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**IMPROVING THE SANITATION SITUATION IN BASIC SCHOOLS WITHIN THE
KUMBUNGU DISTRICT THROUGH HAND WASHING**

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KUMBUNGU DISTRICT THROUGH HAND WASHING

BY

STANLEY KOMBIAN SINIKA

(UDS/MTD/0084/15)

A DISSERTATION SUBMITTED TO THE DEPARTMENT OF EDUCATIONAL
FOUNDATIONS, FACULTY OF EDUCATION, UNIVERSITY FOR DEVELOPMENT
STUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF
MASTER OF EDUCATION DEGREE IN TRAINING AND DEVELOPMENT.



2018

DECLARATION

Student's Declaration

I hereby declare that with the exception of references to the work of others, which has been duly acknowledged, this work is the result of my own research and that it has neither in part nor whole been presented elsewhere for other degrees.

Student's Name: SINIKA KOMBIAN STANLEY Student's ID: UDS/MTD/0084/15

Signature..... Date.....

Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on the supervision of thesis laid down by the University for Development Studies.

Supervisor's Name: DR. AGATHA INKOOM

Signature:..... Date.....



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To God is the glory for His guidance and protection throughout this course. This project would not have seen the light of day without His protection. My next thanks goes to my supervisor Dr. Agatha Inkoom for her constructive criticism, guidance and time devoted in supervising this work, may God bless you. I am again thankful to the staff and pupils of Kumbungu D/A JHS for your active involvement in carrying out this research work.

My sincere thanks also go to my friends Mr. George Azumah and Mr. Bukari Adam for your encouragement and support during the compilation of this report.



DEDICATION

This project work is dedicated to my parents Mr & Mrs Kombian and to the entire Sinika family. A special dedication to my wife for her love and understanding during difficult circumstances. You are a blessing to me and my source of happiness.



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LIST OF ABBREVIATIONS

WHO	-	World Health Organisation
CDC	-	Centres for Disease Control
AHH	-	Antiseptic Hand Hygiene
SHH	-	Surgical Hand Hygiene
SHH	-	Social Hand Hygiene (routine hand washing)
ICU	-	Intensive Care Unit
IV	-	Intravenous
WS	-	Waterless Sanitizer
MDGs	-	Millennium Development Goals
UNICEF	-	United Nations International Children Emergency Fund
WSSCC	-	Water Supply and Sanitation Collaborative Council



ABSTRACT

Despite the vast research on sanitation in Ghana and the interventions provided by central government and non-governmental organisations, little is done to improve the sanitation situation in basic schools in the Kumbungu district. The main purpose of the study was to improve the sanitation situation in the Kumbungu D/A JHS using hand washing as a tool, therefore, action research design adopted. The purposive sampling technique was used to select respondents for the study. The researcher employed pre-test, observation and questionnaires as data collection tools and also obtained secondary data from journals, books and published articles related to sanitation for the study. A training module was designed with activities to effectively deal with the situation. The research revealed that the effectiveness of hand washing as a tool to improving good sanitation cannot be underestimated. It is a simple exercise that has significant beneficial impact when followed. The study revealed that using well organised training programmes on hand washing can result in good sanitation across schools which would ensure healthy lives, promote pupils attendance in schools and enhance human dignity and security.

The questionnaires administered after the intervention showed that hand washing has higher impact to improving sanitation as 76 percent of the respondents viewed it. A critical observation of respondents after the intervention showed remarkable improvement in their approach towards sanitation over the pre intervention. Attitudinal change is critical in sustaining the gains made in the fight for improved sanitation as locals have very poor attitude towards sanitary facilities in the district. If children are exposed to and encouraged to practice proper hand hygiene, they will not only stay healthy but impart that hygienic behaviour to their siblings thereby sustaining the gains made in sanitation.



CHAPTER ONE

INTRODUCTION/BACKGROUND

1.0 Introduction

Sanitation in Ghana is a big issue and having access to improved sanitation is a great challenge. Many communities and households in the Kumbungu district do not have access to decent sanitary facilities and the few available ones are not properly kept and made safe for human use thereby making community members especially children vulnerable to a wide range of diseases related to poor sanitation. An action research is therefore adopted to implement an intervention by way of equipping pupils with the skills of proper hand washing techniques and to help improve poor sanitation if not completely eradicate it to promote good life and maintain human dignity. This chapter will cover the background to the study, the perceived problem, problem diagnosis, evidence of the problem, causes of the problem, statement of the problem, purpose of the study, research objectives, research questions, significance of the study and the scope under which the study is carried out.

1.1 Background to the study.

Sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and faeces. According to WaterAid (2011), Sanitation refers to the safe management of human excreta from the point of defecation to its disposal, treatment or re-use. In the urban environment especially, sanitation also includes the management of solid waste, grey water and surface drainage. In the wider context, sanitation includes not only physical systems, but also the policies, legal and management frameworks and investments necessary to achieve sanitation for all.



According to Rajiv et al (2011), Sanitation includes use of latrine, personal hygiene, clean surrounding, proper disposal of solid and liquid wastages and hygienic behavior.

Sanitation in Ghana in general has deteriorated leading to Ghana being ranked as the 7th worst performing country in the world with regards to poor sanitation WHO/UNICEF (2015). The Joint Monitoring Programme report “Progress on Sanitation and Drinking Water: 2015 Update and Millennium Development Goals (MDG) Assessment”, a collaborative effort between the World Health Organisation (WHO) and the United Nations Children’s Fund, says that “the challenge to access improved sanitation is starker in Ghana”, “which has slipped even further amongst the worst performing countries, now ranked 7th worst globally”. In recent times there has been an outbreak of cholera and the scare of Ebola in the country which brings into focus the issue of sanitation. The Kumbungu district was carved out of the Tolon –Kumbungu district in 2012, it has a population of about 56,166 with an estimated growth rate of 3% according to the 2010 population and housing census. The issue of sanitation in Kumbungu district has gone bad due to growth in population and poor hygiene practices which has resulted into loss of lives especially in children. Available data from various sources indicates that there has been a rise in sanitary related diseases in the district therefore there is the need to implement some interventions with some pupils of D/A JHS in the Kumbungu district as a case study. The study seeks to equip pupils with proper hand washing techniques, educate pupils on the effects of improper hand washing on their lives and the best sanitary practices that need to be adopted to help improve healthy living, attendance to school that will propel continuity in their academic pursuit.



1.2 Perceived Problem

Over the years, the sanitary situation of the Kumbungu district has worsened due to the growth in population and the lack of good hygiene practices. There has been an increase in sanitation related diseases in the past three years with malaria topping the list. This has resulted in loss of lives especially children under the age of 14. A preliminary survey and observation of pupils' attendance in the school revealed that pupils partly absent themselves from school due to sicknesses related to hygiene. An observation of the pupils' behaviour showed they are ignorant on issues of sanitation and personal hygiene and significant efforts are not put in place to nip the problem in the bud. It is against this backdrop that a case study is adopted to help reverse the trend.

1.3 Diagnosis

A preliminary survey of the sanitary situation revealed that natives are aware of some good sanitary practices however, they are not able to implement them properly. The survey revealed that 80% of community members do not know when and how to properly wash their hands with soap. It was also revealed that pit latrines in the communities are not covered so flies are able to settle on faeces. It is noted that natives do not know how to dump their refuse appropriately. It was also revealed that community base hygiene volunteers were not equipped with the knowledge of best sanitary practices and under resourced.

Due to the above reasons, the researcher has decided to implement some best sanitary practices with the pupils of D/A JHS who will serve as agents of change in the community to improve good health.



1.3.1 Evidence

The problem of poor sanitation is rife in the school. Polyethenes, sachet water rubbers could be seen scattered all over the school compound. There are no dust bins for collecting trash positioned at vantage points. Checks at the pupils attendance register showed massive absenteeism and it was revealed that pupils partly absent themselves from school due to sicknesses related to poor sanitation. The District Health Directorate report 2014 recorded that over 60 percent of the sicknesses recorded are related to poor sanitation district wide. Data from the Zoom Lion Company Limited lamented poor sanitation is a major challenge in the country and Kumbungu district is not an exception. According to the Ghana statistical service 2010 report on sanitation, eighty percent of the households in the district reported that they have no toilet facilities and resort to the bush, seven per cent reported that they use Kumasi Ventilated Improved Pit (KVIP); six percent of households use public toilets and five percent use pit latrines. Households who use water closet or bucket/pan reported a cumulative proportion of less than one per cent. The households who share separate bathrooms in the same house recorded highest proportion of 51% followed by households who exclusively use their own bathrooms 23%. 13% of households use shared open cubicles to bath. Less than one per cent of households reported to use bathrooms in other houses and river/pond/lake/dam to bath. Five per cent of households reported that they use an open space around their houses to bath. On waste disposal, the report stated that the two most frequently used means of waste disposal in the entire Kumbungu district is dumping in public dump(open space) (56%), and dumping indiscriminately (15%). Households that bury refuse constitute one per cent and that is the least method used.



