Inadequate availability of resources such as water, electricity, health facilities and transportation could result in non – attendance among students (Henderson, Hill, & Norton, 2014; Sarkodie et al., 2014).

Peer group also influence a student's attendance to school. A student is likely to exhibit the behaviours of friends who regularly skip classes.

Other causes of school non – attendance is as a result of extreme weather conditions such as heavy rainfall. A study conducted by the Teachers' Union of Nepal, in 2010 to assess the impact of seasonal factors on school attendance proved that school attendance was severely decreased considerably as a result of bad weather conditions.

2.5.3 REASONS FOR SCHOOL NON-ATTENDANCE

Havik et al., (2014) put reasons for school non-attendance into 4 categories; somatic symptoms, subjective health complaints, truancy and school refusal. According to the study conducted by the latter, subjective health complaints emerged as the most commonly reported reason for school non-attendance whereas 6.2% of students reported that their non-attendance was due to truancy- or school refusal-related reasons.

Balfanz & Byrnes, (2012) however categorise reasons for non – attendance into three;

- Students who cannot attend school due to illness (chicken pox, measles) family responsibilities, housing instability, the need to work or involvement with the juvenile justice system

- Students who will not attend school to avoid bullying, unsafe conditions, harassment and embarrassment
- Students who do not attend school because they, or their parents, do not see the value in being there. Oftentimes, they have something they would rather do, or nothing stops them from skipping school.

2.5.4 SCHOOL NON-ATTENDANCE IN URBAN AND RURAL AREAS

School non-attendance is often greater in rural areas than urban areas. According to GDHS, (2008), children in urban areas are slightly more likely to attend school than children in rural areas; in urban areas, 80% of children of primary school age attend school compared to 70% in rural areas. This disparity of school attendance in the areas are mostly attributed to lack of teachers, poor school infrastructure, low levels of motivation and supervision among others. A study conducted by Gupta & Lata, (2014) reported that non-attendance is prevalent among rural areas due to transportation problems. A report made by Malcolm, Wilson, Davidson, & Kirk, (2003) stated that absenteeism is higher in rural areas than urban areas. Remote, deprived, rural areas need more rather than less of the best of educational infrastructure, teachers, facilities and equipment to enhance and improve equity (CREATE, 2011).

2.5.5 ABSENTEEISM AND ILLNESSES

Illnesses and infections constitute the bulk of absenteeism especially in urban areas. From a study conducted by Neuzil, Hohlbein, & Yuwei, (2002) to quantify the effect of febrile illnesses on school absenteeism, medication use, parental absenteeism from work and the occurrence of secondary illness in families, 63 of every 100 febrile children miss school days. This cause of school non – attendance may spring up into a series of deliberate school non – attendances if unchecked by both parents and teachers.

From a study conducted by Lawpoolsri et al., (2014) on absenteeism to enhance disease surveillance, they report that of 5000 students in 7 schools, approximately 1% - 10% of students were absent each day and absence rate also varied across schools. The latter also report that when school absenteeism was classified according to the reason for the absence, the number of sick students ranged from 10 to 100 per day and among sick students, approximately half of the had a fever. Also, the percentage of sickness and fever varied, ranging from 0% to 2%.

Thuilliez, (2010) conclude on a report that illnesses such as malaria are a significant determinant of cluster primary repetition rate among school children, probably due to school non-attendance as a result of the illness.

Health outcomes have a direct and relevant bearing on school readiness, attendance and performance in academics (Basch, 2010). Parents or guardians of very children in particular mostly keep their children from going to school when they realise their wards have presenting signs and symptoms of some illnesses, so as to keep keen eyes on them.

A report issued by the Baltimore Student Attendance Campaign & Elev8 Baltimore, (2012) states that health and mental health issues are a key contributor to chronic absenteeism. Elementary school children may even feign illness, just so to miss school. Illness and school attendance are important aspects in the developing stages of these children, as they present severe consequences leading even to premature school drop – outs.

2.5.6 EFFECTS OF SCHOOL NON-ATTENDANCE

School non-attendance has serious short-term and long-term consequences (Kearney, 2008). Short term consequences include deteriorating school performance and the long-term consequences have more serious effects on school performance, dropping out of school, impaired social functioning, employment problems and mental health problems (Havik et al., 2014).

Regular school attendance is important for success in school (Safe schools and Violence Prevention office, 2000). Students who are always absent have difficulty forming relationships and engaging in school activities (Sarkodie et al., 2014). Such students often feel disjointed from academic activities and may spend less time in extracurricular activities, which decrease their chances of discovering their talents and honing their skills outside of the classroom (Sarkodie et al., 2014).

Students who are habitually involved in school non-attendance often have little support from teachers and even, their peers. This leads to adopting negative practices and behaviour such as stealing notes of others. Absence is the preliminary step that leads to educational wastage and stagnation (Rama, Anitha, & Vasudhakar Reddy, 2014).

3.0 METHODOLOGY

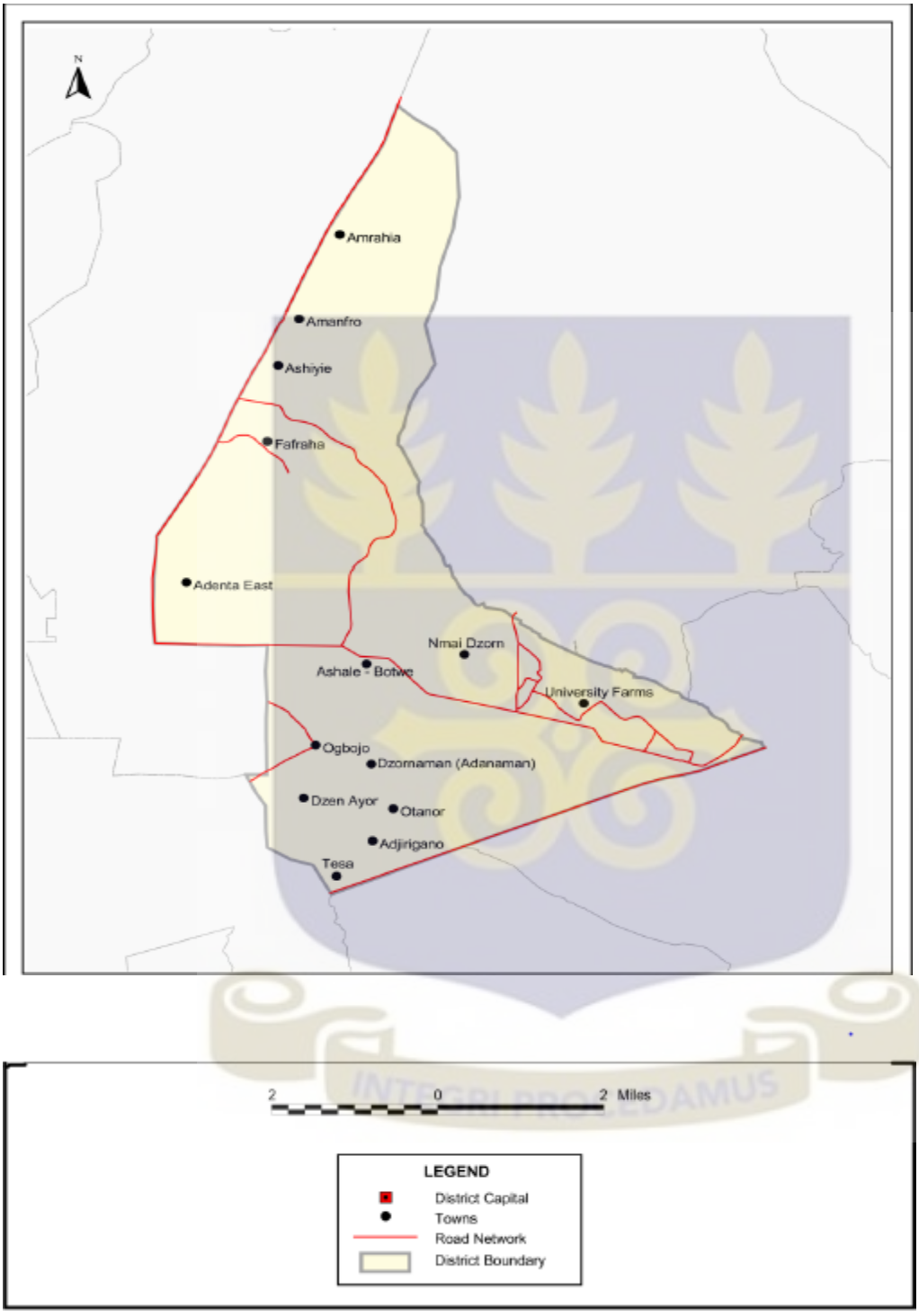
3.1 STUDY DESIGN

The study was a descriptive cross-sectional study conducted to determine the relationship between fever and school attendance of basic school children in Adentan municipality. Here, the research design involved collection of data from basic school children in the Adentan Municipality, in the form of an interview using structured questionnaires which centred on determining the relationship between fever occurrence and school attendance among them. Among the school children sampled, the number who had had fever in the course of the two weeks before the study undertaking was ascertained, as well as the number missing school due to this situation. As such, the relationship between fever and school attendance was determined.

3.2 STUDY AREA

The study area comprised all the basic schools in the 35 communities of the Adentan municipality. The municipality lies 10km to the Northeast of Accra and has a land size of about 85 sq km (33sq miles). The municipality shares boundaries with Kpone-Katamanso and Ashaiman Municipalities to the East, Madina / La Nkwatanang Municipality to the West, Kpone-Katamanso to the North and Madina / La Nkwatanang and Ledzokuku Krowor Municipalities to the south. Figure 2 represents a map of the municipal assembly.

FIGURE 2: MAP OF ADENTAN MUNICIPALITY



Adapted from Simpeh & Owusu-Afriyie, (2014)

The Adentan Municipality was created out of the Tema metropolitan assembly (TMA) in 2008 and it is one of the new municipalities added to the existing ones. As a young municipality, a lot of developments and activities are currently on – going in the assembly. It has a total population of 78215, with males forming a slightly larger population than the females with a percentage of 50.3(39366) as against 49.7(38849) according to the 2010 population and housing census. Of the total population, 62.5% live in urban areas and 37.5% live in rural areas. The municipality has 20478 households with a mean household size of 3.7 persons. Children form the largest portion of household members accounting for a little more than 35%.

The municipality has a total of 256 basic schools by level of kindergarten and primary school education, out of which 28 are public and 228 are private. The table below shows the breakdown of the level of school and its total number in the municipality.

