

ENSIGN GLOBAL COLLEGE

KPONG, EASTERN REGION, GHANA

ASSESSING HUMAN EXCRETA DISPOSAL PRACTICES AT SENCHI FERRY IN THE  
EASTERN REGION OF GHANA

BY

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PUBLIC HEALTH.

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# DECLARATION

I declare that this submission is my work for the master's degree in public health and that, to the best of my knowledge, it does not contain any material that has been previously published by another person or material that has been accepted for the award of any other degree from the college, except any instances where appropriate acknowledgment has been made in the text.

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## **DEDICATION**

Firstly, I give all thanks to Jehovah God for his immense grace, knowledge and protection he granted me during my school journey and completing this thesis successfully.

I dedicate my study and this thesis work to my parents, who supported me throughout this journey and served as my source of inspiration and motivation.

To my siblings, friends, and classmates who gave me words of wisdom and motivation to complete this research, I dedicate this work to you also.

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## **LISTS OF ACRONYMS**

BCC	Behavior Change Communication
GHS	Ghana Health Service
HDS	Hygienic Disposal of Stool
HED	Human Excreta Disposal
LMICS	Low- and middle-income countries
NGO	Non-Governmental Organizations
OD	Open Defecation
ODF	Open Defecation Free
SBCC	Social and Behavior Change Communication
SDG	Sustainable Development Goals
SSA	Sub- Saharan Africa
UN	United Nations
UNICEF	United Nations International Children's Emergency Fund
WASH	Water, sanitation and hygiene
WHO	World Health Organization

## ABSTRACT

**Background:** In Africa, 300 million homes out of the two billion people do not have access to basic sanitation like most other rural communities in Ghana; the Asuogyaman District has significant sanitation and hygiene issues. Open defecation and unimproved latrine use amongst others are still in use in most rural parts of Ghana.

**Objective:** This study assessed human excreta disposal practices in Senchi Ferry, Asuogyaman District, Ghana, and identify factors associated with safe disposal of human excreta.

**Method:** This study assessed human excreta disposal practices at Senchi Ferry in the Asuogyaman District of Ghana using a quantitative research design. A systematic sampling approach was employed to select 424 participants from households in the study area. Data was collected using a structured questionnaire that covers knowledge, attitudes, and practices towards human excreta disposal. Data was analyzed using Stata 17 analytic tool.

**Results:** About 73.1 percent of Senchi Ferry houses have access to toilet facilities, Open defecation is still a common practice (29.0%), and a sizeable portion still lack access to toilet facilities. Different homes maintained very clean facilities (35.1%), while others reported dirty or very dirty conditions. Households with toilet facilities had lower diarrhea rates compared to those who did not have toilet facilities.

**Conclusion:** A higher percentage of the respondents have access to toilet facilities in their household. Open defecation is still a common practice in the community. Households with higher number of occupants showed to have high number of diarrhea rates.

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# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the study

Sustainable development Goal (SDG 6) seeks to ensure universal and equitable access to clean, safe, and accessible drinking water and sanitation and hygiene services with the aim of eradicating open-defecation (Ritchie *et al.*, 2018). Challenges to SDG 6 include challenges in implementing strategies and reforms; lack of financial support for sanitation initiatives by governing bodies and others; and over-reliance on community-based public toilets. In order to achieve proper sanitation, bodily waste must be properly disposed of. Fundamental sanitation is the most affordable technology to ensure the proper disposal of waste, and to create a clean and healthy living environment both within households and within the user community (Appiah-Effah *et al.*, 2019).

In order to achieve proper sanitation, bodily waste must be properly disposed of. Fundamental sanitation is the most affordable technology to ensure the proper disposal of waste, and to create a clean and healthy living environment both within households and within the user community (WHO/UNICEF, 2017).