1.3.2 Causes

The attitude of community members stifles the efforts of organisations and individuals in fighting poor sanitation. A critical observation of the sanitation situation showed that community members do not adhere to good hygiene practices provided by health personnel, community based hygiene volunteers, zoom lion and other bodies concerned with improved sanitation. Some community members could be seen resorting to easing themselves in the bush abandoning pit latrines built in the neighbourhood and the few available ones not properly maintained and made safe for human use. Improper disposal of solid waste generated from homes is another cause. Community members do not know how to dispose of refuse; they pour the refuse in front of their homes and do not see anything wrong with that resulting in poor sanitation. Ignorance on the part of community members on when and how to properly wash their hands help deepen the poor sanitation situation. Also lack of enforcement of laws on sanitation by authorities helps worsen the deteriorating sanitation. State institutions entrusted with the mandate of enforcing the laws on sanitation do not do so thereby making community members irresponsible with regards to sanitation.



1.4 Statement of the problem

The problem under study in this research work is the worsening sanitation situation in the Kumbungu district and in basic schools in particular. Observation of sanitary facilities and practices in the community and in basic schools in particular, showed that the sanitation and hygiene situation leaves much to be desired. Choked gutters, insufficient public toilets, the habit of not washing hands with soap at critical moments, lack of hand washing facilities in the school, lack of dust bins among others are factors that hamper the efforts provided by central government, individuals and organisations for improved and sustained sanitation. The absence of these facilities results in contraction of preventable diseases and loss of lives. Waste management in the District is not solely in the hands of individuals but it is a collaborative effort. Organizations and individuals might be playing their roles to manage solid waste, but this is not adequate enough judging from the amount of waste generation. Kumbungu is a fast growing area with a lot of economic activities taking place daily. Community members engage in petty trading with limited resource to dispose the garbage generated. With the rapid increase in the popularity of cellular phones, computers, television sets and other electronic gadgets, it has become increasingly difficult to properly dispose these broken electronic devices thereby deepening the already deplorable sanitation menace. This e-waste combined with the plastic waste choke gutters after a downpour and create stench leading to the emergence of sanitary related diseases. The researcher therefore implemented some best hand washing with soap techniques and best sanitary practices with some pupils of D/A JHS as effort to appropriately deal with the problem.



1.5 Purpose of the study

The purpose of this study was to train pupils on the techniques of good hand washing and to help develop in them the needed attitudinal changes to improve the sanitation situation in the school. Children are potential agents of change in their homes through their knowledge and use of sanitation facilities and hygiene practices learned at school, equipping pupils with the knowledge of proper hand washing techniques was believed will go a long way to have the desired impact on the key adults around the child in the community.

1.6 Objectives

Based on the purpose above, the following objectives of this research are:

- a) To train pupils on proper hand washing techniques.
- b) To educate pupils on the effects of improper hand washing through training.
- c) To equip pupils with the knowledge of proper sanitary practices through training.

1.7 Research questions

The research seeks to answer the following specific questions:

- a) What are the proper hand washing techniques that will improve pupil's health and their attendance to school?
- b) What effects does improper hand washing have on pupil's health?
- c) What proper sanitary practices can be adopted to help improve good health?



1.8 Significance of the study

The research work was quite beneficial to a wide range of individuals and institutions in the district. The school benefited in terms of funding from central government and donor agencies and also presented a good image to the outside world. The pupils benefited in terms of their academic performance since the study resulted in improved attendance to school. The parents were not left out with regards to significance of the study. Parents had enough time to go to work since time spent caring for sick ones was cut out and also save them money that would have been spent on medical bills. The study was beneficial to the Ghana Education Service largely because less time and resources were injected in monitoring pupil's attendance to school.

A study of this nature was significant for a number of reasons:

Firstly, the study identified the sanitation situation in basic schools in the Kumbungu district, which informed measures to be taken to address the challenge.

The study came out with some relevant suggestions that could help inform further research in the area to help make the district sanitation free. The findings of the research can help the Ghana Education Service (GES) and the District Directorate of Education to come out with policies and programmes that will sharpen the skills of teachers and community members, Parent Teacher Associations (PTAs), School Management Committee (SMCs) as stakeholders to conscientise them on the need for good sanitation to enable them understand that poor sanitation threatens public health and the environment and to empower them own their sanitation and be responsible for it.



The report serves as a document on best practices on sanitation in the school which will help guide activities related to improved and sustained sanitation.

The study will also add to the literature already existing on the topic under study towards the fight for improved sanitation.

Another significance of the study was that, the findings was helpful in improving access to good sanitation which is a critical step towards reducing the impact of these sanitary related diseases such cholera, malaria, diarrhoea, trachoma which in greater extend will help create physical environments that enhance safety, dignity and self-esteem. Safety issues are particularly important for women and children, who otherwise risk sexual harassment and assault when defecating at night and in secluded areas.



CHAPTER TWO

Literature Review

2.0 Introduction

This chapter of the study carried out the conceptual analysis of the field of study, review of literature on poor sanitation, and conducted theoretical frame work which formed basis for the study to review relevant literature relating to the themes of the study. What follows subsequently is the conceptual analysis which indicates the concepts of hand hygiene. This has direct bearing with the researcher's area of study since most of the pupils who absent themselves from school are partly as a result of sicknesses related to poor sanitation.

2.1 Conceptual analysis

The study adopted the conceptual framework from World Health Organisation's Guidelines on Hand Hygiene in Health Care, WHO (2009). These guidelines among others include: hand washing standards, hygiene, cross infection-prevention and control, patient care-standards and health facilities-standards. The Organisation is encouraging hospitals, health-care facilities and educational institutions to adopt these Guidelines, which will help contribute to a greater awareness and understanding of the importance of hand hygiene, setting a decade vision to encourage this awareness and to advocate the need for improved compliance and sustainability in all countries across the world to have safer sanitation. Hand hygiene is the primary measure to reduce infections. A simple action, perhaps, but the lack of compliance among health-care providers and educational institutions is problematic worldwide. Aspects influencing hand hygiene compliance and best promotional strategies are vital for achieving good sanitation, new approaches have proven



effective. A range of strategies for hand hygiene promotion and improvement have been proposed, and the WHO First Global Patient Safety Challenge, “Clean Care is Safer Care”, is focusing part of its attention on improving hand hygiene standards and practices in health care along with implementing successful interventions in Health Care Centers and schools.

2.2 Factor under Investigation

The factor under study is the worsening sanitation situation in the Kumbungu district and in D/A JHS in particular. The researcher wants to implement an intervention as a stop gap measure to help reverse the trend.

2.3 Theoretical Background

Dr. Philipp Ignaz Semmelweis is the key proponent of hand hygiene. “Semmelweis’ Germ Theory” (1847). He worked in Vienna General Hospital in 1846 where they operated two maternity clinics. He observed that the mortality rate in the first obstetrical clinic was 13.10%; much higher than the 2.03% death rate in the second clinic. But no explanations were given to the high death rate. During a research on an autopsy of a patient who died of a fatal dissection wound; Semmelweis noticed symptoms similar to those of ‘childbed fever’. This observation prompted him to connect “cadaveric contamination with puerperal fever”. Soon after, he declared that “medical students carried infectious substances on their hands from dissected cadavers to the laboring mothers”. This also provided the logical explanation for a lower death rate in the second clinic, operated by midwives because they were not involved with autopsies or surgery. Ignaz Semmelweis then introduced hand washing standards after discovering that the occurrence of ‘puerperal fever’ could be



prevented by practicing hand disinfection in obstetrical clinics. He believed that microbes causing infection were readily transferred from patients to patients, medical staff to patients and vice versa. He then instructed his staff to always wash hands with chlorinated lime solution before and after attending to patients, drastically reducing the death rate. Dr Semmelweis' "germ theory" operated under some principles: wash hands in warm water for about 20 seconds, rub hands with chlorinated lime solution (sanitizer) among others.

A critical observation of pupil's attitudes, attendance to school and eating habits in D/A JHS revealed that pupils contract sanitary related diseases as a result of non disinfection of hands. This is further strengthened by The District Health Directorate Annual Report (2014) which recorded over 60% of the illnesses recorded being sanitary related. There is a firm connection with Dr Semmelweis' "germ theory" of hand hygiene. This literature review is to be carried out under these three thematic areas: proper hand washing techniques, effects of improper hand washing and impact of hand washing with soap.

Proper hand washing techniques

Hand Washing: Hand washing is a simple yet vital behaviour in hospitals, other medical facilities and educational institutions. According to Al-Tawfiq and Paul (2014), "hand hygiene is a general term referring to any action of hand cleansing. It includes: washing hands with the use of water and soap or a soap solution, either non-antimicrobial or antimicrobial. Or applying a waterless antimicrobial hand rub to the surface of the hands (e.g. alcohol based hand rub). When performed correctly, hand hygiene results in a reduction of microorganisms on hands". Its importance was first realised in Vienna Hospital where maternity patients were dying at a faster rate. Dr. Ignaz Semmelweis



started ordering his staff members to wash their hands before and after handling patients, drastically lowering the death rate as a result. According to Horton (2002) and Elliot (1992) as cited in Nellie (2006), the link between hand washing and contact transmission of infection was first established by Oliver Wendell Holmes in the US (1843) and in Europe by Semmelweiss (1861) (Horton, 2002). It was again well supported by Larson (1981). They both showed a drop in the rate of puerperal sepsis and its associated mortality when medical staff washed their hands between examining women during childbirth. Hands are the principle route by which cross infection occurs (Elliot, 1992) the Strategy for the Control of Antimicrobial Resistance in Ireland. He argues that “Hand washing with soap lowers the risk of having diarrhea and developing intestinal infections, an important benefit especially for children”. The spread of bacterial eye infections such as trachoma can be reduced through regular hand washing in effect reducing irritation, pain, itching, light sensitivity and discharge. “Washing hands do not only prevent one from getting sick, but also lowers the risk of infecting others. Improper hand washing is a major cause of disease world-wide and improving upon hand washing is known to have a significant beneficial impact on health both in households and across communities”. Therefore, the benefits of hand washing in maintaining good health cannot be underestimated.