TABLE 2: **Level and number of public and private basic schools in Adentan Municipality**

Level of education	**Number of public schools**	**Number of private schools**	**Total**
Kindergarten	13	129	142
`Primary	15	99	114
Total	28	228	256

At the moment, the municipality has one public health facility, 14 private health facilities and one traditional birth attendant. The private health facilities are not associated with NHIS (National Health Insurance scheme) and this had led to self-medication by people who cannot afford health bills. Malaria remains the number one cause of hospital attendance in the

Municipality. It accounts for 36% (22,969 cases) of all cases seen at OPD in the Municipality. Out of this number approximately 7.8% occurred in children under five years of age. Other diseases occurring in the Adentan Municipality are seen in the table below. Malaria recorded the largest incidence followed by 7,355 cases of Acute Respiratory Infections.

TABLE 3: **Top ten diseases in the municipality**

DISEASES	**NUMBER OF CASES**	**PERCENTAGE OF TOTAL**
MALARIA	22969	36
ACUTE RESPIRATORY INFECTION	7355	12
HYPERTENSION	2181	3.5
TYPHOID	2100	3.2
RHEUMATIC AND JOINT PAINS	1915	3
SKIN DISEASES AND ULCER	1599	2.5
ACUTE PSYCHOSIS	1576	2.4
INTESTINAL WORMS	1551	2.3
DIARRHOEAL DISEASE	1454	2.2
ACUTE URINARY TRACT INFECTION	1445	2.1
TOP TEN TOTAL	44,145	70.2
ALL OTHER DISEASES	18729	29.8
TOTAL		100

Adapted from (Adentan Municipal Assembly, 2013).

Of these top ten diseases in the municipality, eight have fever as underlying symptom. The identified vulnerable groups are children and adolescent girls. Adentan Municipality provided a subtle atmosphere for which the study was conducted; because of its numerous number of basic

schools which ensured and provided variability. Information about school non – attendance and dropout rates among the children was readily available and accessible, as such the study sought to ascertain whether fever which is a symptom of the majority of diseases affecting the municipality had any relationship with the increasing school non – attendance among elementary school children in the municipality.

3.3 STUDY VARIABLES

3.3.1 INDEPENDENT VARIABLES

The main independent variable was fever; its occurrence in the two weeks preceding the study. Other independent variables included;

- Parent factors (socioeconomic status, educational status of mother, occupation of guardian)
- Community factors (availability water and electricity, zone and community of residence, family size, type of house, type of toilet facility used, number of persons per sleeping room, transportation)
- Infections (malaria, diarrhoea, RTI (respiratory tract infection))
- School factors (availability of places for hand washing, provision of proof of absence, type of school)
- Student characteristics (age, sex, educational status of child, religion)
- Peer factor (influence from peers)
- Other characteristics (malnutrition, tiredness, weather condition, domestic circumstances, harassment from teacher, length of time to school)

3.3.2 DEPENDENT VARIABLE

The dependent variable was school attendance. This variable was subject to the influences of the independent variables and reflected both positive effect (school attendance) and negative effect (school non-attendance), hence a categorical outcome.

3.4 DETERMINATION OF SOME VARIABLES OF INTEREST

3.4.1 SOCIOECONOMIC STATUS

Socioeconomic status determination was based on three main characteristics; educational status of parent/guardian, occupational status of parent/guardian and household assets, incorporating a modification of the Kappuswamy's method of socioeconomic status determination, which involved putting higher score numbers to higher occupational and educational statuses and lower score numbers to lower occupational and educational statuses, thus creating a socioeconomic status score card (Ghosh & Ghosh, 2009) and an abridged version of the GDHS method of socioeconomic status determination which involved using household assets such as ownership of agricultural land, refrigerator, television among others and type of flooring and location of water source.

3.4.2 MALNUTRITION STATUS

With children, it is imperative for them to be given the 3 full course meal (standard meal needed for healthy growth and development) and sometimes more. Failure to give them the full course meal may result in malnutrition which is a risk factor for fever. Basic school children were asked how many times they ate in a day. Basic school children eating twice and once in a day were group under "likely to be malnourished" and the others were grouped "nourished".

3.5 STUDY POPULATION

The study population was made up of all basic school children in the selected basic schools under the municipality and consisted only of children in kindergarten and primary school.

3.6 SAMPLING

3.6.1 SAMPLE SIZE DETERMINATION

No research pertaining to the fever and school attendance in Ghana was found in the literatures reviewed. Neuzil et al., (2002) conducted a study where they sampled the proportion of children with febrile illnesses from kindergarten to grade 8 elementary school in Seattle, Washington. They found out that for every 100 children followed, 63 missed school days were observed.

However, Seattle presents a very different environment from Adentan Municipality and so such proportion cannot be adopted to represent the expected proportion of children with febrile illnesses. A study by Lawpoolsri et al., (2014) done in Bangkok (which has quite similar features comparatively to Adentan Municipality) showed that the percentage of school children who missed school due to fever was 10% out of a 100 sick students who generally missed school. Therefore, this percentage of 10 which represented the expected proportion of children with fever involved in school non – attendance was adopted to calculate the sample size using Cochran's sample size calculation formula given by;

$$n = \frac{z^2 pq}{d^2}$$

Where n = sample size

z = z value of confidence interval of 95%

p = proportion of children with fever engaged in school non – attendance from previous study = 0.10

q = 1-p = 0.90

d = margin of error = 0.05.

$$n = \frac{1.96^2 \times 0.10 \times 0.90}{0.05^2}$$

$$n = \frac{0.345744}{0.05^2}$$

$$n = 138.2976 \approx 138$$

Allowing for a 10% non-response rate;

$$= 138 \times 0.1$$

$$= 13.8 \approx 14$$

Total sample size (N) = sample size (n) + 10% non-response

N = 138+14 = 152.

3.6.2 SAMPLING METHOD

Adentan Municipality is divided into 4 electoral zones; Koose, Gbentanaa, Nii Ashale and Sutsurunaa and each of these zones has at least 5 communities which constitute the places of residence for the basic school children. Below is a table representing each of the zones and the communities contained in them.

TABLE 4: **Zonal councils with communities**

ZONE	COMMUNITIES
Koose	Maledjor, Amrahia, Amanfro, Ashiyie, Ampomah Village
Gbentanaa	Adentan Old Town, New Adentan, Adentan Housing Estates, Approtech, Commandos, East Adentan, New Legon, SSNIT Flats, Frafraha, Ritz Areas, Alhaji
Nii Ashale	Ashale Botwe, Ogbojo, Sraha, Little Roses, Japan Motors-Lake side, Third Gate, Arap Adjei, Part Dzen Ayor
Sutsurunaa	Obudankadi, University Farms, Nmai Djorn, Dzornaaman, Otano, Trassacco Area, Adjiringanor, Bedzen, Tesaa, Otinshie, Part Dzen-Ayor

Adapted from Simpeh & Owusu-Afriyie, (2014).

Adentan Municipality has 4 educational circuits from which the schools were selected. These are;

- Adentan educational circuit
- Nmai – Dzor educational circuit
- Ashale Botwe educational circuit
- Adjiringanor educational circuit

The study included 7 elementary schools from which the maximum study sample of 152 was selected. A school was selected from each of the educational circuits; one public and one private basic school. Selection of these schools from the educational circuits was done using a simple random sampling technique and with the help of the staff at the Adentan municipal education directorate. Each of the 256 basic schools in the municipality was assigned a number from 1 to 256. The first seven random numbers were generated in excel using the command =RAND()*(256-1)+1. The corresponding schools whose numbers had been generated were then selected.

With each school selected, the total number of pupils from kindergarten to primary six represented its population. Hence the total population of the study was the summation of the individual populations of each of the **7** selected schools from kindergarten to primary six. Individual school population was obtained from the registers of the various classes. For each school, 21 pupils were selected. Kindergarten to primary six presented a total of 7 classes; therefore a total of 3 pupils (comprising boys and girls) were selected from each class using a simple random sampling technique. In each class, the total number of pupils was determined. Random numbers, included in the total class list were then generated using excel. The first 3 random numbers were taken and the corresponding names in the students' register were selected to participate in the study.

Questionnaires were then administered to the 3 from each class, with permission from the various authorities (head teachers, class teachers and parents). Fever prevalence was determined among the basic school students using GDHS standard, which included the proportion of respondents who had experienced fever within the two weeks preceding the study (Ghana Statistical Service (GSS) et al., 2015).

3.7 DATA COLLECTION TECHNIQUES / TOOLS

3.7.1 STUDY TECHNIQUE

The questionnaires developed were thoroughly reviewed and made to centre on the variables so as to ascertain the relationship between the two variables (main independent variable and dependent variable). The questionnaire was put into 4 different sections;

- Section A: Demographics, which also were composed of some characteristics as age, sex, religion, educational status of child and guardian (mother) as well as others.

- Section B: Fever and the child, which entailed mainly the prevalence of fever among the basic school children.
- Section C: Factors predisposing them to fever prevalence, which included environmental and social factors
- Section D: school attendance, which included the outcome variable, school non – attendance due to fever and other variables as, reasons for school non – attendance, resources affecting school attendance, performance of the child in academics among others.

The questionnaires comprised both open-ended and close-ended questions and were administered by trained personnel. The questionnaires were designed such that for respondents in kindergarten and the very lower classes (classes 1, 2 and 3), parent (mother)/guardian answered the questions on their behalf, whereas for respondents in the upper classes (classes 4, 5 and 6), a scenario, explaining what fever is, was developed which aided their understanding of especially section B of the questionnaire.

Academic performance of child (as found in Section D of questionnaire) was ranked "excellent", "fairly good" and "good". Respondents' academic performance was determined through the help of their class teachers, as they aided in placing respondents in these ranks.

3.7.2 RECRUITMENT AND TRAINING OF RESEARCH ASSISTANTS / INTERVIEWERS

Research assistants chosen were thoroughly assessed on their knowledge about the topic and made to try out sample questionnaire administration. A 3-day workshop on how to administer questionnaires, pose questions to participants and ascertain responses from participants was carried out so as to fully train research assistants on the subject matter and its administration.

3.7.3 QUALITY CONTROL

This involved recruitments of research assistants or interviewers with sufficient knowledge on the topic, who were highly motivated and enthusiastic to see the task through to the end. Regular control checks were conducted by the Principal Investigator to ensure compliance of research assistants, rectify errors, and ensure completeness and consistency in questionnaire administration. Also, regular unannounced visits were carried out to study sites where research assistants were assigned to ensure that the standard procedures for data collection were employed.