Around 200 million tons of untreated human waste are produced annually because more than 2.5 billion people lack access to sanitary facilities (WHO/UNICEF, 2014). A significant portion of the 842,000 yearly deaths linked to illnesses associated to poor sanitation are attributable to open defecation and improper disposal of bodily waste, which affect about 1 billion people worldwide (WHO/UNICEF, 2017).

Out of the two billion people living in Africa, 300 million homes do not have access to basic sanitation facilities (Joint Monitoring Programme, 2019). Fewer than 1% of waste is correctly managed, and only 7% of the population is connected to sewage infrastructure. Africans use on-site sanitation facilities for the remaining 80% of the population, while about 19% of them defecate in the open (WHO, 2017).

As of 2011, a large 87% of Ghanaians continued to use inadequate sanitation facilities, with 59% sharing facilities, 10% using ones that had not been renovated, and 18% engaging in open defecation (WHO, 2017). However, in a number of low- and middle-income countries, including Ghana, inadequate sanitation and hygiene practices—particularly improper disposal of human waste—remain serious public health issues (UNICEF, 2021; WHO, 2021). Lack of sufficient sanitation facilities and hygiene practices gravely jeopardizes the wellbeing of vulnerable populations, including children and the elderly (UNICEF, 2021).

## **1.2 Problem Statement**

Many low- and middle-income countries, like Ghana, still struggle with poor sanitation and hygiene standards, including the incorrect disposal of human waste (UNICEF, 2021; WHO, 2021). The frequency of open defecation and the use of substandard latrines persists in the country despite efforts by the government and development partners to improve sanitation and hygiene practices, particularly in rural regions (GHS, 2021).

A report by WHO/UNICEF reveals that, globally, about 2.3 billion people do not have access to improved sanitation. The same report estimates that basic sanitation is accessible to 68% of the world's population, with as low as 28% of the people in sub-Saharan Africa (SSA) having access to basic sanitation. Globally, 775,000 people died prematurely as a result of poor sanitation in 2017

(Stanaway *et al.*,2017). This estimate accounted for about 5% of total deaths in low and middle-income countries, which is far above the global average of 1.4.

Due to the lack of toilet facilities for around 5 million Ghanaians, the country has been ranked second in Africa for open defecation after Sudan (WHO & UNICEF, 2015). In Ghana, 18.75% of individuals were estimated to practice open defecation in 2015 (World Bank, 2015). This refers to the proportion of people who urinate in public places including fields, forests, bushes, open water, beaches, and other public areas, or who mix human waste with solid garbage.