Types of Organisms Your Hands Carry

Micro-organisms found on the skin include two categories:

(A) Resident Micro-Organisms (normal flora): These are usually deep seated in the epidermis, are not readily removed and do not readily cause infections. However, during surgery/invasive procedures, they may enter deep tissues and establish an infection.



(B) Transient Micro-Organisms: These are organisms that are not part of the normal flora and represent recent contamination, which usually survives for a limited period of time. They are easily removed by a good hand washing technique. They include most of the organisms responsible for cross infection, e.g. Gram-negative bacilli (E. Coli, Klebsiella, Pseudomonas spp, Salmonella spp.), Staph aureus, MRSA and viruses e.g. rotaviruses (Damani, 1997).

Methods of Hand washing: Hands must be washed frequently, for at least 20 seconds with warm water and soap. They should always be washed after using the restroom, eating, before starting food preparation, after preparing a raw potentially hazardous food and preparing a food item that is eaten raw, picking up objects from the floor, handling a pet, taking out the trash/garbage, coughing, sneezing, touching any part of the body, clearing tables and handling dirty dishes.

The Bayer Pharmaceutical Division and the Society for Microbiology funded a study in 1995 whose results were announced at the September 1996 meeting of the American Society for Microbiology. The results of the study showed that the percentage of people who say they wash their hands after using the restroom is higher than the percentage that actually do. The researchers telephoned over 1,000 adults and ninety-four percent (94%) reported always washing their hands after using a public restroom.

The researchers then observed adults in public restrooms in five major cities during a weekend in one month. They found that only 68% really did wash their hands. The observation revealed more women washed their hands than men in all five major cities. In announcing the results of the study, the research sponsors launched “Operation Clean



Hands”, a campaign to educate Americans about the health risks associated with poor hand washing habits.

Levels of Hand Hygiene: There are three recommended levels of hand hygiene to ensure that the hand hygiene performed is suitable for the task being undertaken by the Centers for Disease Control. The efficacy of hand hygiene will depend on application of an adequate volume of a suitable hand hygiene agent with good technique for the correct duration of time, and finally ensuring that hands are dried properly.

(A) Social Hand Hygiene- Routine Hand Washing: The aim of social (routine) hand washing with soap and warm water is to remove dirt and organic material, dead skin and most transient organisms. On visibly clean hands it can be undertaken using an alcohol hand rub, and this will remove transient organisms.

(B) Antiseptic Hand Hygiene: Antiseptic hand disinfection with an antiseptic hand wash agent i.e. Hydrex is generally carried out for aseptic procedures on the ward and for areas of Isolation. Hygienic hand disinfection will remove and kill most transient micro-organisms- indications for use:

- During outbreaks of infection where contact with blood/body fluids or situations where microbial contamination is likely to occur.
- In “high” risk areas e.g. isolation, ICU etc.
- Before/after performing an invasive procedure
- Before/after wound care, urethral or IV catheters etc.



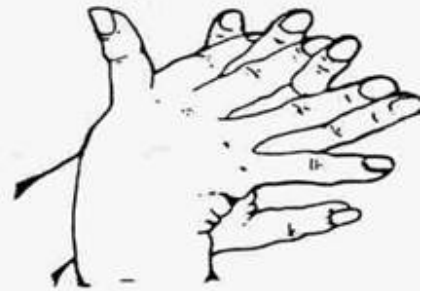
(C) Surgical Hand Hygiene: Surgical hand washing requires the removal and killing of transient micro-organisms and substantial reduction and suppression of the resident flora of the surgical team for the duration of the operation in case a surgical glove is punctured/torn. Ensure that fingernails are kept short and clean. Wrist watches and jewellery **MUST** be removed before surgical hand disinfection.



Techniques of proper Hand washing



1. Palm to palm



2. Right palm over left dorsum and left palm over right dorsum



3. Palm to palm fingers interlaced



4. Backs of fingers to opposing palms with fingers interlocked



5. Rotational rubbing of right thumb clasped in left palm and vice versa



6. Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa



(D) Areas most, less, not missed when washing hands



- Areas most frequently missed during hand washing
- Less frequently missed
- Not missed

(Adapted from Taylor L (1978), An evaluation of hand washing techniques - I, Nursing Times, 12 January, pp 54-55)

Prevention Practices

- Wash hands often with warm water and soap at least twenty seconds
- After using the restroom
- Before starting food preparation
- After touching/working with a raw potentially hazardous food (meat, fish, poultry)
- Picking up objects from the floor
- Handling a pet



- Taking out the garbage/trash
- Coughing, sneezing
- Touching any part of the body
- Clearing tables and handling dirty dishes, pots and pans and cooking utensils
- After using household cleaners
- During food preparation as needed
- Limit bare hand contact with ready to eat foods by using single-use plastic gloves, tongs, deli paper
- Wear clean aprons, clothing during food preparation

Limit hand contact with parts of plates and utensils that come in contact with an individual's mouth.

Disease Associated With Poor Sanitation: Human excreta have been implicated in the transmission of many infectious diseases including cholera, typhoid, infectious hepatitis, polio, cryptosporidiosis, and ascariasis. Under nutrition, pneumonia, worm infestations, are also associated with unsafe water, poor sanitation and hygiene resulting in reduced physical growth, weakened physical fitness and impaired cognitive function, particularly for children under the age of five.



Diseases in Indigenous communities caused by germs and parasites resulting from inadequate domestic and personal hygiene

Bacterial

- food poisoning
- gastroenteritis
- diarrhoea caused by Campylobacter
- pneumonia
- trachoma
- skin infections

Viral

- hepatitis A
- gastroenteritis
- colds and flu

Parasitic

- giardiasis
- scabies infection
- pediculosis (head lice infection)
- hookworm infection
- threadworm infection
- roundworm infection (strongyloides)



Poor domestic and personal hygiene practices can help the transmission of disease-causing germs:

- **directly** by the faecal-oral route, or by person to person or pet to person contact
- **indirectly** by vectors coming into contact with people or their food, people breathing in airborne droplets of moisture which contain germs or eating contaminated food.

Infectious agents are not the only health concerns associated with wastewater and excreta. Heavy metals, toxic organic and inorganic substances also can pose serious threats to human health and the environment – particularly when industrial wastes are added to the waste stream. Hand washing with soap removes germs from hands. This helps prevent infections because:

- People frequently touch their eyes, nose, and mouth without even realizing it. Germs can get into the body through the eyes, nose and mouth and make us sick.
- Germs from unwashed hands can get into foods and drinks while people prepare or consume them. Germs can multiply in some types of foods or drinks, under certain conditions, and make people sick.
- Germs from unwashed hands can be transferred to other objects, like handrails, table tops, or toys, and then transferred to another person's hands.
- Removing germs through hand washing therefore helps prevent diarrhea and respiratory infections and may even help prevent skin and eye infections.



Impact of washing hands with soap: Keeping hands clean is one of the most important steps that can be taken to avoid getting sick and spreading germs to others. Many diseases and conditions are spread by not washing hands with soap and clean, running water.

According to the Centers for Disease Control and Prevention of WHO (2013), they state that “teaching people especially school children about hand washing helps them and their communities stay healthy”. Hand washing education in the community helps achieve a number of benefits including: reduces the number of people who get sick with diarrhea by 31%, reduces diarrheal illness in people with weakened immune systems by 58%, reduces respiratory illnesses, like colds, in the general population by 16-21% .About 1.8 million children under the age of 5 die each year from diarrheal diseases and pneumonia, the top two killers of young children around the world.

Again, the Centers states that not washing hands harms children around the world, pointing out that “about 1.8 million children under the age of 5 die each year from diarrheal diseases” and adds that “hand washing education and access to soap in schools can help improve attendance” and that “good hand washing early in life may help improve child development in some settings.”

Al-Tawfiq and Paul (2014) argue that “there is convincing evidence that improved hand hygiene can reduce infection rates, adding that More than 20 hospital based studies (including systematic reviews) of the impact of hand hygiene on the risk of health care associated infection have been published between 1977 and 2014. Despite study limitations, almost all reports showed an association between improved hand hygiene practices and reduced infection and cross transmission rates. It is important to note that



although the introduction of an alcohol based hand rub was a key factor to improvement in nearly all the studies, the available evidence highlights that the success of improved hand hygiene compliance and reduced health care associated infection results from the overall effect of the multimodal hand hygiene promotion strategies”.