3.8 DATA ENTRY AND PROCESSING

Completely filled questionnaires were coded in at most 24 hours from the time of collection. Data collected were entered into Microsoft excel 2010 in at most, 24 hours from the time of collection. Data entered were double checked to detect errors and inconsistences that may have been made.

3.9 DATA ANALYSIS

Data collected was analysed using the statistical software, STATA/SE version 13.1 in the form of percentages, proportions, frequencies, bivariate analyses tests and logistic regression and multiple logistic regression.

3.9.1 ANALYSIS OF SOCIOECONOMIC STATUS

A score card was created from respondents' characteristics (educational status of parent/guardian, occupational status of parent, and certain household assets, as well as type of household flooring and location of water source) such that respondents' score determined their socioeconomic status. This was done by assigning certain numbers, higher or lower depending on what "answer" respondents' chose per each characteristic. For example respondents who had

natural type of flooring (sand, earth) were assigned score 1, whereas those who had finished floor were assigned score 5. Thus the total score number of each respondent from their assigned scores on occupational and educational statuses, household assets, type of flooring and location of water source showed which socioeconomic class range respondent was put in. The table below shows the socioeconomic status classes and their corresponding scores.

TABLE 5: **Socioeconomic classes and their corresponding range of scores**

SOCIOECONOMIC CLASS	**RANGE OF SCORES**
Upper (I)	62 – 68
Upper middle (II)	48 – 61
Lower middle (III)	30 – 47
Upper lower (IV)	15 – 29
Lower (V)	<15

3.9.2 BIVARIATE ANALYSIS

Chi – square tests were done for each of the characteristics likely to influence fever prevalence among respondents to ascertain whether there was any relationship between the variables and fever prevalence. These were mainly the variables found under the demographics section of the work output.

3.10 ELIGIBILITY CRITERIA

3.10.1 INCLUSION CRITERIA

All basic school children actively in school, from kindergarten to primary six were eligible for the study.

3.10.2 EXCLUSION CRITERIA

Basic school children whose parents or guardians did not authorize their participation were excluded from the study.

3.11 ETHICAL CONSIDERATIONS

3.11.1 APPROVAL FROM ETHICAL REVIEW BOARD

Approval to carry out the study was sought from the ethical review board. Here, the feasibility of the study was assessed, such that there were no repercussions on the study participants and the study did not cause them any harm. Permission for study commencement was granted by the Ghana Health Service – Ethical Review Committee (GHS – ERC), after meeting all necessary criteria.

3.11.2 APPROVAL FROM ADENTAN MUNICIPAL ASSEMBLY AND EDUCATION SERVICE

At the municipality, approval was sought firstly, from the municipal assembly and secondly from the municipal education service. The municipal assembly and education service were made to understand the relevance of the study as relating to health and education and the need for the study to be conducted. An introductory letter was taken from the school of public health – University of Ghana, Department of epidemiology and disease control introducing the principal investigator and his research study to the municipal assembly and education office.

3.11.3 APPROVAL FROM PARTICIPATING SCHOOLS, PARENTS AND RESPONDENTS

Approval for data collection was obtained from authorities of participating schools after they had been made aware of the study significance and its impacts on their pupils.

3.11.4 INFORMED WRITTEN CONSENT

Participants were made to sign a written form which allowed the principal investigator to obtain information from them and as well allowed their participation in the study. Since the study was composed of basic school children, permission for their participation was sought from parents or guardians before data were collected from them. For older children, permission was sought from both themselves and their parents/guardian and after permission granted, made to sign an accent form, which allowed data to be collected from them.

3.11.5 ANONYMITY AND CONFIDENTIALITY

Anonymity and confidentiality were strictly assured to participants and adhered to. Here, participants were made to understand that they had the right to opt out of the study at any time. Participants anonymity was be observed in such a way that data collected about particular respondent could not be traced to him or her. Questionnaires were also administered privately to each respondent to prevent participants' access to each other's information. Finally, the questionnaires containing the data of each participant were kept in a locked shelf accessible only to principal investigator and his supervisor.

3.11.6 COMPENSATION

There was no compensation for respondents' participation in the study. However, participants were made to understand the full benefits of the study and their inputs received due recognition.

3.12 DESCRIPTION OF STUDY SUBJECTS

The study subjects were pupils randomly selected from each class and whose parents had given consent for their participation. These pupils selected were aged 5 – 17 years, and lived within the municipality.

4.0 RESULTS

4.1 INTRODUCTION

A total of 138 basic school children in kindergarten to primary class six were sampled from 4 public and 3 private schools in Adentan municipality. The schools were chosen from the four educational circuits in the municipality.

4.2 DEMOGRAPHIC CHARACTERISTICS

4.2.1 SEX – AGE DISTRIBUTION

The respondents were made up of approximately 53% males and 47% females. Majority of basic school children sampled fell in the age category, 10 – 14 years with a percentage of 59.42, followed by those between 5 – 9 years (34.06%). The rest in the age category 15 – 17 years represented a percentage of 6.52.

4.2.2 EDUCATIONAL STATUS OF CHILD

The desired expected percentage of 15.22 out of 138 pupils, which is the maximum number of respondents for each class, was only recorded for primary classes 2, 3, 5 and 6. Kindergarten, primary 1 and primary 4 classes had lesser percentages due to incomplete questionnaires, respondents failing to partake in the study and loss of questionnaires.

4.2.3 TYPE OF SCHOOL

Respondents obtained from private schools within the municipality were approximately 43% and against that obtained for public schools mainly due to one less number of private school selected.

4.2.4 RELIGION

Basic school children of Christian background formed majority of the study participants with a percentage of 80.43 as against participants obtained from Muslim background. No respondents were obtained belonging to a different religion.

4.2.5 MOTHER'S EDUCATIONAL STATUS AND OCCUPATION

Mother's educational status corresponded with type of occupation such that 78.26% of mothers with JHS/JSS educational status and below were mostly engaged in farming, casual labour and trade, whereas the remaining 21.74% were official employees and other job owners.

4.2.6 SOCIOECONOMIC STATUS OF RESPONDENTS

None of the respondents fell in the upper socioeconomic class range. However, majority of the respondents obtained fell in the lower middle and upper lower categories with percentages of 45.65 and 42.75 respectively as expected. Lowest percentage was recorded for the lower class category with 5.07%.

4.2.7 COMMUNITY OF RESIDENCE

Community of residence was categorized into 2; rural and urban. Respondents living in urban communities were in the majority with a percentage of 63.04 as against that recorded for respondents living in rural communities.

4.2.8 NUMBER OF PERSONS PER SLEEPING ROOM

An approximate of 1.5% of respondents slept alone in a room which was the lowest recorded for number of persons per sleeping room. The largest percentage of 31.88 corresponded to 3 persons per sleeping room, followed closely by 4 persons per sleeping room with 26.88%.

4.2.9 TYPE OF TOILET FACILITY USED

Three main types of toilet facility were specified with a fourth as other types. These included; Public KVIP, Public latrines, Personal "Water closet" and other types including house latrines. Majority used the public types with a combined percentage of 40.58. Many also used Personal WC and the percentage of respondents using this toilet facility was 37.68. The number of respondents using other types of toilet facility was 30 with a percentage of 21.74.

The demographic characteristics of the study respondents with associating frequencies and percentages are presented in the table below.

TABLE 6A: **Socio-demographic characteristics of respondents**

Characteristic	Frequency (n=138)	Percentage (%)
Age		
5-9	47	34.06
10-14	82	59.42
15-17	9	6.52
Sex		
Male	73	52.90
Female	65	47.10
Educational status of child		
Kindergarten	16	11.59
Primary class 1	18	13.04
Primary class 2	21	15.22
Primary class 3	21	15.22
Primary class 4	20	14.49
Primary class 5	21	15.22
Primary class 6	21	15.22
Type of school		
Private	59	42.75
Public	79	57.25
Religion		
Catholic	7	5.07
Anglican/Methodist/Presbyterian	18	13.04
Pentecostal/Charismatic	35	25.36
Other Christian	51	36.96
Muslim	27	19.57
Traditionalist/spiritualist	0	0.00
No religion	0	0.00
Other	0	0.00
Highest educational status of mother		
No formal education	17	12.32
Primary	35	25.36
Middle	12	8.70
JHS/JSS	44	31.88
Secondary (tech/voc/sss/shs)	20	14.49
Higher	10	7.25
Main Occupation of mother		
Farming	4	2.90
Trade/Business	107	77.54
Official employee	12	8.70
Casual labour	3	2.17
Other	12	8.70

TABLE 6B: **Socio - demographic characteristics of respondents cont'd**

Characteristic	Frequency (n=138)	Percentage (%)
Socioeconomic status		
Upper	0	0.00
Upper middle	9	6.52
Lower middle	63	45.65
Upper lower	59	42.75
Lower	7	5.07
Zone of residence		
Koose	8	5.80
Gbentanaa	21	15.22
Nii Ashale	54	39.13
Sutsurunaa	55	39.86
Community of residence		
Rural	51	36.96
Urban	87	63.04
Family size		
1-3	10	7.25
4-6	70	50.72
7-8	36	26.09
9+	22	15.94
Number of persons per sleeping room		
1-2	36	26.09
3-4	80	57.97
More than 4	22	15.94
Type of house		
Rented compound house	42	30.43
Rented "self-contain"	14	10.14
"own house"	44	31.88
Family size	21	15.22
Other	17	12.32
Type of toilet facility used		
Public KVIP	39	28.26
Public latrines	17	12.32
Personal WC	52	37.68
Other	30	21.74
Many people with access to toilet facility		
Yes	79	57.25
No	59	42.75

4.3 FEVER AND THE CHILD

This section comprised the awareness of the respondents of fever and whether they had experienced fever with its associating symptoms such as headache, chills and/or cough in the 2 weeks preceding the start of the research study. It also included the methods employed by them or their guardians to deal with fever.

4.3.1 AWARENESS OF FEVER

Of the 138 respondents sampled from basic school children within the municipality, 41% knew correctly what fever is, whereas the rest (59%) did not know what fever is. Most of them however had heard about fever, but did not know what it is.

4.3.2 PRESENCE OF FEVER WITHIN THE 2 WEEKS PRECEDING DAY OF DATA COLLECTION

Approximately 58% of the respondents had experienced fever within the 2 weeks preceding the start of the study. 42% of the respondents had not experienced fever.

