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HANDWASHING WITH SOAP PRACTICE AMONG PRIMARY SCHOOL PUPILS AT ABOKOBI PRESBYTERIAN PRIMARY SCHOOL, ABOKOBI-ACCRA

BY

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DECLARATION

I, Dadebo Jacob Ope, declare that except for other people's investigations which have been duly acknowledged, this thesis is the result of my own original research undertaken under supervision and that it has neither in whole nor in part been presented for another degree in this university or elsewhere.

…… Date……

Dadebo Jacob Ope

(Student)

…… Date……

DR. Collins Ahorlu

(Academic Supervisor)

DEDICATION

I dedicate this work to my lovely wife, and my children.

ACKNOWLEDGEMENT

I am very much grateful to Jehovah for seeing me through this master's program successfully. I would like to also express my heartfelt gratitude to my academic supervisor Dr Collins Ahorlu for his meticulous tutelage and guidance. I say, God richly bless you. To the staff of Ga-East Municipal Health Directorate-Abokobi, I say God bless you for your warm reception and acceptance especially during the period of my Public Health attachment practice. Furthermore, I am grateful to the Municipal Education Directorate for granting me the permission to undertake my study in a school within their jurisdiction. Lastly I say a big thank you to the Head teacher, Staff and Pupils (Participants) of Abokobi Presbyterian Primary School, Abokobi-Accra.

ABSTRACT

Background: The health implications of infectious diseases affecting children of school going age as a result of low practice of personal hygiene practices and insufficient sanitary facilities in public primary schools is still a concern for worry in most poor and middle income countries.

Objective: The objective of the study was to estimate the association between the socio-demographic characteristics and prevalence of hand washing with soap under running water practice among school pupils in Abokobi Presbyterian primary school.

Methods: The study employed descriptive cross sectional research design and quantitative research approach to seek the views of pupils in Abokobi Presbyterian primary school on the effective practice of washing hands with soap under running water. A sample of 264 pupils was selected using simple random sampling technique and data collected using closed-ended questionnaires. The data collected was analyzed using statistical test such as chi square test and multivariate logistic regression.

Results: Of all the pupils background characteristics investigated, hand washing with soap practice was significantly associated with age, sex, class, religion of pupils and the availability of handwashing resources.

Conclusion: The prevalence of hand washing with soap under running water practices among pupils in Abokobi Presbyterian primary school is 40.7 %.Adequate and accurate knowledge by the pupils on the health benefits of good hand washing with soap under running water practices, accompanied by having easy access to hand washing facilities and supplies such as soap, regular water supply, paper towels is still a big challenge hindering hand washing with soap promotion and practice in Abokobi Presbyterian primary school.

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LIST OF ACCRONYMS

CDC	Centre for Disease Control
MOH	Ministry of Health
WHO	World Health Organization
SHEP	School Health Program
WASH	Water Sanitation and Hygiene
GES	Ghana Education Service
MOE	Ministry of Education
HWF	Hand Washing Facility
UNICEF	United Nations International Emergency Funds
GSS	Ghana Statistical Service

CHAPTER ONE

INTRODUCTION

1.1 Background

The health implications of infectious diseases affecting children of school going age as a result of low practice of personal hygiene practices and insufficient sanitary facilities in public primary schools is still a concern for worry in most poor and middle income countries. School children and for that matter primary school pupils are at a higher risk the most because of the lack of paying special attention to a simple but a very important personal hygiene behavior such as frequently washing hands with soap under running water and also due to insufficient knowledge on good hand washing with soap practice. Poor knowledge, practice and attitudes to personal hygiene such as hand washing with soap under running water play major roles in the high incidence of communicable diseases and therefore has negative consequences on pupils long term overall development (Bolon, 2016).

Improving knowledge, raising awareness and good hand washing practices particularly by school pupils at the primary level can help tremendously to reduce or bring to the barest minimum the transmission and spread of diseases associated with gastrointestinal and respiratory problems which affects school children the most globally. Good hand washing with soap under running water practice can help to reduce the incidence and infection rate of these disease burdens which affects children of school going age at the primary school level by almost 50%. Also studies have proven that primary school pupils who indulge in good hand washing with soap practices hardly fall sick and for that matter are not very much like to miss school for days due to ill health (CDC, 2017).

The best place for children of school going age to acquire knowledge or obtain information regarding essential personal hygiene practices and or on good sanitary practices is the school

environment or setting since children at this age spent almost 8-9 hours in school on daily bases which more than the hours they spend at home (Water and Sanitation Programme, & UNICEF, 2015). Hand washing behavior is affected by lack of hand washing facilities (Logistics) like the number of water points for hand washing, access to water point, availability of water and soap (Nandrup-Bus, 2009). Time spent by a child to wash the hands when necessary due to the large number of children to a water point and the number of hours children spend in school can be an impediment to regular hand washing practice (Lopez-Quintero & Freeman, 2009).

This study was aimed to investigate personal hygiene practice such as hand washing with soap under running water practices of the primary school pupils in Abokobi Presbyterian primary school in the Ga-East Municipality, Greater Accra region of Ghana. The aim of this study was to investigate existing knowledge and practices related to hand washing with soap practice among the pupils from primary three (3) to six (6). The results from the study helped me to understand the factors influencing hand washing with soap practices among the pupils. Hand washing with soap is a learned behavior, to be effective, proper hand washing must be learned, preferably as a school going child or a pupil so that it becomes a routine habit throughout life. The health, academic performance and retention rates of school going children is greatly affected by the availability, accessibility and quality of sanitation facilities in schools (Water and Sanitation Programme, & UNICEF, 2015). Similar studies by Chittleborough et al., (2012) revealed that on the global scale over 400 million school pupils have diminished learning disabilities due to worm infestations which is related to poor hand washing practices among school pupils.

1.2 Problem Statement

The problem under discussion was that the practice of hand washing with soap under running water is not regularly done and if at all ineffectively among primary school pupils in most public primary schools including Abokobi Presbyterian primary school in the Ga-East Municipality of the Greater Accra region of Ghana. On a worldwide scale washing hands with soap under running water has helped tremendously in reducing the spread of faecal related diseases and communicable diseases in school pupils. But this simple personal hygiene practice is still on the low side in developing countries. This is so because of the challenges associated with the provision of regular water supply and hand washing facilities (Setyautami, Sermsri, & Chompikul, 2012).

Poor practice of hand washing with soap increase the mode of transmission of pathogens into the human system. Often times than not, school children may not frequently wash their hands before eating, after playing, after visiting the lavatory and after touching the surface of substances which can be a medium of disease transmission. This increase the risk of certain communicable disease (Lopez-Quintero, & Freeman, 2009). Pathogens burden, gastrointestinal infection including STH in children, and microbial flora on the skin surface is increased when children refuse to practice regular hand washing with soap (Simmons, Physician, Regional, & Health, 2005; Boycc and Pittett, 2013).

It was against this backdrop that this study investigated the availability and adequacy of hand washing facilities in Abokobi Presbyterian Basic School. This study also looked at the barriers to hand washing and efforts by stakeholders in promoting hand washing among the school children. This was intended to contribute to efforts aimed at filling the knowledge gap in this regard and providing policy makers with empirically proven findings for developing

and incorporating sustainable school based hand washing programs among primary school children in Abokobi Presbyterian primary School.

Many scholarly works about hand washing with soap practice points to the fact that the crucial times for washing hands with soap under running water are after visiting the toilet, after handling faecal matter, before cooking, before feeding a child or breastfeeding a baby and before eating food (Water and Sanitation Programme, & UNICEF, 2015; (Simmons, Physician, Regional, & Health, 2005)). Children spend eight (8) hours of each school day in school. This makes the school important place through which their health can be influenced positively or negatively. The health of children when they are young and in school are in their formative years hence good hygiene behaviors taught during this formative years can become a positive habit throughout a lifetime (Nandrup-Bus, 2009). The availability and access of sanitation facilities which include water for hand washing among others is crucial. Studies have shown that lack of adequate hand washing facilities in schools lead to high rates of absenteeism, poor academic performance and reduced retention rates especially amongst girls (Saboori et al., 2013).