Conventional hand washing with soap and water is an excellent component of a hand hygiene program to reduce the risk of infection through hand contact; however, an alternative to the conventional hand hygiene practice of hand washing with soap and water is the use of a waterless alcohol gel hand sanitizer. “Waterless hand sanitizers, such as alcohol gels, offer quick, easy, and effective hand hygiene”. Hammond et al (2000). They demonstrated that elementary school absenteeism due to illness was significantly reduced when students practiced good hand hygiene by using an alcohol gel sanitizer.

In another study, Fendler et al (2002) showed that “alcohol gel hand sanitizers also reduced the infection rate in an extended care facility where propinquity and direct contact between residents and care givers provide ideal situations for microbial transfer and cross contamination”. “Group living environments, such as residence halls, make the spread of transmissible diseases and upper respiratory illness more likely. As in classroom situations, students in residence halls may be less likely to regularly wash their hands due to the absence of sinks in their rooms and the inconvenience of walking to the washrooms to do so”. Alcohol hand sanitizers have been shown to offer an effective alternative to conventional hand washing in elementary schools. Teaching good hand-washing skills actually improves school attendance rates.





School absenteeism causes lots of problems: kids miss out on learning, parents miss work, and sometimes schools lose critical funding. Absences are most commonly caused by illness and typically peak during flu season. It's well known that hand washing decreases the spread of many common infections including colds and flu viruses. It's also well known that school kids aren't the best when it comes to washing carefully or often enough. What to do? A group of researchers recently reported on a simple intervention which made a big difference.

Using a study group of 773 school children, ages 4-14, they investigated whether teaching and reminding kids regularly about hand-washing would be more effective than simply providing adequate time and materials (soap and hand sanitizer) to wash. They divided the study population into two groups. Both had plenty of access to soap, water and hand sanitizer but one group also had regular instruction and periodic refreshers on the importance and the technique of washing properly.

The instruction was age-appropriate. For example, finger puppets taught the pre K and K children, while older children had games and demos to drive home the message. The group who were instructed showed a significant decrease in their total absenteeism, and the absenteeism related to illness. The differences between the two groups were highest during the flu season and decreased thereafter.

The researchers concluded that school children could be taught to improve their hand hygiene and that such an improvement would be reflected in better health and decreased absenteeism, which means more time in school. They suggest that the improved attendance would improve students' academic performances. The researchers offered two

recommendations to schools, which were that school authorities should ensure that all common areas are stocked with hand sanitizer and that all bathrooms are well-stocked with soap, water and towels or hand-driers. Teachers should provide a short hand hygiene lesson for the students at the beginning of each academic year as well as refresher lessons throughout the year. Parents may wish to employ these strategies at home as well to help in the battle against contagious diseases.

According to Augustina et al as cited in Dickson (2015), The availability of adequate sanitation facilities has a positive impact on child health, partly due to the caregiver ability to perform good hygiene practices such as proper disposal of fecal matter, solid and liquid and hand hygiene care. There is strong evidence that safe disposal of children's feces has a significant positive impact on child health. Augustina et al (2013) again reported that children living in houses with less dirty sewage had a significantly lower diarrhea prevalence compared to those who did not have access to adequate sanitation; less diarrhea prevalence implies less prevalence of undernourishment among these children (36). The importance of safe water and sanitation to human health was recognized by the United Nations Secretary General Kofi Annan in his statement on "Freedom from Want" in the Millennium Report on 03/04/00: "How can we call human beings free and equal in dignity when over a billion of them are struggling to survive on less than one dollar a day, without safe drinking water, and when half of all humanity lacks adequate sanitation

WASH is an abbreviation used for Water and Sanitation Hygiene developed by Water Supply and Sanitation Collaborative Council (WSSCC). This term was lobbied for MDGs targeting sanitation problems in order to develop advocacy campaigns at a global level.



Their vision explains that proper sanitation, safe water and adequate hygiene education can reduce diseases causing an impact on poverty reduction as well as socio economic development. According to their strategic plan of 2012 to 2016 their efforts are dedicated to improve the sanitation conditions predominantly of Asia and Africa (Water Supply and Sanitation Collaborative Council 2011). Sanitation is considered to be an important part of MDGs and amongst others it is most commonly related with two targets that is to promote gender equality and empower women (MDG 3) and ensure environmental sustainability (MDG 7). However, literature can also be found relating to other MDGs such as achieving universal primary education (MDG 2) and reduce child mortality (MDG 4) as children getting affected by water related diseases can cost directly in being absent from school as well as improper sanitation and poor quality of water is the direct cause of 85% of child death due to diarrheal diseases worldwide.

Ghana has made significant progress providing access to improved water sources to 80% of the population and eliminating Guinea worm from the country. However, despite these successes, about 4,000 Ghanaian children die each year from diarrhea, even more die from pneumonia, and about 23% of Ghanaian children suffer from stunting (chronic malnutrition linked to poor water and sanitation). Five million Ghanaians still use water from unsafe sources. UNICEF Ghana, (2010).

WASH believe water and sanitation can reduce deaths projecting that hand washing can reduce diarrhea and pneumonia by up to 50%, yet less than 15% of Ghanaian households have hand washing facilities. Improved sanitation can reduce diarrhea rates by 36%, but only 15% of Ghanaians have access to improved sanitation, well short of the 2015 goal of



54%. One in five Ghanaians have no access to a toilet and defecate in the open, with open defecation rates over 70% in Northern Ghana, reflecting significant national inequalities.

Effects of improper hand washing: Absenteeism due to illness from transmissible infections is a major problem in educational institutions. Among kindergarten through public junior high school students, the transmission of communicable diseases such as viral and bacterial infections is responsible for more than 164 million lost school days per school year' CDC (2013). At the elementary school level, the major contributor to absenteeism is illness caused by the spread of microorganisms.” On school campuses, upper-respiratory illness is an important concern because upper respiratory illness occurs frequently among young adults. Such illnesses may interfere with class attendance which may in turn affect academic performance. Additionally, school health centers may have to devote significant resources to assisting students who have upper-respiratory illness. Many students who are seen suffering from viral infections that do not require medical intervention would abate by themselves. Reducing the occurrence of upper-respiratory illness has the potential to benefit students and to help health centers better utilise their resources.

Rajiv (2011), inadequate sanitation has direct effect on health of individual, family, communities and nation as a whole. Simply, having sanitation facilities increases health well-being and economic productivity. Toilet is taken as an essential and basic indicator of health and sanitation worldwide. Proper sanitation is a necessary prerequisite for improvement in general health standards, productivity of labour force and good quality of life. Every 20 seconds, a child around the world dies as a result of poor sanitation. About



80% of all diseases of the developing world is related to poor hand hygiene, unsafe water and inadequate sanitation. Worldwide, 5.3% of all deaths and 6.8% of all disability are caused by poor sanitation, poor hygiene and unsafe water. Nearly two-thirds (67%) of the total population go for open-air defecation and only one-third (33%) having access to a latrine. The lack of access to improved sanitation in Kumbungu is striking.

One key sanitary practice that can promote sanitation and reduce the rate of child absenteeism is food packaging. Susan and Peters (1992), suggest that food sellers “fill, assemble, and pack food to protect against contamination. Food containers and food packaging materials should be safe, food grade material and suitable for the product. The surface of the package that contacts the food must be as clean and sanitary as possible. This is not the case for canned foods that are processed in their packages. Check films and flexible packages for water vapor transmission, especially if your product relies on low water activity to prevent microbial growth. Obviously, the type of packaging system selected for a given product is a complex, critical decision. Protection of the product, the most important function of packaging, ultimately involves many different aspects of sanitation”.

This suggest that Food employees must wash their hands and exposed portions of the arms after touching bare human body parts, using the toilet room, handling animals, coughing/sneezing, using a handkerchief, after breastfeeding a child, eating/drinking, handling soiled equipment/utensils, as often as necessary to prevent cross-contamination, when switching between raw and ready-to-eat food, and after engaging in other activities that contaminate the hands. Food employees as a matter of necessity must clean their hands



and exposed portions of the arms in a properly equipped hand washing facility by vigorously rubbing together the surfaces of the lathered hands and arms and thoroughly rinsing with clean water. Employees should pay particular attention to the areas underneath the fingernails and between the fingers.

WHO/UNICEF (2008), says that “poor sanitation threatens public health” adding that “Sanitation is a cornerstone of public health”. “Improved sanitation contributes enormously to human health and well-being, especially for girls and women. The report suggests that simple, achievable interventions like hand hygiene can reduce the risk of contracting diarrhoeal disease by a third.”

Although World Health Organisation and United Nations International Children’s Emergency Fund estimate that 1.2 billion people worldwide gained access to improved sanitation between 1990 and 2004, an estimated 2.6 billion people including 980 million children had no toilets at home. If current trends continue, there will still be 2.4 billion people without basic sanitation in 2015, and the children among them will continue to pay the price in lost lives, missed schooling, in disease, malnutrition and poverty.

“Nearly 40% of the world’s population lacks access to toilets, and the dignity and safety that they provide,” “The absence of adequate sanitation has a serious impact on health and social development, especially for children. Investments in improving sanitation will accelerate progress towards the Millennium Development Goals and save lives.”