4.3.4 METHODS EMPLOYED BY RESPONDENTS TO "CURE" FEVER

Of the methods made available to the respondents, 54.4% said their parents or guardians take them to the hospital when they have fever. Approximately 25% take herbs to "cure" fever. 10.14% simply employed cold baths when they feel warm, whereas 7.25% just rest as a way to deal with fever. Less than 1.5% actually did nothing upon getting fever, whereas 16.7% employed other methods such as buying drugs from the pharmacy as a way to stop fever.

TABLE 7: **Awareness, manifestation and methods of fever "cure" by respondents and or guardians**

Characteristic	Frequency (n=138)	Percentage (%)
Awareness of fever		
Yes	56	40.58
No	82	59.42
Presence of fever within the 2 weeks preceding the study		
Yes	80	57.97
No	58	42.03
Time of fever onset		
No fever	58	42.03
Day of start of study	4	2.90
Day before study began	4	2.90
3 days before study began	12	8.70
a week before study began	28	20.29
2 weeks before study began	32	23.19
Methods used to deal with fever*		
Cold baths	14	10.14
Seek physician	75	54.35
Takes herbs	34	24.64
Rest	10	7.25
Do nothing	2	1.45
Others	23	16.67

*Multiple responses

4.4 FACTORS PREDISPOSING RESPONDENTS TO FEVER PREVALENCE

4.4.1 DISEASE PRESENTATION IN 2 WEEKS PRECEDING STUDY

58.70% of the respondents had not experienced any of the 3 diseases of focus; malaria, diarrhoea and respiratory diseases. Of the 41.30%, who experienced one of the 3 diseases, majority of them (33.33%) had experienced malaria within 2 weeks preceding the study commencement, whereas 3.62% and 4.35% had experienced diarrhoea and respiratory diseases respectively.

4.4.2 NUMBER OF TIMES RESPONDENTS EAT IN A DAY

Here, 81.2% had access to the full course meal in each day as against the rest of the respondents who did not. Hence, it can be stated that 18.8% of the respondents were likely to be malnourished.

4.4.3 PROPER HAND WASHING PRACTICES AMONG RESPONDENTS

56.5% of respondents did not practice proper hand washing even though there were places for hand washing in all of the selected schools.

4.4.4 USE OF HAND SANITIZER

Almost 90% of the respondents did not regularly use hand sanitizers, whereas the remainder of 10.14% had access to hand sanitizers.

TABLE 8: **Factors influencing fever prevalence among the respondents**

Characteristic	Frequency	Percentage
Disease presentation in 2 weeks preceding study		
None	81	58.70
malaria	46	33.33
Diarrhoea	5	3.62
Respiratory diseases	6	4.35
Number of times food is eaten in the day		
Once	1	0.72
Twice	25	18.12
Three times	93	67.39
Four times	12	8.70
More than 4 times	7	5.07
Hand washing places in school		
Yes	138	100.00
No	0	0.00
Proper hand washing practices among respondents		
Yes	60	43.48
No	55	39.86
Sometimes	23	16.67
Use of hand sanitizer regularly		
Yes	14	10.14
No	92	66.67
Sometimes	32	23.19

4.5 SCHOOL ATTENDANCE

91.30% of the participants chosen responded to not coming to school when they have fever, as against the rest who still went to school when they felt feverish. Of the respondents, 53.62% had missed school due to fever in the course of the term. Different percentages were recorded for the different reasons given for which respondents would miss school; tiredness (20.3%), family meetings/gatherings (8.70%), religious observation (10.14%), domestic circumstances (17.39%), peer pressure (2.90%), illnesses (92.75%), weather condition (63.04%), because of a teacher (2.17%), absence of electricity (12.32%), absence of water (34.78%) and others (9.42%).

The study also sought to determine the length of time the respondents took to get to school and to ascertain whether their means of transportation affected school attendance. Majority of the respondents (39.13%) took up to 20 minutes to get to school, whereas 34.78% took between 20 minutes and an hour to get to school. 6.52% took beyond an hour and approximately 20% did not know the time they spent in moving from the house to school. Almost 80% walked to school daily whereas 21% came by bus/car. 68% said their means of transportation had prevented them from coming to school at some point. Of the total number of respondents, almost 50% had missed school more than 4 times in the course of the term with some missing school as many as 20 times. With academic performance set as "excellent", "fairly good" and "good", about 15% were ranked among excellent students whereas, 38% were ranked among fairly good students with rest ranked as "good" students. The table below indicates characteristics of respondents as relating to school attendance.

TABLE 9A: **school attendance and associating characteristics**

Characteristic	Frequency	Percentage (%)
Go to school when you have fever		
Yes	12	8.70
No	126	91.30
Missing school because of fever this term		
Yes	74	53.62
No	64	46.38
Tiredness (school non-attendance)		
Yes	28	20.29
No	110	79
Family meetings (school non-attendance)		
Yes	12	8.70
No	126	91.30
Religious Observation (school non-attendance)		
Yes	14	10.14
No	124	89.86
Domestic circumstances (school non-attendance)		
Yes	24	17.39
No	114	82.61
Peer pressure (school non-attendance)		
Yes	4	2.90
No	134	97.10
Illnesses (school non-attendance)		
Yes	128	92.75
No	10	7.25
Weather condition (school non-attendance)		
Yes	87	63.04
No	51	36.96
Because of a teacher (school non-attendance)		
Yes	3	2.17
No	135	97.83
Others (school non-attendance)		
Yes	13	9.42
No	135	90.58
Absence of electricity (school non-attendance)		
Yes	17	12.32
No	121	87.68
Absence of water (school non-attendance)		
Yes	48	34.78
No	90	65.22

TABLE 9B**: School attendance and associating characteristics cont'd**

Characteristic	Frequency	Percentage (%)
Length of time to school		
0 – 20	54	39.13
21 – 40	28	20.29
41 – 60	20	14.49
60 – 90	5	3.62
91 – 180	3	2.17
More than 180	1	0.72
Don't know	27	19.57
Main means of transportation to school		
By foot	107	77.54
By bicycle	2	1.45
By Motor	0	0.00
By bus/car	29	21.01
Others	0	0.00
Means of transportation (school non-attendance)		
Yes	94	68.12
No	44	31.88
Number of times school has been missed by respondent in the term		
1 - 2	29	21.01
3 - 4	41	29.71
More than 4 times	68	49.28
Academic performance		
Excellent	20	14.49
Good	65	47.10
Fairly good	53	38.41

4.6 FEVER PREVALENCE

Of the 138 pupils sampled, approximately 58% had had fever within two weeks before the commencement of the study.

Sample total= 138

Number known to have had fever = 80

Prevalence of fever among respondents = $\frac{\text{number of cases}}{\text{sample population}} = \frac{80}{138} \times 100\% = 57.97\%$

Prevalence = 57.97% ≈ 58%.

4.6.1 FEVER DISTRIBUTION BY LEVEL OF EDUCATION

TABLE 10**: Fever distribution by educational status of respondents**

LEVEL OF EDUCATION	FEVER PRESENT	FEVER ABSENT	PREVALENCE (%)
Kindergarten	9	7	56.25
Class 1	9	9	50.00
Class 2	11	10	52.38
Class 3	11	10	52.38
Class 4	12	8	60.00
Class 5	15	6	77.43
Class 6	13	8	61.90

Here, there are no distinct differences in fever distribution among the various classes. Highest prevalence of fever (77.43%) was recorded among class 5 and the lowest prevalence (50.00%) was found in class 1.

4.7 FACTORS AFFECTING FEVER PREVALENCE AMONG BASIC SCHOOL CHILDREN

The table below shows the characteristics that influence prevalence of fever among respondents.

TABLE 11A: **Prevalence of fever by respondents' characteristics and level of significance**

	Fever N (%)			
Characteristic	**Yes**	**No**	**Total**	χ^2 (df), **p – value**
Age(years)				
5 – 9	28(59.57)	19(40.43)	47(100.00)	0.48 (2), 0.820
10 – 14	46(56.10)	36(43.90)	82(100.00)	
15 – 17	6(66.67)	3(33.33)	9(100.00)	
Sex				
male	43(58.90)	30(41.10)	73(100.00)	0.06 (1), 0.814
female	37(56.92)	28(43.08)	65(100.00)	
Education status of child				
Kindergarten	9(56.25)	7(43.75)	16(100.00)	2.76 (6), 0.839
Primary class 1	9(50.00)	9(50.00)	18(100.00)	
Primary class 2	11(52.38)	10(47.62)	21(100.00)	
Primary class 3	11(52.38)	10(47.62)	21(100.00)	
Primary class 4	12(60.00)	8(40.00)	20(100.00)	
Primary class 5	15(77.43)	6(28.57)	21(100.00)	
Primary class 6	13(61.90)	8(38.10)	21(100.00)	
School type				
Private	36(61.02)	23(38.98)	59(100.00)	0.39 (1), 0.531
Public	44(55.70)	35(44.30)	79(100.00)	
Mother's educational status	9(52.94)	8(47.06)	17(100.00)	4.94 (5), 0.440
No formal education	22(62.86)	13(37.14)	35(100.00)	
Primary	7(58.33)	5(41.67)	12(100.00)	
Middle	25(56.82)	19(43.18)	44(100.00)	
JHS/JSS	14(70.00)	6(30.00)	20(100.00)	
Secondary (Tech/voc/sss/shs)	3(30.00)	7(70.00)	10(100.00)	
Socioeconomic status				
Upper	0(0.00)	0(0.00)	0(0.00)	6.34 (3), 0.099
Upper middle	3(33.33)	6(66.67)	9(100.00)	
Lower middle	36(57.14)	27(42.86)	63(100.00)	
Upper lower	39(66.10)	20(33.90)	59(100.00)	
Lower	2(28.57)	5(71.43)	7(100.00)	
Community of residence				
Rural	32(62.75)	19(37.25)	51(100.00)	0.76 (1), 0.384
Urban	48(55.17)	39(44.83)	87(100.00)	
Number of persons per sleeping room				
1– 2	18(50.00)	18(50.00)	36(100.00)	1.90 (2), 0.387
3 – 4	47(58.75)	33(41.25)	80(100.00)	
More than 4	15(68.18)	7(31.82)	22(100.00)	

TABLE 11B**: Prevalence of fever by respondents' characteristics and level of significance cont'd**