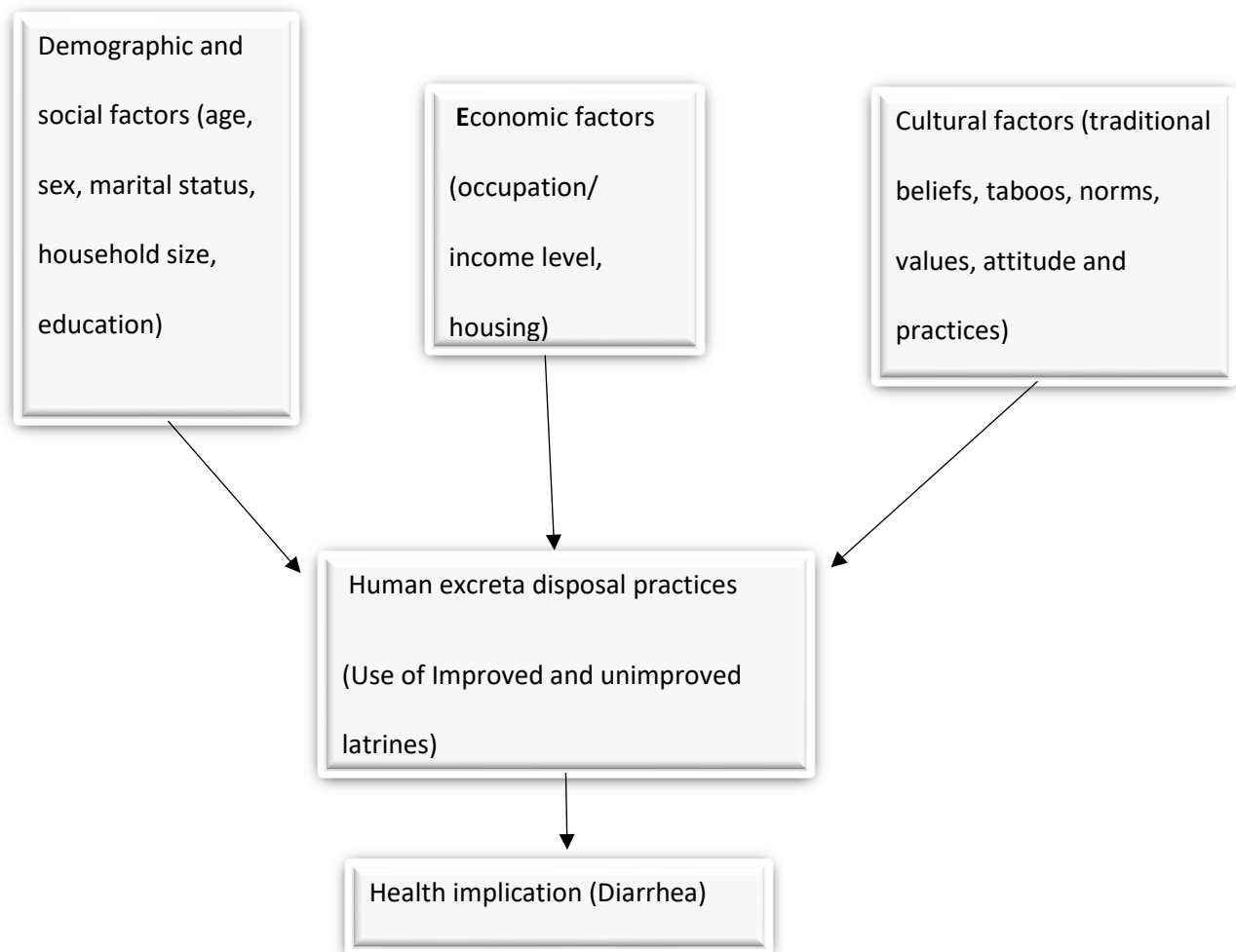
Hygienic disposal of stool (HDS) was identified to increase in the Eastern Region after a pooled adjusted regression (Tetteh *et al.*, 2022). They analyzed GDHS from 2003-2014 to draw their conclusion. Though general increase in HDS was recorded, there was no report on the various disposal practices. Available literature suggests that access to improved sanitation is not necessarily the determinant of improved disposal of stool (Majorin *et al.*, 2014). The Asuogyaman District is noted for sanitation issues which include excreta disposal. There is paucity of knowledge regarding excreta disposal practices in the district. Therefore, this study will help determine human excreta disposal practices in Senchi Ferry at the Asuogyaman District in the Eastern region of Ghana.

### **1.3 Rationale of study**

This study is relevant as it will help obtain knowledge and information about the prevalence of open defecation, use of unimproved latrines and also the factors that are associated with the way people dispose off their excreta. Information obtained from this study will help in education of the community residents, in this case Senchi Ferry community. It will also help formulate and implement policies that would guide residents in the community to deter them from open defecation.

There are effects of open defecation and use of unimproved latrine to the individual and the community at large. Faeco-oral diseases such as diarrhea is one of the major outcomes from openly defecating and using of unimproved latrines. This study will help find the diarrhea rate in relation to the excreta disposal method in the community within the past three months. This would help in training and educating the community members on the dangers of open defecation.

#### 1.4. Conceptual framework



**Figure 1.1: Conceptual Framework**

Source: Modified from Osumanu *et al.*, 2019



Various factors influence the excreta disposal practices of people in different communities. The Figure 1 above is a conceptual framework adopted from (Osumanu *et al.*, 2019) slightly modified. It shows various factors that influences the human excreta disposal practices. These factors being demographic or social, economic and cultural factors.