Using proper toilets and hand washing preferably with soap prevents the transfer of bacteria, viruses and parasites found in human excreta which otherwise contaminate water



resources, soil and food. This contamination is a major cause of diarrhoea, the second biggest killer of children in developing countries, and leads to other major diseases such as cholera, schistosomiasis, and trachoma.





POINT OF DEPARTURE: The researcher's view on hand washing is not too different from what is being said by other researchers. However, educational achievements can be attained through healthy behaviour, a healthy body and a healthy living environment. Poor sanitation and hygiene pose a big threat to young children and has devastating impact on the health of school-age children. Illnesses resulting from worm infestation as a result of poor hygiene cause children to miss significant amount of schooling. The few available sanitary facilities in Kumbungu D/A JHS do not provide sufficient space and minimal time waiting to avoid scrambling and motivate pupils to use and easily access the facilities. Again, special needs of children with disabilities are not factored into the facility design process, making it difficult for them to have easy access. In Kumbungu, the likelihood of fecal contamination of the school environment is high because the school has few latrines, poor maintenance culture of the few available facilities, inadequate water supply, poor quality of available water source, water storage in containers that allow hands to touch and contaminate stored water and lack of hand washing facilities. Besides impacting on school attendance, the resulting burden of diarrheal diseases has a negative impact on students' growth, nutritional status, physical activities, cognition, concentration and school performance. Knowledge is therefore necessary for practice of proper hand hygiene in the school environment and households. Though many teachers have basic knowledge on hand washing rules but many factors are limiting to achieve this. Simply providing safe and clean water and sanitation facilities in schools is not enough. Behavioural change is also needed to ensure proper use and maintenance of the facilities and better hygienic behaviour. In the fight against diarrheal disease, hygiene education, including hand washing, is the single-most cost-effective health intervention. Hygiene education is not

only important for a healthy school but also offers opportunities for communicating with and influencing children's families. Health, nutrition and hygiene education focuses on developing the knowledge, attitudes, values and life skills needed to make appropriate health-related decisions. An active, child-centred and participatory teaching approach is required in the promotion of hygiene life. Hygiene awareness needs to be linked to practical lessons consciously planned to involve the classroom, school environment, home and the wider community.

CONCLUSION: This study has demonstrated essential findings that have implications for total sanitation in the Kumbungu district. The attitude of natives and for that matter pupil for improved sanitation presents a picture much needs to be done. The rapid population growth and its commensurate waste generation present urgent need for authorities to provide the needed infrastructure to keep pace with the increasing volumes of waste generated. Change in attitudes, stronger institutions, sufficient funds among others is what is required to deal with the sanitation menace in the Kumbungu district and D/A JHS in particular.



CHAPTER THREE

METHODOLOGY

3.0 Introduction

Having reviewed literature in the previous chapter, certain key issues have been identified in relation to the objectives of the study which are relevant to the study of hand hygiene in the school. This chapter presents the procedures that were used in collecting data and the tools for analysis that was used in interpreting the data. This covers the profile of the study area, the research design, strengths and weaknesses of the design, population and sample selection, sample with observation, questionnaires and interview as the research instruments, intervention design and implementation, pre-intervention, intervention, implementation of strategies, post intervention and analysis of data in an attempt to address the sanitation challenge in the school.

3.1 Profile of the study area

The Kumbungu district was carved out of the Tolon –Kumbungu district in 2012, it has a population of about 56,166 with an estimated growth rate of 3% according to the 2010 population and housing census. It is located at the western corner of the Northern region, between latitude 32° and longitude 47°.

The District shares boundaries with Savelugu-Nanton Municipality to the East, Tolon District to the South, North Gonja District to the West, and to the North with Mamprugu/Moaduri District respectively. The indigenes are predominantly farmers and agro based business operations. The population of the Kumbungu area has grown, consequently, its



attaining of a district status. Kumbungu Junior High School is one of the thirty (30) public Junior High Schools in the District. The school is located in Kumbungu the District capital. It was established in 1987 by the government of Ghana to expand access to basic education to its catchment area and to facilitate the implementation of the Free Compulsory Universal Basic Education (FCUBE) Programme. It started with about twenty-seven (27) pupils and staff strength of four (4), the school has now grown with school population of 280 in the 2016/2017 academic year with teaching staff strength of twenty six (26).

3.2 Research Design

The design of the study was Action Research. The researcher chose this design because he aimed at helping pupils to solve a perceived problem of poor sanitation in Kumbungu D/A JHS.

Action research according to Cohen and Masion (1994), is defined as a systematic objective analysis and recording of controlled observation that may lead to development of generalisation or theories resulting in prediction and possible ultimate control of events.

The reasons for the choice of this design include:

1. The design is to help the pupils to practice proper ways of washing hands in school and at home to enable them stay healthy and also to live good life.
2. Besides that it also help the pupils to understand that poor sanitation has negative impact on their attendance to school which adversely affect their performance.

Strengths and Weakness of the Design: The value of action research allows for both the teacher and students to learn about the research process by being there and by doing instead of being told how it is done.



The strengths of the research among others include the following:

1. It helps the teacher to understand what actually goes on in teaching and learning situation as rightful methodologies are enhanced.
2. It does not enhance only teachers' professional status but also promotes teachers' personal development and improvement of his/her practices.

The weaknesses of the research design are:

There were difficulties in the collection of data as students involved were not all willing to collaborate with the researcher. The prefects particularly reported late during the research process since they were engaged with other responsibilities in the school.

3.3 Population of the study

The school has a total population of two hundred and eighty (280) pupils with one hundred and forty seven (147) being boys and one hundred and thirty three being girls (133) in the 2016/2017 academic year, with teacher staff strength of 26 including the headmaster. The table below illustrate the enrolment of the school.

Table 3.1; school enrolment 2016/2017 Academic Year.

FORM	BOYS	GIRLS	TOTAL
F1A	27	24	51
F1B	28	13	41
F2A	12	22	34
F2B	16	21	37
F3A	35	22	57



F3B	29	31	60
TOTAL	147	133	280

Source: Office of the headmaster.

Table 3.2: Demographic data of staff in the school

SUBJECT TEACHER	SEX	AGE	QUALIFICATION	RANK
ENGLISH LANGUAGE	M	34	B.Ed. Basic Education	P/S
ENGLISH LANGUAGE	M	32	B.A. Sociology with political science	P/S
ENGLISH LANGUAGE	M	36	Diploma in Basic Education	SNR.SUPT. II
MATHEMATICS	M	29	BSc. Accounting	P/S
MATHEMATICS	M	29	B.Ed. Basic Education	P/S
MATHEMATICS	M	35	B.Ed. Accounting	P/S
INT. SCIENCE	M	26	Diploma Basic Education	SNR. SUPT. II
INT. SCIENCE	M	39	B.A. Management and Psychology	P/S
INT. SCIENCE	M	27	Diploma in Basic Education	SNR. SUPT. II
SOC. STUDIES	M	39	Diploma in Basic Education	SNR.SUPT. II
SOC. STUDIES	F	24	Diploma in Basic Education	SNR. SUPT. II
SOC. STUDIES	M	43	B.A. Social Studies Education	P/S
FRENCH LANGUAGE	M	28	Diploma in Basic Education	SNR. SUPT. II
FRENCH LANGUAGE	F	25	Diploma in Basic Education	SNR. SUPT. II
I.C.T.	M	35	B.Ed. Basic Education	P/S
I.C.T.	M	29	Diploma in Basic Education	SNR. SUPT. II



RME	F	35	Diploma in Basic Education	SNR. SUPT. II
RME	F	24	Diploma in Basic Education	SNR. SUPT. II
RME	M	28	Diploma in Basic Education	SNR. SUPT. II
BDT	M	31	B.Ed. Basic Education	P/S
GH. LANGUAGE	M	42	B.Ed. Basic Education	P/S
GH. LANGUAGE	M	30	Diploma in Basic Education	SNR. SUPT. II
BDT	M	34	Diploma in Basic Education	SNR. SUPT. II
ICT	M	32	B.Ed. ICT	P/S
RME	F	31	B.A. Integrated Development Studies	P/S
BDT	F	30	Diploma in Basic Education	SNR. SUPT. II

Source: Office of the Headmaster.

3.4 Sample and Sampling Technique

Purposive sampling technique was used to deliberately select the sample for the study. Purposive sampling seeks to get all possible cases that fit particular criteria (Lind et al, 2005). The study comprised all newly elected prefects of the school numbering 14, form masters of the four classes, 6 pupils each from form 2A, and 5 pupils from 2B, 10 pupils each from form 1A and 1B and the school SHEP coordinator totalling 50 clients.

3.5 Data Type and Source

The researcher obtained data from both primary and secondary sources. The primary data was collected through interviews conducted, observation, and questionnaires administered to pupils. Relevant books, articles and journals were the secondary source of data.



3.6 Data Collection Instruments

The researcher in trying to look into the problem of poor sanitation in the school, he adapted pre-test, observation, interview and questionnaire to enable him gather information.