	Fever N (%)			
Characteristic	**Yes**	**No**	**Total**	χ^2 **(df), p – value**
Type of house				
Rented compound	25(59.52)	17(40.48)	42(100.00)	1.62 (4), 0.806
Rented "self-contain"	8(57.14)	6(42.86)	14(100.00)	
"Own house"	24(54.55)	20(45.45)	44(100.00)	
Family house	15(68.18)	7(31.82)	22(100.00)	
Others	8(50.00)	8(50.00)	16(100.00)	
Toilet facility used				
Public KVIP	25(64.10)	14(35.90)	39(100.00)	1.19 (3), 0.755
Public latrines	9(52.94)	8(47.06)	17(100.00)	
Personal WC	28(53.85)	24(46.15)	52(100.00)	
Others	18(60.00)	12(40.00)	30(100.00)	
Disease presentation				
None	24(29.63)	57(70.37)	81(100.00)	65.43 (2), <0.001
Malaria	46(100.00)	0(0.00)	46(100.00)	
Diarrhoea	4(80.00)	1(20.00)	5(100.00)	
Respiratory diseases	6(100.00)	0(0.00)	6(100.00)	
Number of times food is eaten in a day				
Once	0(0.00)	1(100.00)	1(100.00)	2.29 (4), 0.749
Twice	16(64.00)	9(36.00)	25(100.00)	
Three times	52(55.91)	41(44.09)	93(100.00)	
Four times	8(66.67)	4(33.33)	12(100.00)	
Five times	4(57.14)	3(42.86)	7(100.00)	
Proper hand washing practices				
Yes	32(53.33)	28(46.67)	60(100.00)	3.45 (2), 0.178
No	37(67.27)	18(32.73)	55(100.00)	
Sometimes	11(47.83)	12(52.17)	23(100.00)	
Use of hand sanitizer				
Yes	9(64.29)	5(35.71)	14(100.00)	0.33 (2), 0.846
No	52(56.52)	40(43.48)	92(100.00)	
Sometimes	19(59.38)	13(40.63)	32(100.00)	

There were no significant associations of the factors above with fever prevalence among the respondents except for disease presentation within two weeks preceding the study. A p – value of <0.001 was determined for the relationship, which shows a strong association between the two variables.

4.7.1 LOGISTIC REGRESSION FOR "DISEASE PRESENTATION AND FEVER MANIFESTATION PRECEDING TWO WEEKS TO START OF THE STUDY"

At a statistically significant p – value, the results showed that respondents who experienced any of these disease manifestations (malaria, diarrhoea, respiratory diseases) had 49.54 times the odds of developing fever as compared to respondents who did not experience any of the diseases; disease presentation OR=49.54 CI=11.18 – 219.57, p – value <0.001.

4.8 RELATIONSHIP BETWEEN SCHOOL ATTENDANCE AND STUDY CHARACTERISTICS

The bivariate analysis was also done to determine the relationship between the dependent variable, school attendance and other variables put in the study including the main independent variable, fever manifestations among respondents. Table 12 shows the relationship of these other variables with the dependent variable.

TABLE 12A: **Relationship between study characteristics and school attendance**.

School Attendance N (%)				
Characteristic	**Attend school regularly**	**Do not attend school regularly**	**Total**	χ^2 (df), **p – value**
Age(years)				
5 – 9	8(17.02)	39(82.98)	47100.00)	6.50 (2), 0.040
10 – 14	25(30.49)	57(69.51)	82(100.00)	
15 – 17	5(55.56)	4(44.44)	9(100.00)	
Sex				
male	23(31.51)	50(68.49)	73(100.00)	1.22 (1), 0.268
female	15(23.08)	50(76.92)	65(100.00)	
Education status of child				
Kindergarten	1(6.25)	15(93.75)	16(100.00)	8.08 (6), 0.214
Primary class 1	3(16.67)	15(83.33)	18(100.00)	
Primary class 2	7(33.33)	14(66.67)	21(100.00)	
Primary class 3	5(23.81)	16(76.19)	21(100.00)	
Primary class 4	6(30.00)	14(70.00)	20(100.00)	
Primary class 5	7(33.33)	14(66.67)	21(100.00)	
Primary class 6	9(42.86)	12(57.14)	21(100.00)	
School type				
Private	20(33.90)	39(66.10	59(100.00)	2.09 (1), 0.148
Public	18(22.78)	69(77.22)	79(100.00)	
Religion				
Christian	28(25.23)	83(74.77)	111(100.00)	1.52 (1), 0.218
Muslim	10(37.04)	17(62.96)	27(100.00)	
Education status of mother				
No formal education	6(35.29)	11(64.71)	17(100.00)	1.37 (5), 0.918
Primary	9(25.71)	26(74.29)	35(100.00)	
Middle	4(33.33)	8(66.67)	12(100.00)	
JSS/ JHS	12(27.27)	32(72.73)	44(100.00)	
Secondary	4(20.00)	16(80.00)	20(100.00)	
Higher	3(30.00)	7(70.00)	10(100.00)	
Socioeconomic status				
Upper	0(0.00)	0(0.00)	0(0.00)	10.44 (3), 0.018
Upper middle	6(66.67)	3(33.33)	9(100.00)	
Lower middle	12(19.05)	51(80.95)	63(100.00)	
Upper lower	19(32.20)	40(67.80)	59(100.00)	
Lower	1(14.29)	6(85.71)	7(100.00)	
Zone of residence				
Koose	5(62.50)	3(37.30)	8(100.00)	8.44 (3), 0.039
Gbentanaa	2(9.52)	19(90.48)	21(100.00)	
Nii Ashale	16(29.63)	38(70.37)	54(100.00)	
Sutsurunaa	15(27.27)	40(72.73)	55(100.00)	
Community of residence				
Rural	14(27.45)	37(72.55)	51(100.00)	0.00 (1), 0.986
Urban	24(27.59)	63(72.41)	87(100.00)	

TABLE 12B: **Relationship between study characteristics and school attendance cont'd**

School Attendance (%)				
Characteristic	**Attend school regularly**	**Do not attend school regularly**	**Total**	χ^2 (df), **p – value**
Number of persons per sleeping room				
1– 2	9(25.00)	27(75.00)	36(100.00)	5.42 (2), 0.061
3 – 4	27(33.75)	53(66.25)	80(100.00)	
More than 4	2(9.09)	20(90.91)	22(100.00)	
Fever in 2 weeks before study				
Present	14(24.14)	49(75.86)	58(100.00)	0.58 (1), 0.447
Absent	24(30.00)	56(70.00)	80(100.00)	
Disease presentation in 2 weeks before study				
None	22(27.16)	59(72.84)	81(100.00)	0.54 (3), 0.837
Malaria	12(26.09)	34(73.91)	46(100.00)	
Diarrhoea	2(40.00)	3(60.00)	5(100.00)	
Respiratory diseases	2(33.33)	4(66.67)	6(100.00)	
School non-attendance due to fever				
Yes	13(17.57)	61(82.43)	74(100.00)	7.95 (1), 0.005
No	25(39.06)	39(60.94)	64(100.00)	
Informing school about reason for non-attendance				
Yes	13(20.31)	51(79.09)	64(100.00)	6.73 (2), 0.035
No	12(26.09)	34(73.91)	46(100.00)	
Sometimes	13(46.43)	15(53.57)	28(100.00)	
Reasons for school non-attendance				
Tiredness				
Yes	9(32.14)	19(67.86)	28(100.00)	0.37 (1), 0.541
No	29(26.36)	81(73.64)	110(100.00)	
Illnesses				
Yes	33(25.78)	95(74.22)	128(100.00)	2.73 (1), 0.099
No	5(50.00)	5(50.00)	10(100.00)	
Weather condition				
Yes	19(21.84)	68(78.16)	87(100.00)	3.83 (1), 0.050
No	19(37.25)	32(62.75)	51(100.00)	
Electricity unavailability				
Yes	7(41.18)	10(58.82)	17(100.00)	1.81 (1), 0.179
No	31(25.62)	90(74.38)	121(100.00)	
Water unavailability				
Yes	19(39.58)	29(60.42)	48(100.00)	5.35 (1), 0.021
No	19(21.11)	71(78.89)	90(100.00)	
Academic performance				
Excellent	4(20.00)	16(80.00)	20(100.00)	0.94 (2), 0.624
Good	20(30.77)	45(69.23)	65(100.00)	
Fairly good	14(26.42)	39(73.58)	53(100.00)	

Of the characteristics listed above in the table which were likely to influence school attendance among respondents, age, socioeconomic status, zone of residence, school non-attendance due to fever, informing school about reason for non - attendance and unavailability of water were found to be statistically significant with the outcome variable; school attendance showing p – values <0.05. The rest however, such as sex, education status of respondents, community of residence, fever and disease presentations within 2 weeks before study, as well as some reasons for school non-attendance (tiredness, family meetings, religious observation, illnesses, peer pressure, electricity unavailability, because of a teacher, and others (financial constraints) did not show significant associations with school attendance as their p – values > 0.05.

4.8.1 LOGISTIC REGRESSION OF SIGNIFICANT VARIABLE WITH OUTCOME VARIABLE

Each of the significant variables was put in a logistic regression model to determine the strength of the relationship with the outcome variable.

All significant characteristics (p – value <0.05) from the bivariate analysis were put in the multiple logistic regression model to ascertain the influence of these variables on one another and on the outcome. The table below shows the effect of each of these variables firstly on the outcome and then their combined effect on the outcome with their corresponding levels of significance.

Table 13: **Effect of significant characteristics on school attendance**

	Unadjusted		Adjusted	
Characteristic	OR (95% CI)	p-value	OR (95% CI)	p-value
Age (years)				
5 – 9	Ref	0.042	Ref	0.061
10 – 14	0.47 (0.19, 1.14)		0.17(0.17, 1.58)	
15 – 17	0.16 (0.04, 0.75)		0.12(0.02, 0.69)	
Socioeconomic status				
Upper	0.00(0.00,0.00)	0.021	0.00(0.00, 0.00)	
Upper middle	Ref		Ref	0.058
Lower middle	8.50(1.86, 38.94)		8.52(1.62, 44.73)	
Upper lower	4.21(0.95, 18.68)		5.13(0.92, 28.68)	
Lower	12.00(0.96,150.69)		18.91(1.13, 315.54)	
Zone of residence				
Koose	Ref	0.036	Ref	0.138
Gbentanaa	15.83(2.05, 122.07)		11.37(1.19, 108.65)	
Nii Ashale	3.96(0.84, 18.57)		6.37(1.08, 37.72)	
Sutsurunaa	4.44(0.94, 20.93)		6.11(1.08, 36.90)	
Inform school about reason for non-attendance				
No	Ref	0.042	Ref	0.334
Yes	1.38(0.56, 3.39)		0.96(0.34, 2.87)	
Sometimes	0.41(0.15,1.10)		0.45(0.14, 1.46)	
School non-attendance due to fever				
No	Ref	0.005	Ref	0.006
Yes	3.01(1.38, 6.57)		3.90(1.48, 10.25)	
Water unavailability (school non-attendance)				
No	Ref	0.022	Ref	0.080
Yes	0.64(0.44, 0.94)		0.63(0.38, 1.06)	

Without adjusting for the effects of the other significant variables, respondents aged 10 – 14 years and 15 – 17 years had 0.47 and 0.16 times the odds of school non-attendance as compared to respondents aged 5 – 9 years respectively; (10 – 14 years (OR=0.47, CI=0.19 – 1.14,) and 15 – 17 years (OR=0.16, CI=0.04 – 0.75)) with a p – value <0.05. In effect, children aged 5 – 9 years were likely to miss school a lot more than those aged 10 – 17 years. Also, respondents classified under lower middle, upper lower and lower socioeconomic classes had higher odds of school non-attendance as compared to those in the upper class; (lower middle class: OR=8.50, CI=1.86 – 38.94, upper lower: OR=4.21, CI=0.95 – 18.68, lower: OR=12.00, CI=0.96 – 150.69, p – value <0.05).