Children, especially children under the age of five years are very vulnerable to diarrhoea related illnesses. School pupils on the average spend eight hours in school a day on the average. Because of these long hours spent in school there is the need for easy access to which impacts greatly on their general health and total development. Annually almost 2.2 million die globally as a result of poor personal hygiene practices such as correctly washing hands with soap under running water.

1.3 Justification of the Study

The purpose of the study was to ascertain the factors which encourage primary school children to internalize the habit of hand washing with soap and water at critical times such as

before meals, after visiting the toilet, after play, after blowing the nose, after playing in the soil, and after touching animals (pets). The study looked at the logistical, psychological, environmental and other tangible factors which do not help to promote hand washing with soap among the pupils in the school. Proper knowledge and practice of hand washing with soap plays a critical role in preventing communicable diseases and benefits primary school pupils to enjoy healthy and productive school life.

The study evaluated also the knowledge and practices related to hand washing with soap practice among the primary school pupils in Abokobi Presbyterian Primary School. Children equipped with proper knowledge on hand washing with soap under running water practices are very much less likely to have high absenteeism rates in school due to illness associated with gastrointestinal and respiratory tract infections which are major cause of childhood morbidity and mortality globally. The simple act of hand washing with soap under running water can reduce this disease burden globally by almost 50% (WHO, 2004). Further studies by Azor-Matinez et al. (2014) showed that school is the place where health education regarding important aspects of hygiene such as hand washing practices, clean environment and sanitation, as well as social customs can be imparted for life.

Public primary schools such as Abokobi Presbyterian primary school was chosen as the study population as it is a school under the direct jurisdiction of the Government of Ghana through the ministry of Education and the Ghana Education service. Assessing the existing situation in the school will enable acquisition of relevant data from a local perspective, and thus the necessary interventions may be initiated.

1.4 General Objective

To assess the knowledge of the pupils and availability of resources for hand washing under running water in Abokobi Presbyterian primary school.

1.4.1 Specific Objectives:

- To examine the association between gender and hand washing with soap practices in Abokobi Presbyterian primary school.
- To assess the association between pupils' knowledge on the health benefits and hand washing with soap practices in Abokobi Presbyterian primary school.
- To investigate the association between availability of resources and hand washing with soap practices in Abokobi Presbyterian primary school.

1.5 Research Questions

- What is the association between gender and hand washing with soap practices in Abokobi Presbyterian primary school?
- What is the association between pupils' knowledge on the health benefits and hand washing with soap practices in Abokobi Presbyterian primary school?
- What is the association between availability of resources and hand washing with soap practices in Abokobi Presbyterian primary school?

1.7 Limitations of the Study

The scope of this study could have been widened to cover all public and private primary schools in the Ga-East Municipality but the study was limited to Abokobi Presbyterian primary school which is located in the Ga-East Municipality of the Greater Accra region of Ghana. A CCTV camera could also have been installed at vantage points on the school compound to capture footages and monitor hand washing practices among the school children

before, during and after the study for a much more better understanding, but this could not be achieved due to time constraints and the limited budget for this study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter shows the review of the existing literature on the prevalence of hand washing practices among pupils in developed and developing countries.

2.1 Hand Washing Practices.

Hand washing with soap under running water is a very effective medium of reducing the mode of transmission of pathogens into the human system. Often times than not, school children may not frequently wash their hands before eating, after playing, after visiting the lavatory and after touching the surface of substances which can be a medium of disease transmission. Hand washing with soap under running water is a cost-effective approach that can be adopted by individuals and institutions including schools, aimed at reducing infection to the barest minimum. Also, a form of thorough hand washing with soap under running water is highly possible to reduce the risk of certain communicable disease (Lopez-Quintero, & Freeman, 2009). Pathogens burden will be reduced if school pupils practice regular hand washing with soap both at school and at home.

Furthermore, the practice of hand washing with soap under running water by school pupils results in the reduction of gastrointestinal infection including STH among the vulnerable group being children (Simmons, Physician, Regional, & Health, 2005). To achieve this purpose, pupils should be educated on the importance of regular hand washing with soap under running water both at home and at school. Constant reminder on hand washing with soap for the children will improve their health seeking behavior. According to Boycc and Pittett (2013), thorough hand washing removes different forms of microbial flora on the skin surface. To achieve a holistic hand washing practice, the hand must equally be dried

thoroughly (Boycc & Pittett, 2013). An important means of curbing infection is through hand washing with soap (Ejemot -Nwadiaro et al., 2009). Notwithstanding, such practices among school children, both on school premises or at home can improve their health seeking behavior's tendency of experiencing cross infections amongst pupils will be reduced.

2.2 Why is hand washing with soap not effective in most public primary schools?

Studies in developing countries consistent have shown that lack of soap is one of the barriers to hand washing in public schools; since most of these schools have neither soap nor appropriate hand washing facilities (Pinney, 2000). Lopez-Quintero and Freeman (2009) also asserted that several developing countries consistently reported lack of soap and unavailability of water. Since proper hand washing with soap under running water requires the use of soap and only a small amount of clean running water from a tap, or an improvised tap (Pinney, 2000), huge plastic buckets and "polytanks" (hard plastic containers purposively designed for water storage) are appropriate tools and were the commonly improvised hand washing facilities in the schools.

2.3 Impact of WASH program in schools

The main focus and agenda of this programme by the Ghana Education Service and it's numerous partner agencies is reduce the disease burden of school pupils with special emphasis on the infestation of worms among school pupils, diarrhoea diseases and respiratory infections because these diseases a toll effect on schools pupils and most importantly they are sicknesses which can be effectively reduced using decent sanitary conditions in most public schools. For schools, the health focus is generally on diarrhoea, worm infections and respiratory infections because these diseases affect school-age children most and are illnesses which can be drastically reduced through improved WASH conditions in schools. Most importantly the use of better sanitary facilities reduces the incidence of diarrhoea by 34%. Washing hands with soap under running water after toilet use and before eating has proven to

be one of the most affordable public health initiatives because it can reduce the incidence of diarrhoea by almost 40%.

According to a study by Fewtrell, Prüss-Üstün & Bos (2007), it is very common to have a school pupil in Sub Saharan Africa to be infected with all the three types of common worms found in children namely tapeworm, roundworm and hookworm all as a result of poor hand washing with soap practices. Also, their study revealed that just the simple act of washing hands with soap under running water can reduce the transmission and spread of respiratory infections among school pupils by 16 %. Also, it estimated that 47% of children between the ages of 5-9 years in developing countries suffer from world infestations, and also such children may have to also grapple with issues of malnutrition, mental retardation, and also cognitive and learning disabilities.

Tests have proven that the capacity of a school going child to develop sharp memory, swift executive function, language and deductive thinking skills as well as attention span can all be improved in school pupils through public health cum school programs like national deworming exercises. All these available information points to the fact that there is a strong correlation or association between poor hand washing with soap practices and worm infestation among primary school pupils which also has enormous effect on their academic performance (Curtis, 2008).

Furthermore similar investigations with special emphasis on absenteeism due to gastrointestinal and respiratory infections in developed nations revealed that because of proper washing of hands with soap under running water in schools the magnitude of days lost due to absenteeism can be reduced between 25% to 50% which confirmed the fact improvement in the correct washing of hands with soap under running water can minimize days lost in school due to illness by between 25% and 50% (Nandrup-Bus, 2009). Basic

hygiene behaviours when taught well to children at very younger ages is not easily forgotten by the children but can become part of their social life and can be sustained for a longer period of time (La Con et al., 2017).

2.4 Why is hand washing with soap an important religious behavior?

Hand washing is not only a hygiene behavior and a means of reducing the transmission and infection of communicable diseases but also a very important religious act of faith and custom of Jewish origin as it is evident from the following verse below in the Holy Bible. Per the Jewish customs and traditions it was very immoral for a person to eat or touch food without washing hands with water (Mark 7:3, KJB).