Demographic and social factors such as age, sex, marital status, household size, education and attitudes. Demographic factors influence economic factors as economic factors also influences demographic factors.

Economic factors include the occupation of the individual, income level of the individual and housing that the individual resides in has a great influence on the type of excreta disposal facility the person uses.

Cultural factors or traditional belief such as taboos, norms, values, attitudes and the practices of the community one finds themselves influences the human excreta practices of the people found in the community.

These various factors influence the way individuals dispose off their human excreta. This can be divided into the use of improved or unimproved latrines. Defecating in open spaces, water bodies, bucket, pit latrine without slab are classified under unimproved latrines whiles the use of Ventilate Improved Pit, pit latrine with slab, flush/pour flush connected to sewer, septic tank or pit latrines are classified under improved latrines.

The type of toilet facilities individuals uses in disposing off their excreta has a way of affecting the health of the people or have health implications to them such as diarrhea (Kilikami *et al.*, 2015).

### **1.5. Research Questions**

1. What is the prevalence of open defecation, use of unimproved latrines, and safe disposal of human excreta in Senchi Ferry?
2. What are the factors that influence human excreta disposal practices among residents in Senchi Ferry?
3. What is the association between human excreta disposal practices and the prevalence of diarrheal diseases among residents in Senchi Ferry?

### **1.6. General Objective**

To assess human excreta disposal practices in Senchi Ferry at the Asuogyaman District in the Eastern region of Ghana.

### **1.7. Specific Objectives**

1. To determine the prevalence of open defecation, use of unimproved latrines, and safe disposal of human excreta in Senchi Ferry.
2. To identify the factors that influence human excreta disposal practices among residents in Senchi Ferry.
3. To assess the association between human excreta disposal practices and the prevalence of diarrheal diseases among residents in Senchi Ferry.

### **1.8. Profile of study area**

Senchi Ferry is a community located in the Asuogyaman District of the Eastern Region of Ghana. It is situated along the eastern banks of the Volta River. The community is home to approximately 10,000 residents who engage in various economic activities, including fishing, farming, and

trading. Senchi has a clinic located close to the volta lake that serves residents in the community and other residents from neighboring communities. Senchi ferry has four government basic schools. Senchi has a court that deals with judicial matters of the community people.

Senchi Ferry is an old community therefore although there are new modern buildings, the old buildings in the community that were built when the community started mainly lack improved excreta disposal facilities with some not having toilet facilities at all.

The population of the hamlet is diversified, and its members are involved in a range of economic pursuits, including farming, fishing, trading, and tourism. The Volta River runs through the Senchi Ferry neighborhood, which serves as a key crossroads for people and products moving into and out of Ghana's eastern regions. The hamlet is a significant economic hub in the area as a result.

The Royal Senchi Hotel is a 4-star hotel built in Senchi in the year 2012. It attracts many people into the community and this serves as tourism and money generation for the community.

### **1.9. Scope of study**

Only residents of Senchi ferry participated in the study. The study examined the prevalence of open defecation, the factors that influenced the types of human excreta disposal practices, an association between the types of excreta disposal practices and diarrheal diseases in the community and if they have any knowledge about diarrheal diseases.

### **1.10. Organization of the study**

This thesis is made up of six chapters. Chapter one involves the context of the study, the problem statement, the aims and the scope of the study. Chapter two surveyed relevant research on open defecation, human excreta disposal practices. The methods, materials, instrument for data collection, data handling and ethical consideration is found in the third chapter. Chapter four

contains the analyzed data from the data collected. Chapter five and six includes discussion and conclusion respectively. The discussion expands on the analyzed data in chapter four of the study. The sixth chapter concludes the study and gives recommendation.