Respondents in Gbentanaa, Nii Ashale, Sustsurunaa residential zones from the results had 15.83, 3.96 and 4.44 times respectively, the odds of school non – attendance as compared to respondents in Koose residential zone; (Gbentanaa OR=15.83 CI=2.05 – 122.07, Nii Ashale OR=3.96 CI=0.84 – 18.57, Sutsurunaa OR=4.44 CI=0.94 – 20.93, p – value <0.05).

Respondents who informed school about reason for non – attendance were likely to miss school more than those who did not and those who sometimes informed school about reason for missing school actually were less likely to miss school; (sometimes informed school about reason for non – attendance OR= 0.41 CI=0.15 – 1.10, informed school about reason for non – attendance OR=1.38 CI=0.56 – 3.39, p – value <0.05). The odds of school non - attendance was 3.01 times higher in respondents affected by fever in the course of the term as compared to respondents not affected by fever; (school non – attendance due to fever OR=3.01, CI=1.38 – 6.57, p – value <0.05).

Participants who responded "yes" to water unavailability affecting school attendance had 0.64 times the odds of school non - attendance compared to those who responded "no"; (lack of water OR=0.64, CI=0.44 – 0.94, p – value <0.05).

However, when these variables were put together to ascertain their combined effect on school attendance, "age category (15 – 17 years)", socioeconomic status, respondents' zone of residence and "school non – attendance due to fever" turned up statistically significant with their individual p – values <0.05. Thus, adjusting for the effects of the other significant variables, a child aged 15 – 17 years had 0.12 times the odds of school non – attendance as compared to a children aged within 5 – 9 years; (15 – 17 years (OR=0.12, CI=0.02 – 0.69, p – value <0.05)). Also, the odds of school non – attendance was 8.52, 5.13 and 18.91 times higher among respondents ranked in lower middle, upper lower and lower socioeconomic statuses respectively as compared to

respondents in the upper middle socioeconomic status, after adjusting for the effects of the other significant variables.

Respondents who live in Gbentanaa, Nii Ashale and Sutsurunaa zones had respectively, 11.37 times, 6.37 times and 6.11 times the odds of school non – attendance as compared to respondents living in Koose zone; (Gbentanaa (OR=11.37, CI=1.19 – 108.65), Nii Ashale (OR=6.37, CI= 1.08 – 37.72), Sutsurunaa (OR=6.11, CI=1.08 – 36.90)) with individual p – values < 0.05, after adjusting for the effects of the other significant variables.

Again, adjusting for the effects of respondents' age categories, socioeconomic status, lack of water as reason for school non – attendance, respondents' zone of residence and whether respondents informed their schools about reason for non – attendance, basic school children affected by fever had 3.90 times the odds of school non – attendance to those not affected; OR=3.90, CI=1.48 – 10.25, p – value of 0.06.

4.9 RATE OF SCHOOL NON – ATTENDANCE DUE TO FEVER BY RESPONDENTS

School non – attendance rate due to fever among basic school children was determined by finding the ratio of the number of respondents missing school due to fever to the number of respondents generally missing school (from all causes).

Mathematically, it is expressed as;

$$\frac{number\ of\ respondents\ missing\ school\ due\ to\ fever}{total\ number\ of\ respondents\ missing\ school}$$

Number of respondents who miss school due to fever = 74

Number of respondents who miss school (from all causes) in the term= 138

Rate of school non-attendance due to fever = $\frac{74}{138} \times 100\% = 53.6\%$ per term

The rate of school non – attendance due to fever per term of elementary school education among respondents in selected schools in Adentan Municipality was 53.6%. This indicates that more than half of all school non – attendances in a term is due to fever.

5.0 DISCUSSION

5.1 INTRODUCTION

This section presents a discussion of the results. It highlights the relationship between fever and school attendance among basic school children in Adentan municipality based on the output of the results. Specifically, it defines fever prevalence and its contributing factors among the elementary school children in the municipality and shows school non – attendance rates due to fever among these children.

5.2 FEVER PREVALENCE AMONG BASIC SCHOOL CHILDREN IN ADENTAN MUNICIPALITY.

Of the 138 participants who met the criteria for inclusion in the study, 80 had experienced fever in the course of the 2 weeks preceding the study, hence producing a prevalence of 57.97%. This is in contrast with the findings by Kanté et al., (2015) which showed a fever prevalence of approximately 25% among 2,077 children under 5 years in rural Tanzania. This study included children less than 5 years, with a mean age of 2.1years who were less likely to be in schools and it also factored in children who lived in rural communities only. The respondents sampled from basic school children in Adentan municipality had an age range of 5 – 17 years with a mean age of 10.5 years and included those living in both rural and urban communities.

Tabulating fever prevalence with respondents living in either community, prevalence of 63% and 55% were obtained for basic school children living in rural and urban communities respectively in the municipality. This clearly shows a higher prevalence of fever among children above 5 years in rural and urban communities. The differences could be as a result of age (Gahutu et al., 2011; Ghana Statistical Service (GSS) et al., 2015; Monasch et al., 2004; Onyeneho, 2013). Much emphasis has been placed on protecting children under 5 years from preventable childhood

illness including ensuring their sleeping in insecticide – treated nets (ITNs) (Onyeneho, 2013). Although attention on preventing diseases is given to children, much focus is laid upon preventing diseases in those under 5 years, hence little attention to those above 5 years, which in turn may influence fever prevalence in the two groups. It could also be due to differences in disease prevalence in the two regions. Malaria which is a risk factor for fever (Kandala et al., 2009) occurs year – round in Ghana whereas in Tanzania, the World Malaria Report, (2014) states that malaria transmission occurs in up to 7 months of the year with the proportion of infected children being a lot less than in Ghana.

Prevalence of fever obtained in this study was comparatively higher than that obtained for the recent Demographic and Health Survey (DHS) of 14% in children below 5 years (Ghana Statistical Service (GSS) et al., 2015). According to the national DHS report in 2014, the percentage of children below 5 years who slept under mosquito nets night before the survey was higher than those above 5 years with proportions of 46.6% and 34.4% respectively, taking into consideration household population, hence a viable explanation to the higher prevalence in children greater than 5 years.

Fever prevalence is also affected by seasonal variation (Badu et al., 2013). Data collection was done in the month of June, which is a rainy month and therefore a possible explanation to the higher prevalence of fever among the children.

5.3 FACTORS INFLUENCING FEVER PREVALENCE

Fever is affected by social and demographic factors as well as occurrences of certain diseases such as malaria, diarrhea and respiratory conditions. Of the characteristics put in the study which were likely to influence fever prevalence, only disease manifestations in respondents within 2 weeks preceding the study proved significant, with a probability value <0.001. Fever prevalence

among basic school children was neither affected by age, number of persons per sleeping room and socioeconomic status as found significant by Chuks & Aboh, (2007); Novignon & Nonvignon, (2012), nor by mother's education (Gahutu et al., 2011) and malnutrition (Ehrhardt et al., 2006). With age, it was expected that increasing ages would have less prevalence of fever. However, the percentages of respondents having had fever within two weeks before the study were similar across the different age categories.

Percentage of respondents with fever was distributed somewhat equally among the socioeconomic classes hence rendering socioeconomic status as a characteristic influencing fever prevalence, insignificant. Similar percentages were recorded for the other factors such as number of persons per sleeping room and mother's education, as respondents shared very similar characteristics.

Of the respondents who had had fever in the two weeks preceding the study, 58% had experienced malaria, 5% diarrhea and 7.5% respiratory diseases. This ranking was comparatively similar to that obtained for the prevalence of these diseases with fever as a symptom in the municipality (Adentan Municipal Assembly, 2013). Ghana Statistical Service (GSS) et al., (2015) reported in the recent national DHS, malaria prevalence of 36%, 12% diarrheal disease and 4% acute respiratory disease in children under age 5. However, these diseases are affected by seasonal and climatic variations. These differences could be as a result of the difference in the times of data collection; September to December for the DHS.

In sub – Saharan Africa and Ghana, malaria is the single most important risk factor for fever (CDC, 2012). However, this is also influenced by other factors such as socioeconomic status (Novignon & Nonvignon, 2012), improved toilet facility (Ghana Statistical Service (GSS) et al.,

2015) and certain household and environmental characteristics such as access to ITNs and rainfall (Graves et al., 2009).

The results showed odds of 49.53 (CI 95% 11.18 – 219.57) indicating that children who had experienced any of malaria, diarrheal or acute respiratory disease within two weeks to the study had approximately 50 times the odds of manifesting fever as compared to those who had not experienced any of the disease. This signifies that the occurrence of these diseases is extremely important for fever presentation among the basic school children, hence the absence of these diseases greatly decreases occurrence of fever.

5.4 SCHOOL ATTENDANCE

All of the respondents had had missed school days, with 68 of them representing almost 50% missing school more than 4 times in the course of the term. As expected, more than twice the number missing school above 4 times in private schools was determined for public schools. Respondents with the most number of absences from school were from class 2, followed by class 1, class 3, kindergarten, classes 4, 5 and 6 across both school types. This is in support of the findings made by Lou, (2013) and Mobin et al., (2012) that highest rates of absenteeism is recorded among lower levels of education.

There was no substantial difference in school non-attendance between males and females.

5.4.1 FACTORS INFLUENCING SCHOOL ATTENDANCE

School non – attendance is influenced by a lot of factors and these factors are mostly subjective although some are general and apply to all.