"*Now when the Pharisees gathered to him, with some of the scribes who had come from Jerusalem, they saw that some of his disciples ate with hands that were defiled, that is, unwashed. (For the Pharisees and all the Jews do not eat unless they wash their hands, holding to the tradition of the elders, and when they come from the marketplace, they do not eat unless they wash their hands, and there are many other traditions that they observe, such as the washing of cups and pots and copper vessels and dining couches.) And the Pharisees and the scribes asked him, "Why do your disciples not walk according to the tradition of the elders, but eat with defiled hands?*"

The belief that washing hands under running water without soap makes the hands clean is very incorrect. Several studies on hand washing points to the fact that though clean water is very much essential using running water alone without soap does not make the hands clean at all except only when soap is involved (Lee, 2015). Dutton, Flórez-Peschiera, and Nguyen (2011) showed that whilst less effective than when using a rubbing agent, such as soap, mud or ash, some reductions in contamination were found when washing with water alone, but that use of alternative rubbing agents (mud or ash) provided the same benefits as soap.

Dutton, Flórez-Peschiera, & Nguyen (2011) also found that the use of mud, ash and soap all achieved the same level of cleanliness.

2.5 History and Cleansing Effects of Soap

The idea of using soap for washing and cleansing dates back to the Babylonian times as exaction works from archeological findings confirmed the occurrence and usage of materials similar to modern day soap in clay cylinders. Writings on these artifacts pointed to the fact that fats were cooked together with ashes which was a method of soap preparation during those times. Also archival documents dating back as old as 1500 B.C. postulated that ancient Egyptians mixed animal and vegetable oils together with alkaline salts to make soap which was used in the treatment of skin disorders, as well as for washing clothes (Ashraf et al., (2012).

In the Bible, Moses gave the Israelites detailed laws concerning personal cleanliness. He also related cleanliness to health and religious purification. People were instructed to wash their clothes and bathe in water (Gen 14:32, KJB). Soap got its name, according to an ancient Roman legend, from Mount Sapo. Animals were sacrificed on this mountain and rain would wash the mixture of melted Animal fat and wood ashes down into the clay soil along the Tiber River. Women found that this clay mixture made their washing cleaner with much less effort (The Soap & Detergent Association, 2005). The famous Roman baths were built about 312 B.C. By the second century A.D., the Greek physician, Galen, recommended soap for both medicinal and cleansing purposes (The Soap & Detergent Association, 2005).

After the collapse of the Roman Empire in the year AD 467 there was the lack of interest in personal hygiene practices like bathing which resulted in the emergence of the bubonic plague in the 14th century and this had a serious effect on public health for a long time till the

17th century when personal hygiene practice like bathing started to rise again. Soap is a combination of water-soluble or potassium salts fatty acids. Soaps are water-soluble or potassium salts fatty acids. Soaps are made from fats and oils, or their fatty acids, by treating them chemically with a strong alkali (Ashraf et al., (2012).

2.6 UNICEF /WASH Program for Schools, 2015

The WASH program is championed by UNICEF to involve both local and international partners to provide public basic schools with decent sanitary facilities such as washrooms, toilets and hand washing points in schools in Africa especially. The international bodies such as UNICEF, WHO, amongst others have been active in spearheading, WASH campaigns across the world with special emphasis in developing countries in Asia and Africa. Studies indicate that annually 272 million school days are lost by children due to diarrhoea (Hutton et al, 2004). The availability of water and sanitation facilities in schools has been shown to reduce diarrhea and hand washing related diseases among school children (Curtis, 2008).

Studies indicate a 30 percent reduction in diarrhea cases when hand washing is practiced in day care centers and primary schools (Ejemot -Nwadiaro et al., 2009). In addition other studies also indicate washing hands with soap under running water could reduce acute respiratory infections including pneumonia, which is the highest cause of child mortality, by 25 percent (Morgan et al., 2017).

2.6.1 Availability and Accessibility of Hand Washing Supplies

Having regular supply of clean water for washing hands with soap helps greatly I reducing diarrhoea related diseases and respiratory infections. Studies conducted by the centre for disease control even when a hand washing facility is present but several people use it to wash their hands inside the same basin does not make the hands clean enough. The availability of

clean water and soap for hand washing can help to reduce infections by almost 30 %. (CDC, 2017).Unfortunately, many schools in developing countries rarely make available adequate hand washing facilities and those schools that do provide such facilities have issues the adequacy of those facilities, proper places to site them and sometimes not very much accessible by pupils (Morgan et al., 2017).

2.7 Hand Washing with Soap and Diarrhea

It has been established that Hand washing with at some critical points such as after visiting the toilet, before eating, and before preparing food, could interrupt several transmission routs. Many studies suggest that hand washing with soap is one of the factors that lowered the incidence of diarrhea a meta-analysis; some writers concluded that diarrhea pathogens in the domestic domain can only result if stools are inadequately disposed of or if hands are inadequately washed with soap under running water after visiting a sanitation facility. They writers further stated: washing hands with soap was associated with a 47% reduced risk of diarrhoea in children (Curtis, 2008). Another Advocacy article by The Economist (2002) proposes that the second biggest killer of children in the world especially children under five years of age is not malaria or tuberculosis but rather diarrhoea resulting from poor hand washing practices by caregivers.

Easy access to water for all, better health education and dehydration therapy has been used over the years to prevent diarrhea. Now, the best solution was simple to persuade people to wash their hands with soap under running water (The Economist, 2002). In developing countries, most households have soap, but only 15% -20% of care givers routinely use it to wash their hands after visiting the toilet, cleaning a dirty baby or undertaking other tasks that have the potential of spreading the “the lethal bugs” (The Economist, 2002). An assessment of effect of hand washing with soap on diarrhea risk by Curtis (2008) in a systematic review

found that washing hands with soap under running water can reduce the risk of diarrhea related diseases by up to 47% and hand washing promotion and campaign could save one million lives globally. Another study examined the effect of hand washing on a child's health using a randomized control trail. Promotion of hand washing with soap on the incidence of diarrhea was assessed. In neighborhoods with hands washing promotion, 3000 households each were assigned antibacterial soap and plain soap for about one year. One of the primary study outcomes were diarrhea. Compared with controls, children younger than 15 years in households who washed their hands with soap had 53% lower incidence of diarrhea (68% to 41%). The study concluded that hand washing with soap prevents diarrhea (Sultana & Luby, 2011).

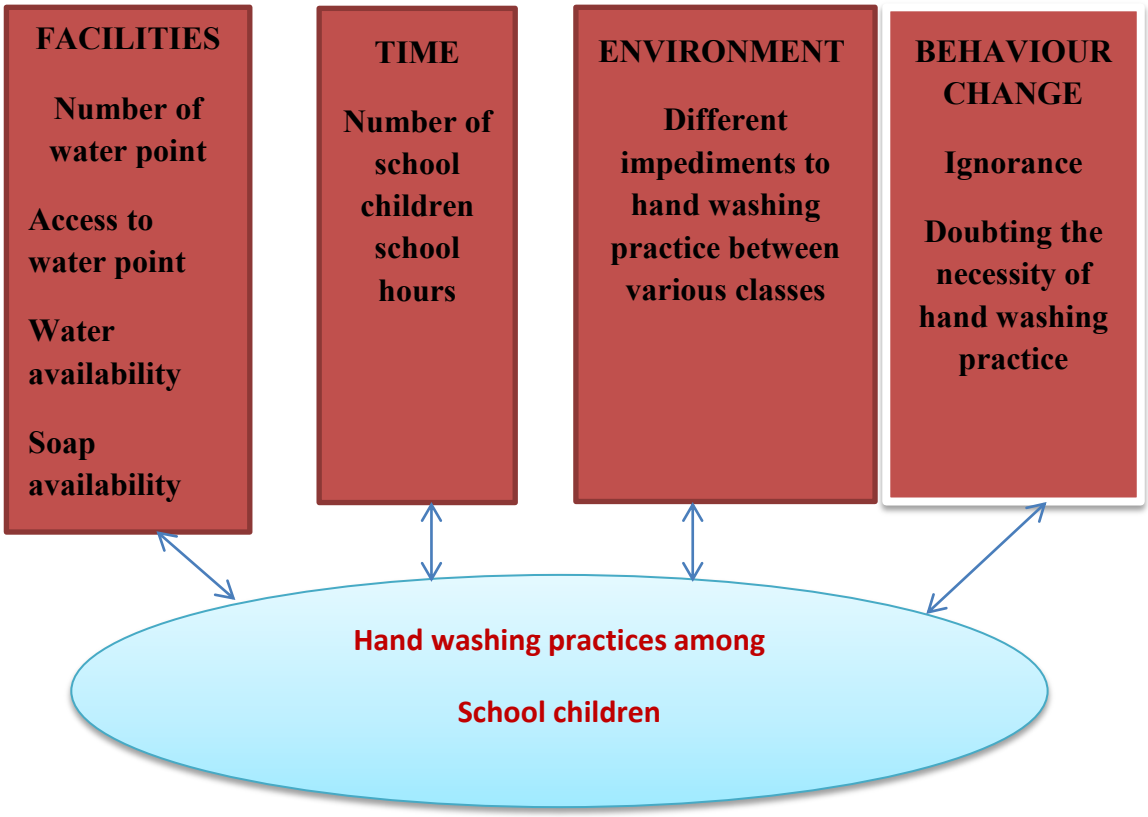
2.8 Conceptual Framework on hand washing practices