## **CHAPTER TWO**

### **Literature review**

#### **2.1. Introduction**

A literature review is an essential component of every research project because it provides a comprehensive overview of the body of knowledge and research that has already been done on a particular topic. This section covers research already done on the prevalence of open defecation, use of unimproved latrines and safe disposal of human excreta, research on factors that influences excreta disposal practices and research on the association between excreta disposal and diarrheal diseases.

#### **2.2. Prevalence of open defecation, use of unimproved latrines, and safe disposal of human excreta**

##### **2.2.1 Open defecation**

The concept of open defecation refers to the practice of urinating or defecating in an open area, such as an open field, water bodies, or open trench, without the proper disposal of human waste (Saleem, 2019). As of the year 2020, approximately 494 million individuals globally continue to engage in open defecation, depositing feces in public spaces such as street gutters, natural areas like bushes, or bodies of water. Moreover, over 1.7 billion people still lack access to fundamental sanitation services, including private toilets or latrines (WHO, 2020). Open defecation, which involves disposing of fecal matter in open spaces like fields, forests, water bodies, or alongside solid waste, remains a concerning sanitation practice (UNICEF/CDD and CSDS 2020).

In a study by Osumanu *et al.*, (2019) to examine the determinants of open defecation in the Wa Municipality Ghana, a mixed method approach involving questionnaire administration to 367

households systematically selected from 21 communities, observation, and eight key informant interviews was employed. The findings revealed that 49.8% of households had no form of toilet facility at home and were either using communal/public toilets or practicing open defecation. Several sociocultural and economic reasons account for this. But for these households, having a toilet facility at home does not seem to be a priority. Six factors (education, household size, occupation, income, traditional norms, and beliefs and ownership of a toilet facility) were positively significant in determining open defecation. Because this study is limited to the Wa Municipality, the results might slightly differ or not applicable at all to other towns and communities in the country (Osumanu, Kosoe and Ategeeng, 2019).

In a study conducted by Belay *et al.*, (2022) on open defecation practices and its determinants in sub-Saharan Africa. The objective of the study was to assess the pooled prevalence, wealth-related inequalities, and other open defecation practices among households in sub-Saharan Africa. Demographic and Health Survey data sets of 33 SSA countries with a total of 452,281 households were used for the study. The study showed that the pooled prevalence of OD practices amongst the households in SSA was 22.55% which was in line with the Joint Monitoring Program of WHO and UNICEF 2021 report in sub-Saharan Africa which was 18%. This study was limited in the fact that 8 sub-Saharan countries were excluded from the survey which would have affected the results in a way. It also excluded other continents in the world but concentrated on just sub-Saharan countries. Conditions in other countries that influences open defecation differ therefore giving a different result.

### **2.2.2 Implications of open defecation to the community**

Open defecation has many health impacts to the human being. When infected faeces are ingested knowingly or unknowingly, it has severe health implications to the individual. Infected faeces are

human waste or excreta that contains harmful microorganisms such as bacteria, viruses, parasites, or other pathogens that can cause diseases when they come into contact with humans or contaminate the environment (WHO, 2017). Touching faeces and using the hand to eat without proper handwashing, drinking water contaminated with faeces or using contaminated water for cooking without proper treatment are some of the ways faeces gets into the human system.

The World Health Organization (WHO) identified open defecation as one of the leading causes of diarrheal mortality in 2014. In 2013, around 2,000 children aged under five died daily due to diarrhea (WHO, 2013). Countries with the highest prevalence of open defecation practices had the highest number of deaths among children under five years of age, as well as a high rate of malnutrition (which results in stunted growth), high poverty rates, and large inequalities between rich and poor countries (WHO / UNICEF, 2013). Cholera, Diarrhoea, Typhoid, and Dysentery are the three most common communicable diseases affecting the health and well-being of people in these communities (GSS, 2013).