School non- attendance among basic school children is affected by some characteristics such as mother's educational status (Sackey, 2007) socioeconomic status (Ready, 2010) and illnesses (Balfanz & Byrnes, 2012; Safe schools and Violence Prevention office, 2000; Thuilliez, 2010).

It also encompasses reasons such as transportation and peer influence (Henderson et al., 2014) household characteristics such as unavailability of electricity and water, extreme weather condition (WLGA, 2010), family gatherings and meetings amongst others.

Of the characteristics that were tested as part of factors which affect school attendance, age, socioeconomic status, respondents' area of residence, presence of fever, and lack of water proved significant, thus supporting claims made by the aforementioned researchers. With age, children aged 10 – 14 and 15 – 17 had respectively 0.5 and 0.2 times the odds of not missing school compared to those aged 5 – 9 years. This supports the findings made by Balfanz & Byrnes, (2012) that school non – attendance is more prevalent among youngest children. Comparing with respondents in the upper middle socioeconomic class, participants in the lower middle, upper lower and lower socioeconomic classes had at least 4.2 times the odds of school non – attendance with the lower class recording an odds ratio as high as 12.0 of school non – attendance. Kapinga, (2014) indicates that children from low socioeconomic background lack consistent attendance to school due to problems in meeting financial obligation and inability to pay school fees. The finding fully supports this statement as respondents with highest rates of school non – attendance was from the lower socioeconomic class.

A report by the Baltimore Student Attendance Campaign & Elev8 Baltimore, (2012) in a study to review the state of chronic absenteeism and school health, showed that students' communities or places of residence are a common barrier to school attendance, as there may be lack of safety, cultural traditions that are in conflict with the school calendar or school practice and inadequate

access to supportive service in economically depressed communities. Respondents who live in Gbentanaa, Nii Ashale and Sutsurunaa zones had 15.83, 3.96 and 4.44 times respectively, the odds of school non – attendance as compared to those who live in Koose, which is somewhat an economically deprived zone compared to the others. This result however, is in contrast with the findings of GDHS, (2008); Gupta & Lata, (2014) which reported that children in less privileged communities are less likely to attend school than children in more privileged communities.

Basic school children with fever manifestation were 3 times more likely to miss school as compared to those who had not experienced any feverish symptoms. School non – attendance occur most of the times due to illnesses (Kearney, 2008). Moreover, common illnesses affecting the school children are malaria, diarrhea and respiratory diseases, all of which have fever as a presenting symptom.

Unavailability of water affected school non – attendance significantly as 35% of the respondents confirmed that lack of water had thwarted their going to school at some point in time. School attendance was not affected by respondents' characteristics such as transportation, lack of electricity, tiredness, family gatherings, weather condition, peer pressure and domestic circumstances amongst others and thus, they have little or no effect at all on school attendance.

5.4.2 SCHOOL NON- ATTENDANCE RATE DUE TO FEVER

From the results, school non – attendance rate due to fever was calculated to be 53.6% per term, indicating that majority of school non – attendance among basic school children is as a result of fever. This is comparatively similar to the findings made by (Lawpoolsri et al., 2014) that out of 500 pupils engaged in school non – attendance, 100 missed school due to illnesses and of the 100, approximately 50% had fever.

This result also supports the findings made by Havik et al., (2014) that approximately 80% of school non – attendance is due to illnesses, of which most have fever as a symptom.

5.4.3 EFFECTS OF SCHOOL NON –ATTENDANCE

Although school attendance was not significantly related to academic performance, improving fever status of these children will greatly reduce school non –attendance rates which in turn will increase their academic stability. Of the 53 out of the 138 respondents classified as "fairly good", 74% of them had experienced fever. Of the 65 also out of the 138 classified as good students, 69% of them had had fever before the start of the study and of the remainder classified as excellent students, 80% had experienced fever within the two weeks preceding the study.

5.5 LIMITATIONS

A lot of initially selected respondents who gave their consent were lost due to school non – attendance, especially among public school students. As such, alternative respondents had to be taken in place of them. This somewhat affected the quality of information given by the respondents, as initially selected respondents would have given more outcome – specific information.

The number of respondents used in the study was cut down to the allowed minimum number, as the 10% non – response rate was fully exhausted, due to loss of samples from absenteeism.

All of these probably influenced the relationship between fever and school attendance among the respondents.Selection of study respondents using simple random sampling technique was biased towards sampling from pupils with history of school non – attendance. This thus, probably had an effect on the relationship between presence of fever among basic school children and school attendance.

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

The study was set out generally to determine the relationship between fever and school attendance among basic school children in Adentan municipality. Specifically, it was done to determine the prevalence of fever among the target group, identify the factors that predispose them to fever and determine the rates of school non – attendance due to fever among them.

Prevalence of fever in the two weeks before the start of the study among the respondents was determined to be 57.97%.

Disease occurrence is the single most important risk factor for fever manifestations in basic school children.

Factors that contribute to school non – attendance include age of respondents, missing school due to fever, socioeconomic status, lack of water and respondents' zone of residence.

School non – attendance rates due to fever was calculated to be 53.6% per term, indicating that more than half of all school absences is as a result of fever. Fever alone makes up the bulk of school non - attendance among basic school children in Adentan municipality.

6.2 RECOMMENDATIONS

To Health educators, Adentan Health Directorate and Community – based surveillance volunteers

Parents/guardians need to be educated thoroughly on the signs and symptoms of malaria, diarrhea, and respiratory diseases so they can get their wards early to health facilities and prevent severe forms of these diseases and also, to understand that presence of fever and its associating signs and symptoms many a times showcase any diseases listed above and may lead to school non – attendance, which in turn can lead to poor academic performance.

To Schools

Schools must endeavor to educate parents/guardians especially during Parent – Teacher Association meetings on the need to strive to address the problems associated with the child's financial obligation to school. Improving the child's financial status in school increases school attendance and desire for academic work.

To Prospective Researchers

Prospective researchers can conduct the study in another location, this time increasing the sample size and the number of schools and sampling from the total basic school population irrespective of school non – attendance history. Increasing the sample size and school numbers may provide a significant association between fever prevalence and school attendance.

Further research can also be conducted among only private schools and only public schools, compare them and ascertain the different factors influencing fever prevalence and school attendance. This may provide a more vivid picture of fever prevalence and its associating factors, as well as school attendance and the factors affecting school attendance in either setting.

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APPENDICES

INFORM CONSENT FORM

Title: Fever and School Attendance among basic school children in Adentan municipality

Principal Investigator: Dennis Nkansah Appiah

Address: College of Health Sciences, School of Public Health, P. O. Box LG 13, University of Ghana, Legon.

General Information about Research

School non-attendance is a serious problem and a common occurrence in Adentan Municipality especially among basic school children. Many a times, the major reason for this occurrence is due to fever, which is also very prominent in children and poses a major concern for health professionals and parents. The aim of the research is to quantify the number of school attendances due to fever, determine their relationship and assess other contributing factors, which can then be used to institute interventions where needed. This research invites your participation on behalf of your child through answering of some questions. This activity would take not more than 15 minutes of your time and we plead your indulgence in this study.

Possible Risks and Discomforts

There are no known risks to you personally of your child if you agree to participate in this study. However, there might be some discomfort associated with disclosure of personal information other personal questions and time factor.

Possible Benefits

There is no direct/ personal benefit to you or your child. However, your participation will contribute immensely in influencing policies and strategies towards your child's education and in the control of fever occurrences in your child.

Confidentiality

You are assured that any information you give will be treated with utmost confidentiality and will not be disclosed to any persons. At the end of the study, any personal identifying information about you or your child will be destroyed. Also, in the course of the study, we will protect any information about you or your child to the best of our ability and you will not be named in any reports. The only people who would have access to this information will be the principal investigator, his immediate supervisor and the research assistants.

Compensation

Participants in this study will not be compensated either by monetary or in kind.

Voluntary Participation and Right to Leave the Research

Your decision to participate in this study is entirely voluntary and you may talk to any person you feel comfortable with about your indulgence in the study. You can ask as many questions as you want about the research study to help you better understand your participation in the study. You are under no obligation to participate in this study and you have the right to refuse this invitation. If at any point in time, you take the decision to discontinue your participation in the study, you are free to do so and this would not have any consequences on you or your child whatsoever.

Contacts for Additional Information

If you have any further questions about the research and in case of any unforeseen circumstances, you may contact the immediate supervisor of the Principal Investigator, school of public health and the Ghana health services ethical review committee, whose addresses are listed below;

Supervisor: Dr Samuel Oko Sackey School of public health, Ghana Health Service, (ERC)

Contact number: 0242216542 University of Ghana 0243235225/ 0507041223

VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research title ***(fever and school attendance among basic school children in Adentan Municipality)*** has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

_____ _____

Date Name and signature or mark of volunteer

If volunteers cannot read the form themselves, a witness must sign here:

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

_____ _____

Date Name and signature of witness

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

_____ _____

Date Name, Signature of Person Who Obtained Consent

CHILD ASSENT FORM

Introduction

My name is DENNIS NKANSAH APPIAH and I am from the SCHOOL OF PUBLIC HEALTH at UNIVERSITY OF GHANA. I am conducting a research study entitled FEVER AND SCHOOL ATTENDANCE AMONG BASIC SCHOOL CHILDREN IN ADENTAN MUNICIPALITY. I am asking you to take part in this research study because I am trying to learn more about THE RELATIONSHIP BETWEEN FEVER AND PUPILS NOT ATTENDING SCHOOLS. This will take ABOUT 10 MINS OF YOUR TIME.

General Information

If you agree to be in this study, you will be asked to ANSWER SOME SIMPLE AND DIRECT QUESTIONS WHICH WILL PROVIDE INFORMATION FOR THE RESEARCH AND HELP ME DETERMINE THE RELATIONSHIP BETWEEN FEVER AND SCHOOL ATTENDANCE.

Possible Benefits

Your participation in this study will result IN HELPING TO DETERMINE THE MAJOR REASONS WHY STUDENTS MISS SCHOOL AND INFORM DECISION-MAKERS ABOUT WHERE TO FOCUS INTERVENTIONS TO STOP SCHOOL NON-ATTENDANCE.

Possible Risks and Discomforts

However, the risks associated are SOME PERSONAL INFORMATION YOU MIGHT NOT FEEL COMFORTABLE TALKING TO ME ABOUT AND THE TIME FACTOR.

Voluntary Participation and Right to Leave the Research

You can stop participating at any time if you feel uncomfortable. No one will be angry with you if you do not want to participate.