Hand washing with soap under running water which has been proven to be one of the most effective ways of reducing microbial infections is not often practiced by school children especially in public primary schools of which Abokobi Presbyterian primary school is no exception. Hand washing behavior is affected by lack of hand washing facilities (Logistics) like the number of water points for hand washing, access to water point, availability of water and soap. Time spent by a child to wash the hands when necessary due to the large number of children to a water point and the number of hours children spend in school can be an impediment to regular hand washing practice. Ignorance on the health benefits of hand washing with soap under running water and behavioral change factors like the mindset of school children doubting the necessity of hand washing practice was carefully looked at in this study. The graphical representation of socio-demographic characteristics, pupils' knowledge on the health benefits, and availability of resources can be shown in Figure 2.1. The framework comprises of Independent variables (Socio-demographic characteristics, Pupils' knowledge on the health benefits, and Availability of resources) and Dependent

variable (Hand washing practices). These independent variables are originated from review of related studies were hand washing practices is affected by socio-demographic characteristics, pupils' knowledge on the health benefits, and availability of resources.According to Jeong et al. (2007), socio-demographic characteristics such as gender of pupil have a significant relationship with hand washing practices. Also, a study by Rabie and Curtis (2006) showed that pupil's knowledge on the health benefits has a positive relationship with hand washing practices.

2.8 Conceptual Framework on hand washing practices

Hand washing with soap under running water which has been proven to be one of the most effective ways of reducing microbial infections is not often practiced by school children especially in public primary schools of which Abokobi Presbyterian primary school is no exception. Figure 2.1 shows the conceptual framework of hand washing practices.



Source: From (www.wsp.org)

Figure 2.1: Conceptual Framework on hand washing practices

Hand washing behavior is affected by lack of hand washing facilities (Logistics) like the number of water points for hand washing, access to water point, availability of water and soap. Time spent by a child to wash the hands when necessary due to the large number of children to a water point and the number of hours children spend in school can be an impediment to regular hand washing practice. Ignorance on the health benefits of hand washing with soap under running water and behavioral change factors like the mindset of school children doubting the necessity of hand washing practice was carefully looked at in this study.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter shows the methods employed for the research. It outlines and describes the study design, study area and the source of data for the study. The instrument used for data collection, sampling and sampling procedure, sample size and technique of pretesting of instruments and data analyses are also shown in this chapter.

3.1 Research Design

The study employed a descriptive cross sectional research design when evaluating the data collected from 263 pupils in Abokobi Presbyterian primary school, Ga-East Municipality. This method is used to generate hypothesis, used for intervention planning, and to estimate the magnitude of the problem. Quantitative research approach was used by the researcher to numerically present the results as well as make meaning through objective measurement of the condition.

3.2 Study Area

The study was carried out in Abokobi in the Ga –East Municipality, which is in Accra in the Greater Accra region of Ghana. Politically, Abokobi is the municipal capital for the Ga-East municipality carved out the then Ga District which Amasaman was the capital in the year 2004.The Abokobi community has a population of 20,542 according to the year 2000 population and housing census (GSS, 2010). It shares boundary on the north with the Akuapim North district, on the south with the Ga- West municipality, on the east with Tema Metropolitan Assembly (TMA) and on the west with Accra Metropolitan Assembly (AMA). It's 21km from the capital, Accra.

Abokobi is a peri-urban community established by the German Missionaries who brought into Ghana the Presbyterian church of Ghana, one of the oldest orthodox Christian churches in Ghana. The towns in the municipality include: Abokobi the capital, Dome, Taifa, and the villages in the district include: Ashongman, Boi, Ayi Mensa, Adenkrebi, Haatso, Kwabenya, Oyarifa and Pantang. Abokobi is an important town historically as Presbyterian missionaries set up a mission here. It is still an important centre for the Presbyterian Church of Ghana. Dome is the biggest market town in the municipality. Kwabenya is the location of the Ghana Atomic Energy Commission.

Source: Ghana Statistical Service (www.gss.gov.gh)

Figure 3.1: Map of Study Area

3.3 Sampling

3.3.1 Study Population

The population for this study was pupils from lower and upper primary (class 3 to 6) of Abokobi Presbyterian Primary school, Abokobi-Accra. The study participant comprised of both male and female from lower and upper primary (class 3 to 6) of Abokobi Presbyterian Primary school, Abokobi-Accra.

3.3.2 Sample Size Determination

Cochran formula for population proportions in a cross sectional survey was used to calculate the sample size for this study.

The sample size formula was calculated as;

$$= \frac{Z^2_{\frac{\alpha}{2}} \times P \times (1 - P)}{e^2}$$

Where n= the minimum sample size

α = significance level = 0.05

Z = z-score for population distribution =1.96

e = margin of error = 5%

P = prevalence of hand washing with soap practice (estimated proportion) = 22.0%. Hence, p will be assumed to 0.22.

$$n = \frac{1.96^2 \times 0.22 \times (1 - 0.22)}{0.05^2} = 263.69 \approx 264$$

Therefore the required minimum sample size of 264 school pupils for the study was obtained.

3.3.3 Sampling Method

The simple random sampling technique was employed to select the school pupils. Simple random sampling is a type of probability sampling where the pupil in the study is chosen by the researcher randomly. The simple random sampling was performed as follows; the lottery method was used where the entire student in each class was assigned a number, then pupils whose numbers were selected at random were employed to be part of the sample. For each class, balloting was used to give the pupils an equal chance of being selected for the study based on the class population size.

3.4 Variables in the Study

Table 3.1 is a summary of the variables used in the study.

Table 3.1: Variable in this Study

Variable	Definition	Level of measurement
Dependent Variable		
Practice	Hand washing practice	Poor, Good
Independent Variables		
Age	Completed years	Continuous
Sex	Biological	Male, female
Class	Current class	Class 3, class 4, class 5, class 6
Religion		Christianity, Islamic, Traditional, Others.
Education	Educational level of Guardian.	No education, Primary, Junior High School, Senior

		High School, Vocational Training, Tertiary
Knowledge	Knowledge on hand washing practices	High, Moderate, Poor
Availability of resources	Availability of resources for hand washing.	Not always, Always

3.5 Inclusion and Exclusive Criteria

3.5.1 Inclusive Criteria

The study considered primary school pupils in both lower and upper primary of the selected school.

3.5.2 Exclusion Criteria

The study excluded junior high school pupils and pupils whose parents did not give their consent for their wards to participate in the study.