Pre-Test: Pre-test was conducted to ascertain the knowledge gap in hand hygiene awareness of pupils in the school which helped informed and reshaped the intervention strategy. The researcher engaged the respondents in a discussion and later gave them some questions to answer. The questions focused on personal hand hygiene and some sanitary practices that pupils need to perform to stay healthy. The test lasted for about 25 minutes and scores were recorded subsequently. From the pre-test, the researcher had better opportunity to adopt appropriate intervention programme and sensitized respondents on how to improve their sanitation. After the intervention, a post-test parallel to the pre-test was conducted one week after the intervention. The pre-test and post-test helped the researcher in assessing the performance of respondents on the issues relating to sanitation.

Questionnaire: A questionnaire is a written list of questions, the answers to which are recorded by respondents. According to Kumejpor (2002) a questionnaire is a form or document containing a number of questions on a particular issue or problem or opinion to be investigated.



Questionnaires were distributed to respondents to collect information on the respondent's background and elicit responses from respondents concerning the research questions and their opinion on other matters related to the research topic.

The researcher used closed ended questions to gather information from participants on the research topic. Respondents had the opportunity to pick their choice of response base on how they feel about the issue.

Observation: Observation is a purposeful, systematic and selective way of watching and listening to an interaction or phenomenon as it takes place (Ranjit, 2005). The researcher also collected data through observation. He observed the pupil's attendance registers for regular absentees in the classrooms and the pupil's behaviour towards the environment noting facts than relying on their willingness to provide information. The researcher directly saw what pupils did rather than depending on what they say they did through observation.

Interview: Data on absenteeism by pupils was obtained using interview. The interview was semi-structured. This helped the researcher to probe the pupils to gather valid and reliable in-depth information of attendance and pupils understanding of issues of sanitation through their responses. It was useful to the researcher to gather quotes and also allowed the respondents describe what was important to them.

3.7 Data collection Procedure

The procedure for collecting data was done in three stages; data was collected during the pre-intervention stage, intervention and post intervention stage.



3.7.1 Situational Analysis (Pre-Intervention)

Before the implementation of the planned activities, pupil's attitude towards hand washing and solid waste disposal were carefully observed in the 3rd and 4th week of the term and recorded. The school environment was visibly littered irrespective of the hour of the day. The rate of absenteeism in the school was also recorded within that period. The researcher sought the consent of school authorities and that of participants and assured them of data protection and confidentiality before rolling out the planned intervention. A pre-test to ascertain the knowledge gap in relation to sanitation was administered which shaped the intervention strategy the researcher used.

3.7.2 Intervention

Messages on hand washing were then given during morning and closing assembly of the school to drum home the effects of improper hand washing. Charts on hand washing obtained from Ghana health service were also displayed on walls in the classrooms to create pupils awareness on proper hand hygiene and some containers procured to be improvised as refuse bins placed at vantage points for waste collection. A promise of reward for the neatest section of the school compound was given by the researcher and duly honoured to promote good sanitation.

Intervention Design and Implementation of strategies: Implementation of planned strategies brought into action the nurses and other professionals who were invited from different fields to train pupils on how to properly wash hands with soap under running water and on other themes of the study. Training programme according to Mathis and Jackson, (2004) in an organization is a process by which people acquire skills and gain the



needed knowledge or attitude to enable them carry out their responsibilities to meet the required standard in the present job and to undertake greater and more demanding roles for effective job performance. Organizations or institutions recruit new employees every year and the fact that the world is changing at a very fast pace requires every organization and institution to respond to these changes. It is for these reasons that institutions and organizations need to initiate training to their employees to prepare and equip them with current skills and knowledge to be able to perform their duties, especially on hand washing.

Orientation, according to Bennet (2001) is a unique kind of training designed to support new entrants to learn about their roles or tasks, to be introduced to their co-workers and to settle in their work situation

The need for orientation training particularly for school children is important to improve their knowledge and performance in enforcing school rules and regulations on environmental practices to maintain proper sanitation in the school. The success of every school is closely related to its effective enforcement of its rules and regulations. There are many objectives that training help achieve in an institution. Pertinent among them are those posited by Lawson and Dolan.

Lawson and Dolan (2011) identified several objectives that orientation training programme aims to achieve which are as follows: to provide complete information to newcomers that helps them to integrate easily and smoothly into the organization; to introduce new entrants with organisation cultures, values, code of conduct and philosophy of the company; to identify the importance of their role within the organization; to describe new entrant to



their department goals and their performance in helping meet those goals; to make newcomers feel welcome and provide them satisfaction that their decision proves to be right by joining the respective company; to promote communication between employee and management of company; to create a feeling of excitement about being a part of the organization and help to motivate them for their upcoming task that they would probably perform with the organization. New students in school need to be given orientation training to properly equip them to adhere to environmental practices in order to sustain the achievements made in improving the sanitation situation in the school.

Below is the training model designed for training the participants.

Training Module

This module was purposely designed to train pupils on techniques of good hand hygiene to help improve the sanitation situation in the school.

The structure, strategy and activities of the module are with due cognisance of the kind of audience expected to be involved in the training programme. It took into consideration the fact that participants are teenagers who come into the process with their own experiences and expectations. Therefore, child learning principles were taken into consideration. The module was structured to enhance facilitator's direction, cooperativeness and active learning among participants and facilitators.



Facilitators Role: The facilitators for the training were positioned as lead guide who supported participants and walked them through various processes that enabled them perform the expected activities and learning from the process. Facilitators positioned themselves as moderators, coordinators and motivators of learning. They worked with participants to define roles, set ground rules and monitor compliance right from start. The facilitators' major role was to create a conducive atmosphere enough for participants to open up and share their experiences.

Participants Role: Participants were the central tool for the training. Their active involvement must not only be encouraged but be drawn upon as the basis for driving learning in a cordial and co-operative environment where all participants' views are respected and tapped to serve as the basis for the expected learning and sharing outcomes. Participants needed to understand that the knowledge and skill set intended in the module can only be realized if they play their parts as active learners.

Rationale of the module: The module is a two-day participatory training program that took place at the demonstration room of the school ICT center. It is designed to equip pupils of Kumbungu D/A JHS on good hand washing techniques and best sanitary practices to promote total sanitation in the school.

Goal and objective of the training



Goal: The goal of the training was to sensitise pupils of Kumbungu D/A JHS on proper hand washing techniques and their responsibilities as students to ensure and maintain proper sanitation in the school.

Objectives

- To recognize the effect of not washing hands with soap.
- To demonstrate proper hand washing techniques with soap and water.
- Recognize the need to cover pit latrines after use
- Accept responsibility for keeping their environment clean.

Module design: The training was conducted for teenagers and adults who range from the ages 13-17 and adults ranging 25-35 and above therefore child and adult learning principles were taken into consideration. The training was mostly a participatory one with participants sharing their experiences and knowledge on the issue and trainer serving as a guide.

The training sort to equip the participants with knowledge about the issue of sanitation and sanitation related diseases; it also equipped participants with skills on how to properly wash hands with soap in school and at home. Lastly the training imbibed in the participants the attitude of taking responsibility for their own environment; therefore the following methods for training were used.

Table 3.3 Methods of Training Delivery





Methods to use	Advantages	Disadvantages to note	How to overcome possible challenges
<p>Lecture</p> <p>Lecture-Forum (with question cards or question/answer period)</p>	<p>Conveys large sum of information; fast; efficient forum allows exploration of content in more detail.</p>	<p>Audience is largely Passive. Trainer</p>	<p>Trainer should be an interesting speaker, able to self-limit and stick to time, be able to facilitate questions Effectively.</p>
<p>Group Discussion (of given topic)</p> <p>Buzz Groups (short, time-limited discussion on given subject)</p>	<p>Keeps participants interested and involved Resources can be discovered and shared. Learning can be Observed. Participants are active; allows chance to hear other points of view; quieter</p>	<p>Learning points can be confusing or lost. A few participants may dominate the Discussion. Time control is more Difficult. Inexperienced leader may be unable to use format for attitudinal Purposes.</p>	<p>Trainer should be able to give clear instructions and keep Discussion on target. Main function is judging when to cut Off discussion. Trainer divides large group into small groups; groups of 4–6 are most effective. Small group has a</p>



	people can express viewpoints and ideas		short time to discuss a topic or solve a problem
Brainstorming	Can get all participants involved in collecting a lot of information. Quickly generate ideas. Good for problem solving; quick change of pace; filler; allows all to participate; validates ideas of group.	The problem/issue must be clearly defined. Time control is more difficult. Need clear trigger questions and evaluation/discussion; afterwards; somewhat over-used method; requires careful facilitation.	For idea generation and creative group thinking; all participants present many ideas as rapidly as possible on a problem or issue. Then group organizes list into categories for further discussion. Do not evaluate, criticize, omit, or discuss contributions until all are written; record



			in contributor's own words; use another person to record if possible
Task Groups	Sustained interaction allows quieter people to express themselves; validates participants	Time consuming; requires great degree of self-direction and group maturity	Keep groups small and diverse with sustained interaction and clear purpose
Demonstration with practice	(by participants) Aids comprehension and retention. Stimulates participants' interest. Can give participants model to follow. Allows for optional modelling of desired behaviour/skill; can be active; good for learning simple	Written examples can require lengthy preparation time. Trainer demonstrations may be difficult for all participants to see well. Method more effective if participants are active; feedback must	Participants are shown the correct steps for completing a task or are shown an example of a correctly completed task. Requires skill to model desired behaviour; break procedure down into simple steps; ability to provide feedback

	skills. Must be accurate and relevant to participants.	follow immediately after practice	
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Training Resources

The following materials were used in the training process: basins, soaps, water, flip chart, note pad and pens, charts, markers, projectors, laptop, pictures hand sanitisers, improvised dust bins etc.