In a study by Saleem, Burdett and Heaslip (2019), they reviewed the impact of open defecation on women. They did a systematic review on literatures on the implications of open defecation. The review identified 4 issues; Health Impacts of open defecation, Increased risk of sexual exploitation, Threat to women's privacy and dignity and Psychosocial stressors linked to open defecation. They also found out that open defecation promotes poor health in women with long term negative effects on their psychosocial well-being. There were some limitations with this study. The study was based on a broad search using different number of online databases with no time or year restrictions. There would have been selection bias therefore not painting the entire picture needed.

Similarly, a study by Megersa, Bentil and Sahiledengle aimed to assess the prevalence of diarrhea and its associated factors among under-five children in open defecation free (ODF) and non- ODF

households, in Goba district, southeast Ethiopia. It was a cross-sectional study with a sample size of 732 households. 366 ODF and 366 non-ODF households that had at least one under-five children were included in the study. They found out that two weeks diarrheal prevalence in under-five children among ODF and non-ODF households were 17.2% and 23.2%, respectively. Unsanitary disposal of children`s faeces, exclusive breastfeeding, mother not having formal education were factors associated with diarrhoea in ODF households. On the other hand, latrine cleanliness, presence of faces in the compound, and child age were factors associated with diarrhea in non-ODF households. The prevalence of diarrhea was slightly higher in non-ODF households than ODF households (Megersa, Benti, and Sahiledengle, 2019).

### **2.2.3 Use of unimproved latrines**

The term “improved sanitation facility” refers to a facility that separates feces from human contact and is only used by one household: toilets that flush to sewers or septic tanks; VIP (Ventilated Improved Pit) latrines; slab pit latrines; composting toilets. In 2015, 62% of the people in the developing countries relied on unimproved sanitation facilities pit latrines without slabs; toilets that flush to a pit latrine or to somewhere else; bucket and hanging toilets; shared facilities; or open defecation (WHO, 2015). More than two and a half billion people worldwide (one-third of the world`s population) have no access to any form of improved sanitation (Fuller *et al.*, 2014). Of these, about 732 million people are still using unhygienic latrines around the world (Rheinländer *et al.*, 2015). Open defecation (OD) has become the norm for many people who lack improved sanitation. According to records, about one billion people around the world routinely practice OP (open defecation) partly due to a lack of access to a latrine or difficulties in accessing an improved type of latrine (Exley, 2015).



In a study conducted by Abubakar (2017), to examine access of sanitation facilities in Nigeria utilized cross-sectional data from 2013 Nigeria Demographic and Health Survey. The results showed that 44.2% of households used different types of pit latrines, 10.3% used toilets that flushes to septic tanks, 5.3% used toilets that connect to sewer systems, 8.7% used other types of toilet facilities while 31.5% had no form of toilet facilities. The study showed that the type of toilet facility a household uses were as a result of the household size, gender of head of household, types of water sources, number of rooms and access to electricity but the age of the head of household was not significant in this case. The study emphasizes on the implications of using unimproved sanitation on human health. The results of this study might be slightly different from other countries other countries (Abubakar, 2017).

#### **2.2.4 Safe excreta disposal**

For the health and wellbeing of the people who live in low-income nations as well as the prevention of environmental degradation, the proper disposal of human waste is crucial. Numerous studies have shown that improper child excreta disposal is one of the primary reasons in enteric illnesses, including diarrheal disorders. (Bawankule, 2017).

Tsegaw (2020) conducted by a study aimed to assess safe stool disposal and associated factors among mothers of children under-two age in Gambia. The study showed that, the prevalence of safe stool disposal among mothers whose child was below the age of two was 56.3%. the age of the mothers influenced safe stool disposal. Women aged 15-34 years were less likely to dispose off their child's excreta safely compared with women aged 15-24 years of age. Occupational status, women from rich households, media exposure and age of children were significantly associated with safe stool disposal.

A very similar study done by Seidu *et al.*, (2021) did a multilevel analysis on individual and contextual factors associated with the practice of safe disposal of children's faeces in sub-Saharan Africa. It used secondary data with 128,096 mother-child pairs of under-fives from the DHS. From the results, 58.73% of childbearing age in 15 countries in SSA included in the study safely disposed off their children's faeces although from country to country. Mothers with primary level of education and those exposed to radio were more likely to engage in safe excreta disposal. Women with access to improved water and toilet facilities also were more likely to dispose off excreta safely.