3.6 Source of Data and Data Collection

The study used primary data collected from lower and upper primary pupils of Abokobi Presbyterian Primary school, Abokobi-Accra, through the administration of questionnaires. Questionnaires for the study were administered to some selected basic school in the municipality namely Haatso - Papao Presby primary school, Ashongman M/A 2 basic school and Akporman model school for pre-testing. The pre-testing is to determine pupils understanding of the study. The aim of conducting a pilot testing survey was to assess the reliability of the questionnaires planned to be administered to the pupils sampled. The questionnaire was used to solicit for information on demographic background, level of

knowledge on hand washing with soap under running water and availability of hand washing facilities in the school from pupils of Abokobi Presbyterian Primary school, Abokobi-Accra. These variables have been reported in literature to have an association with a pupil's commitment to hand washing practices.

3.7 Data Entry

Data collected for the study were coded into different categories. Codes were generated by using stata 15 software. Yes = 1 and No = 2, in binary questions.

3.7.1 Assessment of Hand Washing Practices

Hand washing practices was measured as a composite score. Five questions from the structured questionnaire were used. The questions used were questions 12, 16, 19, 20 and 28. It was measured as a binary outcome. A score of 0-2 was categorized as poor hand washing practices whereas a score of 3-5 measured good hand washing practices.

3.7.2 Assessment for Availability of Resources

Availability of resources was also a combined composite score for variables measuring resources. Five questions were used in assessing resource availability. These questions were questions 13, 14, 25, 26 and 20 from the questionnaire. A score of 0-2 was categorized as not always available whereas a score of 3-5 measured always available resources.

3.7.3 Assessing Knowledge Level of Pupils On Hand Washing with Soap

To assess the level of knowledge, a composite score for 8-questions were used. High knowledge was categorized with a score of between 6 and8, poor knowledge was categorized with a score of 0-2, and moderate knowledge was categorized with a score of 3-5.

3.8 Data Analysis

Data gathered from the study were coded and entered into a Microsoft excel 2015 spreadsheet and analysed using STATA version 15. Basic frequency distribution tables, percentages, bar chart and pie chart were used to describe the data by displaying the outcomes. Chi-square test and multivariate logistic regression were the two statistical tools used to determine the association between the dependent variable and various independent variables.

3.9 Quality Control Measure

Questionnaires were administered for both pre-testing and the actual research study. Information derived from respondent was kept in a cabinet under lock and key, accessible to principal investigator only.

3.9 Ethical considerations

3.9.1 Ethical Clearance

Ethical clearance was sought from the Ghana Health Service ethical review committee for approval before the commencement of this study as GHS protocol demands. Also permission was sought from the Ga-East municipal education directorate for approval since the study site is in their administrative jurisdiction.

3.9.2 Consenting Process

Consent was sought from the Ga-East Municipal Education Directorate; the parents of the recruited participants also gave their consent by signing an informed consent form. The consent form contained information regarding possible risk or discomfort, possible benefits, data storage and management, contact person for additional information, voluntary participation and the right to withdraw from the study at any given time without penalty

attached. Consent forms were given to the parents through their wards and they were returned signed to give their consent. Also, responses given by class 3 pupils on the educational background of parents in the questionnaire was further cross checked and validated using the personal data information provided by their parents in the cumulative record book of each pupil which has a column for educational levels of parents/guardians from the class Teacher.

3.9.3 Privacy and Confidentiality

The information shared by participants during the study was confidential to the principal investigator of the study; in view of this participants were given codes to identify them than using their names respectively. There was not to be any circumstance whereby the information obtained was shared with others. The names of respondents or participants was not disclosed to any other person before, during, and after the study was conducted successfully.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter provides the findings of the study. This study used primary data collected by administering of questionnaire to investigate hand washing with soap practice among primary school pupils at Abokobi Presbyterian Primary School in Ghana from 4th June to 8th June, 2018. Descriptive Statistics such as pie chart, bar charts, and frequency tables were used to graphically explain the data while the data collected was analyzed using statistical tools such as chi-square test and multivariate logistic regression.

4.1 Background characteristics of study respondents.

A total of 263 primary school pupils were interviewed in this study after fulfilling inclusive criteria. There were missing data identified in some variables in the data, therefore the sample size varied for the analysis conducted on these variables. Table 4.1 shows the Socio-demographic characteristics of pupils. From Table 4.1, females were 48.8% (n = 127). The mean age of the pupils was 11.8 years (SD = 1.72). Ninety- three percent of the pupils were Christians. About thirty-five percent of parents had Junior High level of education with 10.7% at tertiary level. Majority (36.4%) had at least secondary education. Of the 263 pupils, 89.0 (34.5%) of them were in class six and 33.3% were in class four. Over fifteen and sixteen percent of the pupils belonged to class three and five respectively.

Table 4.1 Background characteristics of participants

Variable	Frequency (n = 263)	Percentage (%)
Sex		
Male	133	51.2
Female	127	48.8
Age Mean(SD)	11.77 (1.72)	
Class		
Three	40.0	15.5
Four	86 .0	33.3
Five	43.0	16.7
Six	89.0	34.5
Religion		
Christian	244.0	93.1
Muslim	18.0	6.9
Parents' education		
None	5.0	1.9
Primary	13.0	5.1
Junior High School	88.0	34.8
Senior High School	92.0	36.4
Vocational training	28.0	11.1
Tertiary	27.0	10.7

Source: Researcher's Field Survey

4.2 Distribution of Pupils' Assessment on Level of Knowledge

The distribution of pupils' assessment on level of knowledge on hand washing practices amongst Abokobi Primary School pupils was shown in Figure 4.1. 25% of the pupils had adequate knowledge on hand washing practices. While 190 out of the 263 pupils (72%) had moderate knowledge, the remaining 3% were found to have poor knowledge on hand washing practices.

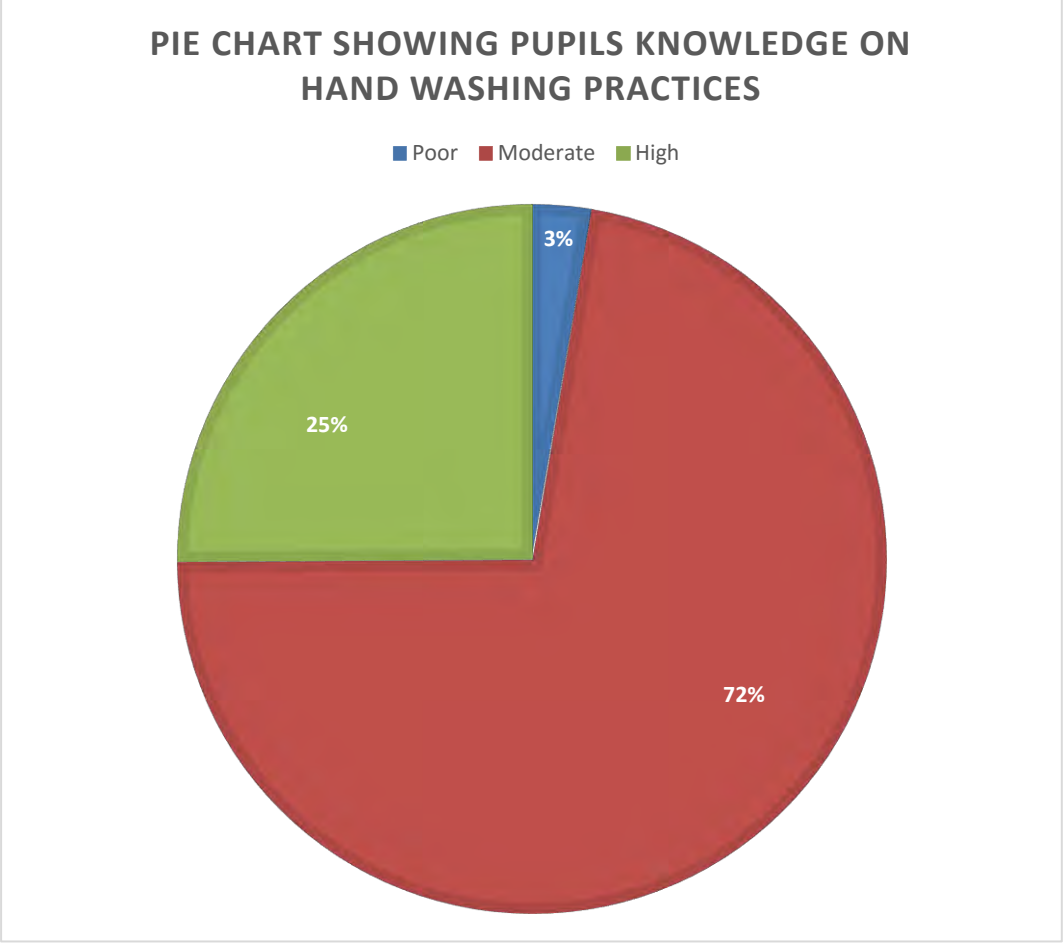


Figure 4.1: Proportion of pupils' level of knowledge on Hand washing practices in Abokobi

Source: Researcher's Field Survey

4.3 Assessment of hand washing practices amongst Abokobi Primary School pupils

The Assessment of hand washing practices amongst Abokobi Primary School pupils was shown in Figure 4.2. Forty percent (40.7%) of the school pupils practiced good hand washing practices while 59.3% practiced poor hand washing.