Confidentiality

Your information will be kept confidential. No one will be able to know how you responded to the questions and your information will be anonymous.

Contacts for Additional Information

You may ask me any questions about this study. You can call me at any time ON 0207905041 OR MY EMAIL: kwamenkansah22@yahoo.com or talk to me the next time you see me.

Please talk about this study with your parents before you decide whether or not to participate. I will also ask permission from your parents before you are enrolled into the study. Even if your parents say "yes" you can still decide not to participate.

Voluntary agreement

By making a mark or thumb printing below, it means that you understand and know the issues concerning this research study. If you do not want to participate in this study, please do not sign this assent form. You and your parents will be given a copy of this form after you have signed it.

This assent form which describes the benefits, risks and procedures for the research titled FEVER AND SCHOOL ATTENDANCE AMONG BASIC SCHOOL CHILDREN IN ADENTAN MUNICIPALITY has been read and or explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate.

Child's Name:…… **Researcher's Name:……..**

Child's Mark/Thumbprint…… **Researcher's Signature:……..**

Date: …… **Date:** ……

QUESTIONNAIRE

TIME INTERVIEW STARTS				
QUESTIONNAIRE NUMBER				

DEPARTMENT OF EPIDEMIOLOGY AND DISEASE CONTROL
SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF GHANA

This research tool is designed to collect data from basic school children in Adentan Municipality in the Greater Accra region of Ghana for a study to determine the relationship between fever and school attendance among basic school children in the Municipality

	DAY		MONTH		YEAR			
DATE OF INTERVIEW					2	0	1	6

🗣 **INTERVIEWER:**

We are interviewing basic school children in Adentan Municipality to determine the rates of school non – attendance due to fever among basic school children. School non-attendance among children presents serious consequences and it is a major health concern to children, parents and health professionals. Fever occurrence is also rampant among children and often makes them morbid and inactive.
Your participation in the study as said earlier on is completely voluntary. We would also like to assure you that all information collected in the course of the study will remain confidential.

→ *Ask for oral consent.*

Thanks a lot for your participation. In case you have any questions, please let us know.
Please also ask when you have a problem understanding a question.

DEMOGRAPHICS

No.	Question	Code and Response	Code Box
1	Name of participant (**optional**)		
2	Age		.....
3	Sex	1. Male 2. Female	
4	Education status of child	0. Kindergarten 1. Primary class 1 2. Primary class 2 3. Primary class 3 4. Primary class 4 5. Primary class 5 6. Primary class 6	
5	Type of School	1. Private 2. Public	
6	Number on roll (in class)		…….
7	Religion	1. Catholic 2. Anglican/Methodist/Presbyterian 3. Pentecostal/Charismatic 4. Other Christian 5. Muslim 6. Traditional/ Spiritualist **7.** No religion 8. Other, specify_____	
8	Highest Educational status of parent (mother)	1. No formal Education 2. Primary 3. Middle 4. JHS/JSS	

		5. Secondary(tech/voc/sss/shs) 6. Higher	
9	Main occupation of mother	1. Farming 2. Trade/Business 3. Official employee 4. Casual labour 5. Other, specify_____	☐
10	SOCIOECONOMIC STATUS (i) Education	Professional or Honours (**7**) Graduate or Post-Graduate (**6**) Intermediate or Post-High-School Diploma (**5**) High School Certificate (**4**) Middle School Certificate (**3**) Primary School or Literate (**2**) No education (**1**)	Score card ☐
	(ii) Occupation	Profession (**10**) Semi-profession (social work, librarian) (**6**) Clerical, shop owner, Farmer (**5**) Skilled worker (carpenter, plumber, etc.) (**4**) Semi-skilled worker (bartender, taxi driver) (**3**) Unskilled worker (janitor, construction labourer) (**2**) Unemployed (**1**)	☐
	(iii) Household assets and services (tick as many as there are)	Refrigerator (**4**) Telephone/mobile phone (**2**) Radio (**1**) Ownership of agricultural land (**3**) Electricity (**5**) Presence of household help (**4**) Washing machine (**5**) Computer (**4**) Electric generator/invertor (**4**) Private car (**5**) Motor cycle (**3**) Drinking water (Piped water, borehole, rainwater, tanker truck, cart with small tank, bottled water, sachet water) (**1**)	☐
	(iv) Location of source of water	In own dwelling (**5**) In own yard/plot (**3**) Elsewhere (**1**)	☐

	(v) Type of flooring	Natural floor (earth/sand) (**1**) Rudimentary floor (wood planks/bamboo/palm) (**3**) Finished floor (cement/ceramic tiles/carpets) (**5**) Other, please specify……. (**2**)	
11	Zone (community) of residence	1. **Koose** (Maledjor, Amrahia, Amanfro, Ashieye, Ampomah Village 2. **Gbentanaa** (Adentan Old Town, New Adentan, Adentan Housing Estates, Approtech, Commandos, East Adentan, New Legon, SSNIT Flats, Frafraha, Ritz Areas, Alhaji) 3. **Nii Ashale** (Ashale Botwe, Ogbojo, Sraha, Little Roses, Japan Motors-Lake side, Third Gate, Arap Adjei, Part Dzen Ayor) 4. **Sutsurunaa**(Obudankadi, University Farms, Nmai Djorn, Dzornaaman, Otano,Trassacco Area, Adjiringanor, Bedzen, Tesaa, Otinshie, Part Dzen-Ayor)	
12	Community of residence	1. Rural 2. Urban	
13	Family size	1. 1-3 2. 4-6 3. 7-8 4. 9 plus	
14	Number of persons per sleeping room	1. 1 2. 2 3. 3 4. 4 5. 4+	
15	Type of house	1. Rented compound house 2. Rented "self – contain" 3. "own house" 4. Family house 5. Other, please specify……..	
16	Type of toilet facility used	1. Public KVIP 2. Public latrines 3. Personal WC 4. Other, please specify…….	
17	Do a lot of people have access to your toilet facility?	1.Yes, how many…… 2. No	

SECTION B: FEVER AND THE CHILD

For Kindergarten and the very lower classes (classes 1, 2 and 3), parents (mother) will answer these questions on their behalf.

For upper classes (classes 4, 5 and 6)… Investigator will use the scenario below to enable them understand the concept of fever.

Fever is a condition that is characterized by an increase in body temperature (above 38°C). Normally, if a person has fever, he/she feels warm upon touch. The person may experience some form of headache, chills and/or cough. Fever occurs commonly in children and often makes them inactive and unwell. Fever is the commonest reason for a child to be taken to the hospital. Fever itself is not a disease but a symptom of an underlying infection.

18. Have you heard of fever? (**1**) Yes (**2**) No

19. If yes, do you know what it is? (**1**) Yes (**2**) No (**3**) Not really

20. Have you had any feverish symptoms within the last two weeks?
(**1**) Yes (**2**) No.

21. If Yes, when? (1) Today (**2**) Yesterday (**3**) 3 days ago (**4**) a week ago (**5**) 2 weeks ago

22. If you have fever, what do you do to make it go away?
(**1**) Cold baths (**2**) my guardian takes me to the physician (**3**) my guardian gives me herbs
(**4**) My parent (mother) makes me rest (**5**) do nothing
(**6**) Others, please specify…….

SECTION C: FACTORS AFFECTING FEVER PREVALENCE

23. Have you experienced any of these symptoms in the past two weeks?
(**1**) Fever, chills, poor appetite, vomiting, weakness, headache, nausea (malaria)
(**2**) Frequent, loose watery stools (feces), fever, abdominal pain and cramps, excessive thirst (diarrhoea)
(**3**) Persistent cough, fatigue, fever restlessness, shortness of breath, difficulty in breathing (respiratory diseases)

24. How many times do you eat in a day?
(**1**) Once (**2**) twice (**3**) 3 times (**4**) 4 times (**5**) more than 4 times

25. What food do you mostly eat? State at least 3.
Please specify…….

26. Are there places for hand washing in the school? (**1**) Yes (**2**) No

Investigator must confirm.

27. Are there times you did not wash your hands properly before eating or after visiting the toilet in the past 2 weeks?
(**1**) Yes (**2**) No (**3**) Can't remember

28. Do you regularly use a hand sanitizer, in school? (**1**) Yes (**2**) No (**3**) Sometimes

SECTION D: SCHOOL ATTENDANCE

29. Do you go to school when you have fever? (**1**) Yes (**2**) No (**3**) Sometimes

30. If no, do you inform the school about the reason for non-attendance?

(**1**) Yes (**2**) No (3) Sometimes

31. Have you missed school because of fever this term? (**1**) Yes (**2**) No

32. Do you have to provide a documented proof of absence from school?
(**1**) Yes (**2**) No (If No, skip to Q35)

33. If yes, do you do that when you are absent? (**1**) Yes (**2**) No

34. If you do not provide it, is there a penalty?
(**1**) Yes (**2**) No. Specify type of penalty……..

35. For what other reason would you not come to school? Tick as many as possible
(**1**) When I feel tired (2) family meetings/gatherings (**3**) religious observation
(**4**) Domestic circumstances (**5**) when my friend won't come to school
(**6**) Illnesses (**7**) weather condition (**8**) because of a teacher
(**9**) Others, please specify……..

36. Do you have access to any of these resources readily at home?
Electricity (**1**) Yes (**2**) No
Water (**1**) Yes (**2**) No
Health Facility (**1**) Yes (**2**) No

37. Has lack of any of these resources ever affected your attendance to school?
Respondent can tick both…
(**1**) Electricity (**2**) Water (**3**) Others, please specify……

38. How long does it take for you to get to school?

(**1**) 0 to 20 minutes (**2**) 21 to 40 minutes (**3**) 41 to 60 minutes
(**4**) 6 minutes to 90 minutes (1.5 hours) (**5**) 1.5 to 3 hours
(**6**) More than 3 hours (**7**) Don't know

39. How do you get to school?
(**1**) By foot (**2**) by bicycle (**3**) by motorbike
(**4**) By bus/car (**5**) others, please specify……

40. Has your means of transportation ever made you late to school or prevented you from coming to school? (**1**) Yes (**2**) No

41. How many times have you missed school this term? Crosscheck from register!!!
(**1**) Once (**2**) twice (3) three times (**4**) four times (**5**) more than 4 times

42. What is your performance in class? Statements will be crosschecked with Teacher's report
(**1**) Excellent
(**2**) Good
(**3**) Fairly good

TIME INTERVIEW ENDS

THANK YOU FOR PARTICIPATION!!!