In another study to assess the factors associated with safe child faeces disposal in Ethiopia by Azage (2015), it analyzed data from Ethiopian Demographic and Health Survey 2011. The practice was categorized into safe and unsafe excreta disposal. The prevalence of safe child faeces disposal was 33.68% and it was associated with those who reside in the urban areas. Having access to improved latrines, wealth, educational levels were significant to safe excreta disposal (Azage, 2015).

### **2.3 Factors that influence human excreta disposal practices**

Many factors are known to influence human excreta disposal practices. In a study by Aliju and Dahiru where they assessed the factors associated with safe disposal practices of child's faeces in Nigeria. The study utilized the 2013 Nigeria Demographic and Health Survey data. Child's faecal disposal practices were classified as safe and unsafe as defined by WHO and UNICEF Joint Monitoring Program. 19,288 youngest children in the households were used for the study. The study found out that the prevalence of safe disposal of child's faeces was 59.4%, safe child's faeces disposal was highest among older women (64.4%), highly educated women and their husbands (67.1%) and (66.4%) respectively. (72.3%) among rich households, safe disposal among Muslims

(68.7%), in urban areas (68.8%). The shows that factors such as people in the urban areas, highly educated women and their husbands, rich households practice safe excreta disposal as compared to those. Also, safe excreta disposal was significantly associated with the age of mother, maternal education level, wealth index, religion, source of water and the type of toilet facility (Aliyu and Dahiru 2019).

#### **2.4 Association between human excreta disposal practices and the prevalence of diarrheal diseases**

Studies have shown that there is an association between how excreta are disposed off and the prevalence of diarrheal diseases.

In a study conducted by Chikwe et al, on excreta disposal methods and the occurrences of Faeco-oral diseases in Owerri, Nigeria, the main objective was to determine the excreta disposal methods and the occurrences of faeco-oral diseases. It was a cross-sectional study with a sample size of 400. Data was collected with the aid of a questionnaire. They found out that, out of the 400 households sampled; 83.3% uses water closet/ pour-flush latrine, 11.0% uses pit latrine, 3.8% uses VIP latrine, 1.0% practices wrap and throw methods, 0.5% uses bucket latrine while 0.2% practices both digging in the compound and sand fill/ open defecation respectively. Frequently reported faeco-oral diseases include; Typhoid fever (34.0%), Diarrhea (20.3%) and Dysentery (4.8%). The study also revealed that there was a significant relationship between faeco-oral diseases suffered by members of the households and the type of the toilet system used by the household. The study also showed that, although most of them used water closet, the faeco oral diseases were still high. The study proved that there was an association between human excreta disposal methods and faeco-oral diseases. The limitation of this study was that it was just limited to one town in Nigeria and so the results might not be applicable to other towns in the country (Chike *et al.*,2020).

A similar, a study was conducted by Kilakme, Amadi, Azumah and Amadi on the assessment of excreta disposal and its health implications in Tambiri li community in Nigeria. The objective of the study was to determine the knowledge of the people about proper excreta disposal, methods of excreta disposal, sanitary conditions of toilets and common diseases associated with excreta disposal. It was a quantitative study where 280 head of households were randomly selected for the study. At the end of the study, the results showed that out of the 280 respondents, 104 (37%) reported that diarrhea was common in the community; 62 (22%) identified typhoid fever; 61 (21%) identified cholera; 44 (16%) identified dysentery; 6 (2%) identified Gastro Enteritis; while 3 (1%) did not know the common diseases in the area. These results proved that there was a relationship between excreta disposal and diarrheal diseases. The limitation to this study was that the study was confined to just one town in a state in Nigeria and so the results might differ when compared to other towns (Kilakme *et al.*,2015).