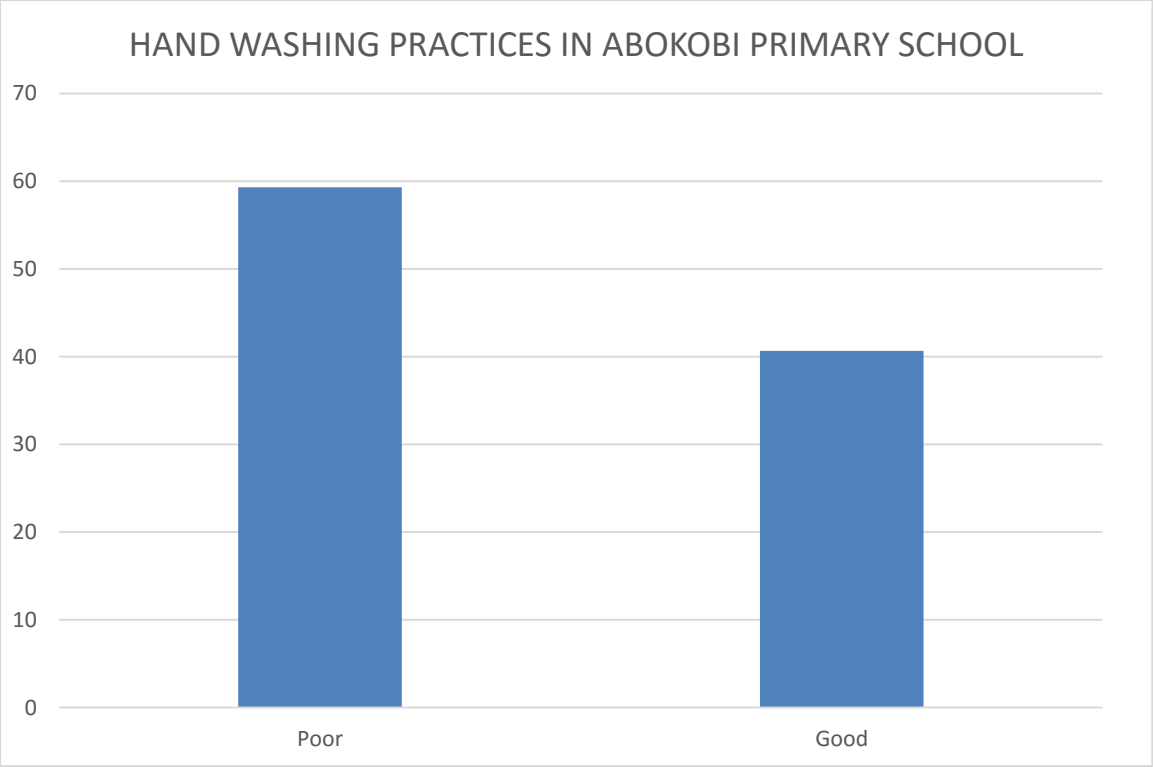


Figure 4.2: Chart showing assessment of pupils' hand washing practices in the Abokobi Primary School.

Source: Researcher's Field Survey

4.4 Assessment of availability of resources needed to practice effective hand washing.

The Assessment of availability of resources to practice effective hand washing by pupils of Abokobi Primary School was shown in Figure 4.3. Thirty-five percent (35.4%) of pupils at Abokobi Primary had resources such as soap, water and towels always available. Majority (64.6%) did not have these resources always available.

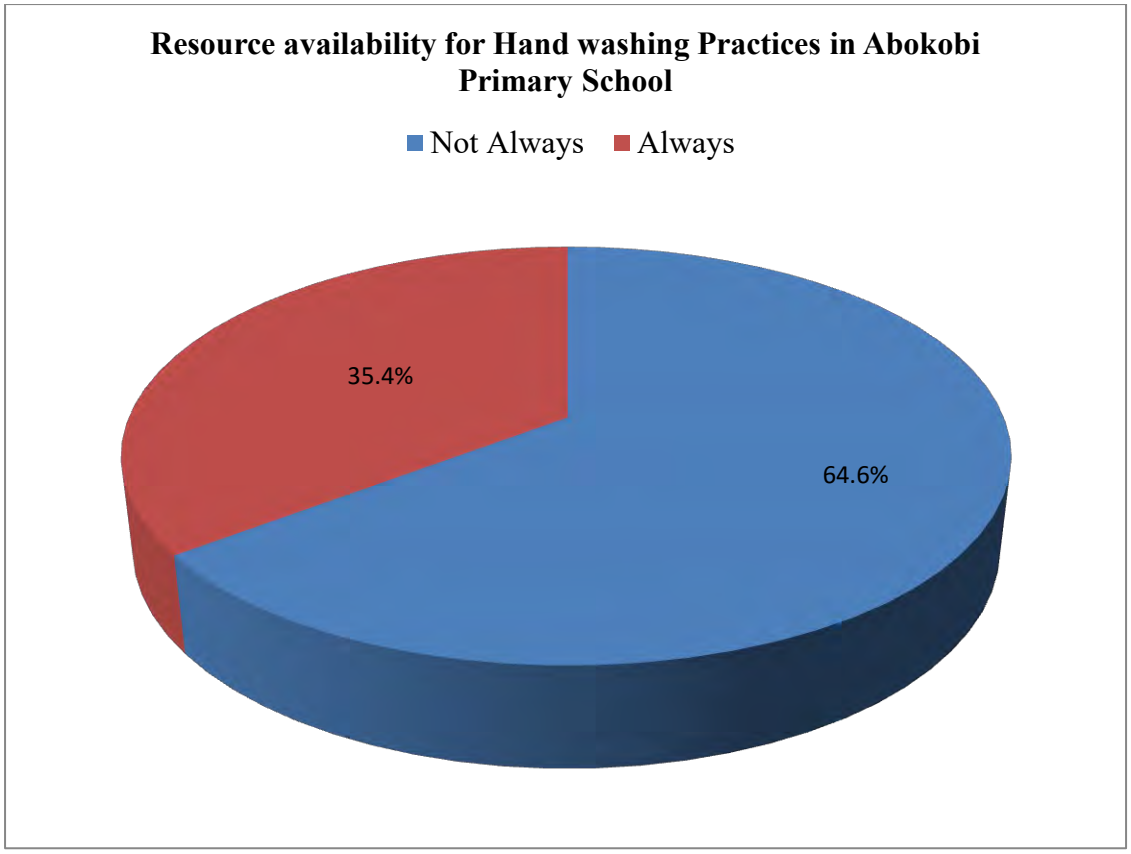


Figure 4.3: Resource availability for Hand washing Practices in Abokobi Primary School

Source: Researcher's Field Survey

4.5. Relationship between socio-demographic characteristics of respondents and hand washing practices among pupils in the Abokobi Primary School.