Training officers

Facilitators for the training were drawn from Environmental Health Department, The District Disease Control Officer, and Nurses from Ghana health service to do the training.

Training content:

- participants delved into the concept of sanitation and health
- Best hygiene practices.
- Hand washing with soap and water.
- Sanitary related diseases in Ghana and northern regions



Table 3.4: Topics for the Training

Content	Content details	Estimated time	Trainer/facilitators
Sanitation and health	Understanding basics of sanitation and health, the role of various stakeholders to ensure good sanitation	3hours	Mr. Alhassan
Hand washing	Hand washing and significance, demonstrating proper hand washing. (video of hand washing with soap).	2hours	Madam Sala
Keeping of latrines	How to keep latrines safe.	1 hours	Madam Cecelia
Sanitary related disease	Sanitary diseases, causes, effects and modes of prevention.	3hours	Mr. Stanley
Role of children in staying healthy	What will I do as a child to ensure good hygiene	45minutes	Madam Angelica



3.7.3 Post-Intervention

There was a significant improvement in the way pupils and teachers in the school reacted to the environment four (4) weeks after the intervention. They could be observed dropping sachet water rubbers in the improvised dust bins and the desire to wash hands before eating and after visiting urinals/touching critical areas was there as pupils were observed unnoticed willingly complying with hand washing rules. A reward of extrinsic form was given on Friday of every week for decency to the neatest section in the school.

3.8 Data Analysis and Presentation

The data recorded were analysed and presented using frequencies, simple percentages and pie chart.

3.9 Data Quality and Ethical Issues

The fact that the study will be using human participants in gathering data to improve the sanitation situation in the school through training on hand washing, ethical issues was considered. The researcher assured participants that any piece of information divulged will be handled with the strictest confidentiality. Among the significant issues that were considered included consent, confidentiality, privacy and data protection. The researcher sorted the consent of respondents and assured them of data confidentiality and privacy so that they will be more open and to share ideas in a more relaxed manner. This will be done with the utmost hope that it will promote trust between the researcher and the respondents. Confidentiality and anonymity was an essential element on the research agenda and was adhered to throughout the entire research period.



CHAPTER FOUR

RESULTS AND DISCUSSION OF PRE AND POST INTERVENTION RESULTS

4.0 Introduction

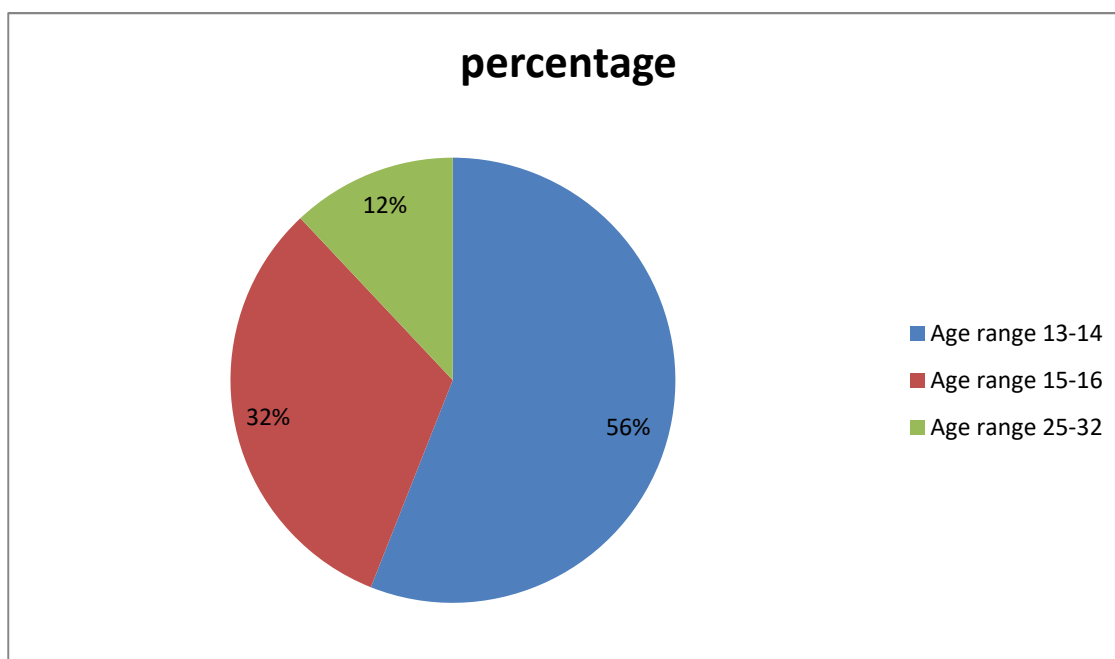
This chapter of the research work deals with the demographic characteristics of the respondents, analysis and discussion of results of Pre and Post test data collected in the field and the challenges that hindered the effective implementation of the planned intervention.

4.1 Demographic Characteristics of Respondents

The demographic characteristics of respondents comprised of 23 males and 27 females, with 56% of the respondents ranging between 13 and 14. Ages between 15 and 16 of the respondents formed 32% and the remaining 12% being the form masters who fall between ages 25 and 30.



Figure 4.1: Demographic Characteristics of Respondents



4.2 Discussion of Pre and Post intervention Results

4.2.1 Results of Pre-intervention Test

Before the training was conducted, the researcher carried out a pre-test to ascertain the knowledge gap in hand hygiene to enable him design an appropriate intervention to bridge that gap. Below is the result of the pre-test administered.

Table 4.1: Pre-test Results

Score	Frequency	Percentage (%)
0	-	-
1-5	39	78
6-10	11	22

Source: researcher's construct



Discussion of Pre-intervention test Results

The table above shows the scores of fifty (50) participants collected at the pre-test stage. Out of ten marks scored, 39 respondents representing 78% scored between 1 and 5 marks while 11 respondents representing 22% scored between 6 and 10 marks. This score paints a gloomy picture of the hand hygiene situation in the school as 39 respondents scored between 1 and 5 as against 11 respondents scoring between 6 and 10. This result affirms the researcher's perception of poor hand hygiene in the school. Apart from the test results, the pupils were observed eating without washing hands, and they did not also wash hands after touching critical parts of the body. During the pre-test some of the respondents could not identify simple hand washing techniques. The pre-test questions can be found at the appendices. The above situation informed the researcher to conduct training on proper hand washing with the pupils of the school to help reverse the situation.

4.2.2 Post-intervention Results

Table 4.2: Post-test Results

Score	Frequency	Percentage (%)
0	-	-
1-5	5	10
6-10	45	90

Source: researcher's construct

The above table shows the scores of post-test marked out of 10 marks. For the purpose of comparison and finding out the success or otherwise of the intervention, parallel test to the one used at pre-intervention stage was conducted to ascertain the impact of the intervention



and 5 out of the 50 respondents scored between 1 and 5 representing 10% of the respondents while 45 respondents out of 50 scored between 6 and 10 representing 90% of the respondents. This results shows that the intervention has had significant impact on the hand hygiene situation of the participants as only 5 respondents scored between 1 and 5 in the pre-intervention test results as against a figure as high as 45 scoring between 1 and 5 in the post intervention test results.

A careful observation of the behaviour of the respondents as far as their responds to hygiene needs was concern over the period of the study revealed that their behaviour improved significantly after the implementation of the intervention programme. This stimulated their thinking, interest and commitment as far as their duties and responsibilities were concerned leading to improved sanitation. Pupils were observed unnoticed exhibiting different techniques in hand washing, thereby answering the question on the techniques of proper hand washing.

The researcher engaged the respondents in a focus group discussion as part of the training to identify the effects of improper hand hygiene and ways of improving sanitation in the school. This motivated them to see the need to have greater interest in their hygiene issues and responsibilities. The respondents through dialogue were able to come out with alternative solutions to problems they may encounter in their responsibilities as agents of change. The prefects came out with problems they face and how it affected their performance. The researcher used the opportunity to educate prefects on how to handle those problems to improve sanitation in the school. This answered the questions on effects of improper hand washing and the proper sanitary practices that need to be adopted to



improve sanitation in the school. A cursory look at the pupil's attendance significantly improved over the period.

Table 4.3: Shows attendance of pupils before and after the intervention.