Table 4.2 shows the association between socio-demographic characteristics and hand washing practices among pupils in the Abokobi Primary school. The Chi square test of association was used as a measure of assessing the relationship between the predictor variables and hand washing practices. Predictor variables included sex, class, religion, and educational level, availability of resources and level of knowledge. The outcome variable was hand washing practices set at 95% confidence interval and an alpha level of 0.05. Among the predictor variables analyzed, sex was found to be significantly associated with hand washing

practices. Sex and religion of the pupils were significantly associated with hand washing practices ($\chi2$= 4.31, p-value= 0.04) and ($\chi2$ = 4.67, p-value= 0.03) respectively. Again, availability of resources was found to be significantly associated with the outcome variable ($\chi2$ = 18.00, p-value= 0.001). Lastly, pupils level of knowledge was associated with hand washing practices significantly ($\chi2$ = 8.41, p-value= 0.02). All other variables were not significantly associated.

Table 4.2: Chisquare test of association of socio-demographic characteristics of respondents and hand washing practices

	Hand washing Practices					
Variables	Poor		Good			
	Frequency	%	Frequency	%	Chisquare	P-Value
Sex	**N=154**		**N=106**			
Male	87	65.4	46	34.6	**4.31**	**0.04***
Female	67	52.8	60	47.2		
Religion	**N=155**		**N=107**			
Christian	140	57.4	14	42.6	**4.67**	**0.03***
Islam	15	83.3	3	16.7		
Level of Educational	**N=149**		**N=104**			
None	3	60.0	2	40.0		
Primary School	7	53.9	6	46.1	4.05	0.54
Junior High	59	67.1	29	32.9		
Senior High	51	55.4	41	44.6		
Vocational Training	14	50.0	14	50.0		
Tertiary	15	55.6	12	44.4		

Class	**N=151**		**N=107**			
Three	28	70.0	12	30.0	7.116	0.07
Four	41	47.7	45	52.3		
Five	26	60.5	17	39.5		
Six	56	62.9	33	37.1		
Available Resources	**N=93**		**N=41**			
Not always available	117	68.8	53	31.2	**18.00**	**0.001***
Always available	39	41.9	54	58.1		
Knowledge	**N=156**		**N=107**			
Poor	7	100.0	0	0.0		
Moderate	117	61.6	73	38.4	**8.41**	**0.02***
High	32	48.5	34	51.5		

* is significant at 5% level of significance

Source: Researcher's Field Survey

4.6 Strength of Association

A multivariate logistic regression model was run between independent variables and the outcome variable (hand washing practices). The Crude as well as the Adjusted Odds Ratios were found and are shown in Table 4.3. From Table 4.3, crude analysis measuring the strength of association between independent variables and hand washing practices was done. Sex, religion, class and availability of resources were found to be significantly related to hand washing practices. Females were 1.70 times more likely to comply with good hand washing practices compared to males ($\chi 2$ = 1.70 *95% CI*= 1.03- 2.80, *p-value*= 0.04). Muslim pupils were 73% less likely to practice good hand washing practices compared to pupils who are Christians ($\chi 2$ = 0.27 *95% CI*= 0.08- 0.95, *p-value*= 0.04). Class four pupils were 2.56 times

more likely to practice good hand washing practices compared to class three pupils (χ2= 2.56 *95% CI*= 1.15- 5.69, *p-value*= 0.02).

In furtherance, pupils who had resources readily available were 3.06 times more likely to exercise good hand washing practices compared to those with resources not always available (χ2 = 3.06 *95% CI*= 1.81- 5.16, *p-value*= 0.001). However, after controlling for all other variables, availability of resources and knowledge on hand washing were significant in predicting hand washing practices. Pupils who had resources always available were 3.35 times more likely to exercise good hand washing practices relative to those who do not have resources always (*AOR* = 3.35 *95% CI*= 1.87-5.99, *p-value*= 0.001). Pupils with moderate knowledge on hand washing practices were 52% less likely to exercise good hand washing practices relative to those with poor knowledge (*AOR* = 0.48 *95% CI* = 0.24-3.49, *p-value* = 0.03).

Table 4.3: Univariate and multivariate logistic regression analysis for the association between independent variables and hand washing practices

Variable	Crude OR (95% CI)	p – value	Adjusted OR (95% CI)	p- value
Sex				
Male (reference)	1		1	
Female	1.70(1.03-2.80)	**0.04***	1.66(0.94-2.96)	0.08
Religion				
Christian **(reference)**	1		1	
Muslim	0.27(0.08-0.95)	**0.04***	0.33(0.09-1.31)	0.12
Level of Education				
None (reference)	1		1	

Primary	1.28(0.15-10.45)	0.81	2.15(0.18-25.68)	0.54
Junior High School	0.74 (0.11-4.65)	0.75	1.23(0.14-11.23)	0.85
Secondary	1.20 (0.19-7.56)	0.84	1.64(0.18-14.80)	0.66
Vocational	1.5 (0.21-10.40)	0.68	1.66(1.17-16.51)	0.58
Tertiary	1.2 (0.17-8.38)	0.85	1.95(0.19-20.42)	0.55
Class				
Three(reference)	1		1	
Four	2.56 (1.15-5.69)	**0.02***	1.71(0.63 -4.70)	0.30
Five	1.53 (0.61- 3.80)	0.36	1.02(0.33-3.17)	0.98
Six	1.38 (0.62-3.06)	0.44	0.81(0.26 -2.56)	0.73
Availability of resources				
Not always available	1		1	
Available	3.06(1.81-5.16)	**0.001***	3.35(1.87-5.99)	**0.001***
Knowledge				
Poor (reference)	1		1	
Moderate	0.59(0.33-1.03)	0.06	0.48(0.24-3.49)	**0.03***
High	1 (omitted)		1 (omitted)	

* is significant at 5% level of significance

Source: Researcher's Field Survey

CHAPTER FIVE

DISCUSSIONS

5.0 Background Characteristics of Pupils

Of all the pupils background characteristics investigated, hand washing with soap practice was significantly affected by age, sex , class, religion of pupils and the availability of handwashing resources. Female pupils (Girls) were more likely to comply with good hand washing practices with soap under running water especially after using the toilet or lavatory during school hours than the male pupils (Boys). Females were more likely to comply with good hand washing practices compared to males.. Muslim pupils were less likely to practice good hand washing practices compared to pupils who are Christians. Class four pupils were more likely to practice good hand washing practices compared to class three pupils. In furtherance, pupils who had resources readily available were more likely to exercise good hand washing practices compared to those with resources not always available.

5.1 Prevalence of Hand Washing Practice between Boys and Girls

Female pupils (Girls) were more likely to comply with good hand washing practices compared to male pupils (Boys). Girls per the results from this study practiced more good hand washing practice than the (Boys). The results from this study points to the fact supported by empirical evidence according to a similar study conducted by Jeong et al. (2007) which stipulated that there may be intrinsic differences in hand washing rates between males (Boys) and females (Girls). This is supported by the studies of hand washing frequency in schools which showed that females hand washed more frequently than males in terms of the usage of toilet facilities. Inter-gender differences in hand washing practice or behavior may be the results of intrinsic differences parents place on hand hygiene for girls and boys. It may also be the results that females tend to be more compliant when it comes to hygiene related issues (Jeong et al., 2007).

5.2 Availability and Accessibility of Hand Washing Facilities

One-third of pupils at Abokobi Primary had resources such as soap, clean water, paper towels, napkins and towels always available. More than half of the pupils did not have these resources always available. One of the surest ways of internalizing good hand washing practice or behavior into primary school pupils is the consistent supply of hand washing supplies such as soap, paper towels, adequate hand washing points, regular water supply etc. Results from this study brought to bare, the fact that hand washing supplies like soap, regular water supply, napkins, paper towels and adequate taps at the hand washing points to cater for the hand washing needs of the pupils was inadequate in the school based on the responses from the pupils during the course of the investigations.

According to a similar study conducted by Appiah-Brempong et al., (2018), adequate water, sanitation and hygiene (WASH) facilities in public primary schools plays a crucial role in influencing pupils hand washing behaviours in schools. Results from the study conducted by Appiah-Brempong et al., (2018) showed facility deficiency in many public primary schools which Abokobi Presbyterian primary school is included as proven by the results and findings of this study.

5.4 Assessment of Pupils Knowledge and Hand Washing Practice

From the study, one-fourth of the pupils had adequate knowledge on hand washing practices, approximately three-fourth of the pupils had moderate knowledge, and the remaining were found to have poor knowledge on hand washing practices. This results as produced in the study instigates the need for parents, teachers and educational authorities the need to broaden the knowledge of the pupils with adequate and accurate information on good hand washing practices in the school. Children and for that matter primary school pupils are more receptive to learning and are very likely to adopt healthy behaviors at a younger age. They can also be

agents of change by spreading what they have learned in school to their family, friends and community members (Rabie & Curtis, 2006). This available fact validates how important it is for the pupils to have an in-depth precise knowledge on good hand washing practice which will become part of them throughout a lifetime.

CHAPTER SIX

Conclusion and Recommendations

6.0 Introduction

This chapter presents the conclusions drawn from the results, recommendations, and some suggestions for further study.

6.1 Conclusions

The following conclusions were made from the key findings found; the first objective of the study was to examine the association between gender and hand washing with soap practices in Abokobi Presbyterian primary school. The study concludes that there are differences in handing washing rates between female pupils and male pupils. That is, female pupils are more likely to comply with good hand washing practices compared to male pupils (Boys).

The second objective of the study was to assess the association between pupils' knowledge on the health benefits and hand washing with soap practices in Abokobi Presbyterian primary school. The study concludes that, majority of the pupils have a fair knowledge on hand washing practices. There is the need for parents, teachers and educational authorities to broaden the knowledge of the pupils with adequate and accurate information on good hand washing practices in the school.

The third objective of the study is to investigate the association between availability of resources and hand washing with soap practices in Abokobi Presbyterian primary school. The study concludes that, there is not enough accessibility and availability of resources such as soap, clean water, paper towels, napkins and towels to the pupils in the school.

6.2 Recommendations

6.2.1 GA-EAST Municipal Assembly

In order to encourage hand washing with soap practice among the pupils especially after defecating, the GAMMA project which is been executed by the municipal assembly constructing washrooms in public Basic schools in the municipality as a matter of urgency must commission the newly constructed hand washing facility for the school and hand it over to the school for use in order to encourage good hand washing practices in the school. Also one (1) hand washing facility with just four (4) Taps erected on it for almost 400 pupils in the school is woefully inadequate hence an additional one must be constructed for the school.

6.2.2 GA –EAST Municipal Education Directorate

(a) Class teachers, especially the lower primary should take interest in the hand washing behaviors of the pupils by sometimes been present to guide and monitor pupils for them to wash their hands with soap and running water correctly at the hand washing facility before they go for their meals from the school feeding caterers.

(b) The municipal education director should instruct all Basic school head teachers to write a simple hand washing campaign message such as “ALWAYS WASH YOUR HANDS WITH SOAP AND WATER” on the walls of the primary block of all the public schools in the municipality.

(c) The education directorate should partner the health promotion unit of the municipal health directorate to periodically supply primary schools in the municipality with Ghana Health Service (GHS) endorsed hand washing promotion posters for primary schools to be pasted in the classrooms to encourage pupils to engage in hand washing practices in the school.

(d) Teachers especially must teach the pupils about the risk factors associated with eating with dirty hands as well as the enormous numerous health benefits of practicing good hand washing with soap behavior as school pupils for a healthy life and general well-being.

6.3 Suggestion for Further Studies

1. Assessing the association between socio-demographic factors and hand washing practices using multi-level modeling methods.
2. Extending the current research to other primary schools in the Ga East municipality to assess the association between socio-demographic factors of pupils and hand washing practices.

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APPENDIX

UNIVERSITY OF GHANA – LEGON

SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

PARTICIPANT CONSENT FORM

Research topic: **Hand washing with soap practice among primary school pupils in Abokobi Presbyterian Primary School, Abokobi-Accra.**

Principal investigator: Jacob Ope Dadebo

Address: School of Public Health

Department of Social and Behavioural Science

University of Ghana.

Contact: 0244367724

My name is Jacob Ope Dadebo. I am currently a student of the University of Ghana, School of Public Health conduction a research on "Hand washing with soap practice among primary school pupils in Abokobi Presbyterian School." Any personal information that will make you identifiable will not be used in this study. Questionnaires that were administered bore no name of participants and thus anonymous completely to prevent any form of identification by either the researcher or other persons.

Name of parent or guardian

Signature…….. Date ……

Telephone number……..

Questionnaire

I am Dadebo Jacob Ope a student of the School of Public Health, University of Ghana Legon, and my research topic is**: "Hand washing with soap practice among primary school pupils in Abokobi Presbyterian primary school, Abokobi-Accra**". This exercise will be an

opportunity to assess your knowledge on the health benefits of hand washing with soap under running water, health risks of eating with dirty hands, transmission of germs from hand to mouth and nose, hand washing with soap as an effective way of preventing and controlling infectious diseases. Please give adequate information to the under listed questions. Your identity will not be disclosed in any way. Information gathered would be used only for the purpose of this research.

Please tick (√) an appropriate response.

No	Question	Response	Code
Q1	Age		
Q2	Sex	Male	1
		Female	2
Q3	Class		
Q4	Religion:	Christian	1
		Muslim	2
		African Tradition Religion	3
		Other Specify:	99
Q5	Residence		
Q6	Occupation of parent or guardian		
Q7	Educational level of parent or guardian	Primary level	1
		JHS level	2
		Secondary level	3
		Vocational level	4
		Tertiary level	5
		Other specify:	99
Knowledge about germs			
Q8	Do you know what germs are?	Yes	1
		No	2
Q9	What are germs?	Living things	1
		Non-living things	2
		Plant	3
		Worms	4
Q10	How can germs get into your stomach?	By sleeping on the bare floor	1
		Eating food with dirty hands	2
		By breathing in polluted air with dust	3
		Bathing dirty water everyday	4

Q11	What do you think happens when germs enter the stomach?	Loss of appetite	1
		Stomach pains	2
		Bitterness in the mouth	3
		Weight loss	4
Q12	How often do you wash your hands with soap under running water in the school?	Sometimes	1
		Always	2
		Twice a day	3
		Every four hours	4
		Once a day	5
Q13	Do you have pipe borne water in the school?	Yes	1
		No	2
		I don't know	3
Q14	What kind of hand washing facility do you have in the school?	Veronica bucket	1
		Sink	2
		Kuffour gallon	3
		Tippy tap	4
Q15	Do you practice hand washing with soap under running water when in school?	Yes	1
		No	2
Q16	Do you always wash your hands with soap and water before eating or after playing during school hours?	Yes	1
		No	2
		Sometimes	3
Q17	What do you think will happen to you when you eat with dirty hands?	Will get sick	1
		Nothing will happen	2
		Food will not satisfy me	3
		Food will taste bitter	4
Q18	Do you have a latrine/toilet facility in the school?	Yes	1
		No	2
Q19	Do you always wash your hands with soap after visiting the toilet/latrine?	Yes	1
		No	2
		Sometimes	3
Q20	How many hand washing points do you have in the school?	One	1
		Two	2
		Three	3
		Four	4
Q21	What prevents you from washing your hands with soap and running water frequently?	I feel lazy to do it sometimes	1
		There is no soap and water sometimes	2
		Am always in a hurry to eat	3
		Sometimes I forget	4
Q22	Do you think the number of hand washing points in the school is enough?	Yes	1
		No	2

Q23	Which of the following do you think cleans dirty hands best?	Hand Sanitizer	1
		Soap and running water	2
Q24	Does washing hands with running water alone without soap make dirty hands clean?	Yes	1
		No	2
		I don't know	3
Q25	Is there always a tissue, napkin or a towel at the hand washing point to dry hands after washing hands?	Yes	1
		No	2
		Sometimes	3
Q26	Is there hand washing "WRITINGS" or posters on the walls in your class?	Yes	1
		No	2
		I don't Know	3
Q27	Is there a time allocated for the whole class to wash hands after picking or tidying the school compound during school hours?	Yes	1
		No	2
Q28	Is the hand washing point closer to your classroom?	Yes	1
		No	2