Before/After	Total no. Of students	No. Present	Percentage (%)
F1A			
Before	51	32	62.75
After	51	49	96.1
F1B			
Before	41	28	68.3
After	41	40	97.6
F2A			
Before	34	25	73.5
After	34	32	94.1
F2B			
Before	37	27	72.9
After	37	37	97.3

Source: Pupils attendance registers

The researcher took records of pupil's attendance from their registers before and after the intervention to ascertain the veracity of the intervention on their attendance to school. The records showed that the intervention has made significant improvement on their attendance as can be seen from the above table. The rate of child absenteeism was as high as 72



percent across the classes before the intervention. The attendance during the period of the study appreciated steadily to 97.2 percent, confirming WHO (2013) position that improved sanitation promote pupils attendance and retention in the classroom across the school system.

Findings to each research question

a) What are the proper hand washing techniques that will improve pupil's health and their attendance to school?

A careful observation of the behaviour of respondents as far as their responds to hygiene needs was concern over the study period showed that their behaviour had improved significantly after the implementation of the intervention programme. This stimulated their thinking, interest and commitment as far as their duties and responsibilities were concerned leading to improved sanitation. Respondents were observed unnoticed exhibiting different techniques in hand washing such as palm to palm, palm to palm fingers interlaced, right palm over left palm, right palm over left dorsum and left palm over right dorsum thereby answering the question on the techniques of proper hand washing.

b) What effects does improper hand washing have on pupil's health?

The respondents were engaged in a focus group discussion as part of the training to identify the effects of improper hand hygiene and ways of improving sanitation in the school. The findings were that improper hand washing results in sicknesses leading to absenteeism and also haven greater impact on academic performance since pupils stay away from school. Improper hand washing imposes financial burden on parents, care



givers and central government since much of the resources that would have been used in catering for other services are channelled in treating preventable diseases.

c) What proper sanitary practices can be adopted to help improve good health?

A number of practices were adopted to promote proper sanitary practices and to improve good health. Regular hand washing or use of hand sanitiser, proper disposal of solid waste within the school set up, attitude of respondents towards the environment and avoiding open defecation among others were revealed to be practices to improve good health. Providing support to local level sanitation plans and strategies, doing more work on faecal sludge management and communicating the benefits of investing in sanitation to schools were also revealed to be good practices. This answered the question on best sanitary practices that can be adopted to improve the health of respondents.

4.2.3 Perception of Respondents about the Training Programme

After the post intervention, the participants were given questionnaires in the form of evaluation to assess the impact of the entire intervention from their own perspectives. It was ranked from low impact, high impact and higher impact. Below is the result.

Table 4.4: Perception of Respondents after the Training

Description	Number	Percentage (%)
Higher	38	76
High	9	18
Low	3	6

Source: researcher's construct



From the table, it can be seen that 38 of the respondents representing 76 percent viewed hand washing as having higher impact in improving hand hygiene and maintaining good health. 9 respondents also representing 18 percent revealed that the training has high impact in keeping hands clean and largely improving their health status and 3 clients representing 6 percent posit that hand washing has low impact in promoting good health and well-being.

Several opinions were expressed by participants on how to improve the sanitation situation in the school which included the formation of a health club, provision of dust bins and hand washing equipment. Again it was suggested that prefects be trained on how to maintain sanitation in the school, rewarded and given enough support for their good work as a way of motivation.

4.3 Challenges that Hindered the Effective Implementation of the Programme

The implementation of planned activities to help improve the sanitary situation in the school suffered some challenges. Key among such challenges was time for meeting clients. The time for meeting clients to carry out the planned intervention conflicted with contact hours for lessons in the school. The pupils had divided attention as their colleagues do partake in normal school lessons while they were engaged in the research process thereby hindering the effective implementation of the intervention.

Some of the prefects reported late for the training as they were engaged in other responsibilities in the school. This delayed the starting time scheduled for the start of the programme.



Finance was another challenge that hindered the effective implementation of the intervention. The cost of providing and installing modern hand washing equipment in all the classes for washing hands in the school was quite expensive. The researcher had to resort to improvised materials and less costly items for this study. The clients were therefore not exposed to modern hand washing equipment.

Also, getting the resource persons to conduct the training did not come at ease. A lot of follow- ups were made before the training was finally carried out.



CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter of the study deals with the summary of the study, conclusions drawn from the study and recommendations for the future. The summary deals with key areas of the study while the conclusion seek to highlight on the major findings of the study and the recommendations draws attention to bodies, agencies and stakeholders concerned with sanitation to formulate and implement policies to help improve the sanitation situation.

5.1 Summary

The purpose of the study was to improve the deteriorating sanitation situation in Kumbungu D/A JHS in the Kumbungu District through training on proper hand washing techniques. The researcher developed research objectives from which research questions were formulated and answered by the study findings. Review of relevant related literature was conducted on techniques of proper hand washing, the effects of improper hand washing and finally best sanitary practices that need to be adopted that lead to improved and sustained health. Both conceptual and theoretical frameworks which served as basis for the study were conducted and a training model designed to guide the training programme.

The study used action research design. Purposive sampling method was used to select clients for the study. A study population of 50 participants were taken as target group for



the study. The researcher used test, interviews, observation and questionnaires as tools to gather data from the participants. The data was analyzed using descriptive statistics.

The findings of the study established that hand washing has positive impact in maintaining good health and ensuring proper sanitation in the school. Participants developed positive attitudes in responding to issues of sanitation and resolved to own and maintain their environment after the intervention. The exposure of prefects to the effects of improper hand washing and best sanitary practices that need to be adopted better placed them to carry out their responsibilities after the intervention than before.

Some of the prefects were observed and found to have short-comings such as slow response to duty, poor communication. Several opinions were given on how to improve the sanitation situation in the school. It was also suggested that prefects be awarded for their good work.

5.2 Conclusion

The effectiveness of hand washing as a tool to improving good and sustained sanitation cannot be underestimated. It is a simple exercise that has significant beneficial impact when followed. Therefore, if children are exposed to and encouraged to practice proper hand hygiene, they will not only stay healthy but promote their attendance to school and impart that hygienic behaviour to their siblings thereby sustaining the gains made in sanitation. Comparing scores in the pre-test and post-test results showed significant improvement in the post-test over the mark for the pre-test, this means that the purpose of the study has been achieved. Inference can therefore be made that using well organised training programmes on hand washing can result in good sanitation across schools which



would ensure healthy lives, promote pupils attendance in schools and promote human dignity and security.

5.3 Recommendation

From the findings of the study and the challenges encountered during the research process, the following recommendations are made to ensure total sanitation in schools.

- Hand washing equipment should be installed in all the classes to encourage and motivate pupils to wash their hands at critical times. The installations should be made disability friendly to enable the disable have easy access to the facilities.
- School administration should prioritise sanitation by providing dust bins for both pupils and teachers to easily dispose trash to help promote improved sanitation in the school.
- Reward of extrinsic form should be given to prefects who perform their roles diligently especially those relating to sanitation to help sustain gains made in sanitation.
- Constant orientation training on hand hygiene and ways of maintaining hygiene equipment should be organised for pupils at the beginning of the academic year to brief them on the need for washing hands and maintaining sanitation. Here, resources should be made available by authorities for this exercise.
- The Ghana education service should redesign the curriculum to fuse in hygiene lessons in all subjects across the curriculum.
- Environmental health education must be intensified on the importance of living in a clean environment.



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APPENDICES

APPENDIX A

PRE-TEST FOR THE COLLECTION OF PRIMARY DATA.

This study is being undertaken to improve the sanitation situation in the Kumbungu D/A JHS. This pre-test helped informed the knowledge gap of pupils in sanitation which helped reshape the intervention strategy employed. The information gathered assisted the researcher to recommend the formulation and review of policies and programmes that will ensure that the sanitation situation is improved to promote pupils health and attendance to school. The information needed will be treated with utmost confidentiality and used strictly for the purpose of this academic research.

Pre-test questions.

1. What do you do immediately after visiting the urinal?
2. Do you usually wash your hands with soap under running water?
3. How many times have you received training on hand washing? One time [] two or more times [] none [].
4. What do you think are the effects of not washing hands with soap?
5. Apart from soap, what other thing do you think can be used to clean hands?
6. Washing my hands before eating a meal reduces the risk of getting cholera.
True [] False [].



7. Does poor hygiene have negative effect in your attendance to school?

8. Mention only one sickness related to poor hygiene.

9. Mention one benefit of washing hands.

10. (i) Which of these make you absent yourself from school? My parents []

sickness

(ii) If “sickness” in 10 (i), what type of sickness?



APPENDIX B

POST- TEST QUESTIONS

This post-test was administered to ascertain the improvement the intervention strategy has had on pupils approach towards issues of sanitation.

Post test Questions

1. Washing your hands with soap and water can remove up to 99% of the germs from your hands. **True** [] **False** [].
2. You cannot get a cold or flu from touching door handles. **True** [] **False** [].
3. What do you need do before cooking?
4. Is it necessary to carry hand gel sanitizer with you? **Very necessary** [] **No need** []
5. Mention any **two** effects of not washing hands with soap.
6. List any **two** sanitary practices that can promote good sanitation in the school.
7. Mention any **two** benefits of washing hands with soap.
8. Identify the disease that is **not** related to poor sanitation. Malaria [] diarrhoea [] skin infection [] sickle cell [].
9. Name any two techniques of hand washing.
10. Hands must be washed for at least..... 5 seconds [] 10 seconds [] 15 seconds [] 20 seconds [].