Children's, as well as adult's stools, must be disposed off safely, due to its association with diarrhea diseases, especially in poor urban communities (Larbi *et al.*,2021). Diarrheal diseases are among the top five common causes of death in children, accounting for over 525,000 deaths among children (WHO,2017). A cross-sectional design study was conducted by Tetteh et al on hygienic disposal of stools and risk of diarrheal episodes among children aged under two years. They evaluated evidence from Ghana Demographic Health Survey (GDHS) from 2003-2014 and it involved 4869 women with children aged under two years. The results showed that the pooled prevalence rate of HDS was 26.5%, diarrhea diseases pooled prevalence was 17.9%. overall, growth rate from HDS and prevalence of diarrhea diseases decreased by 21.6% and 11.4% respectively. The study also showed that, women who practiced HDS, the diarrhea occurrences amongst their children were lower compared to women who were not practicing HDS. This study

shows that there is an association between excreta disposal practices and diarrhea. The limitation to this study was that it was mainly focused on children under the age of 2 and does not affect anyone outside the age of 2. Therefore, the results might be different if the study covered people outside that age bracket (Tetteh *et al.*,2022).

Another study by Adedeyo et al surveyed fecal management practices and its association to health in selected sub-urban communities in Ibadan, Nigeria. A cross sectional design was used and a cluster sampling technique was used to choose the communities (Sango, Idi-Iroko, Saka, Gbagi, Ebgeda). Two hundred and fifty people were selected for the study. From the study, factors such as low educational level, financial constraints, overcrowding, poor cultural practices and poor sanitation enforcements were the major predisposing factors. Majority of the respondents reported diarrhea (45%), typhoid (34%), dysentery (9%), herpes and other infections accounted for 7% while syphilis accounted for 5%. Majority of the respondents reported of poor sanitary conditions with 60.3% of the respondents reporting that they dispose off excreta in gorges, 50.2% disposed off excreta by throwing them in bushes and 47.7% buried excreta in pits. The study showed that most sub-urban towns in Ibadan did not have enough sanitation provisions and they involved in unwholesome excreta disposal practices which led to health implications to the people (Adedeyo *et al.*,2022).

# CHAPTER THREE

## Methodology

### 3.0. Introduction

In this chapter, materials, methods and techniques that have been adopted to answer the research questions are documented. It outlines the research methods, study population, sampling techniques, data handling and ethical consideration

### 3.1. Research Methods and Design

This study used cross-sectional, quantitative research design, which is an organized empirical investigation that gathers and analyzes numerical data using mathematical, statistical, or computational methods (Bell *et al.*, 2022). A cross-sectional study design is important because it enables the simultaneous gathering of data at one moment in time on a number of variables, such as open defecation practices, sanitation and hygiene practices, and the prevalence of diarrheal diseases. This gave a quick overview of Senchi Ferry's present open defecation patterns, types of excreta disposal facilities, and incidence of diarrheal diseases. The association between these variables can be studied and potential risk factors for diarrheal disorders can be found using a cross-sectional study design (Melese *et al.*, 2019).

### 3.2 Data collection techniques and tools

An open-ended and closed-ended questionnaire was used for data collection. The closed-ended questions gauged respondents' attitudes about and views of techniques for disposing of human excreta using a Likert scale. Strongly agree to strongly disagree or very good to very poor were the possible responses on the Likert scale. The open-ended questions provided participants the

chance to elaborate on their thoughts and experiences with relation to local techniques for disposing of human excreta.

### **3.3. Study population**

The study population comprised of all households in the Senchi Ferry community, Asuogyaman district, Ghana. Data was collected from the four zones of Senchi ferry being Senchi ferry, Senchi Zongo, Agyeman and Kotropei. One hundred and six (106) questionnaires were shared in each of the four zones the data were collected.

### **3.4. Study variable**

The dependent variable was human excreta disposal practices. The independent variables are the socio- demographic characteristics which are cultural beliefs, sex, income, education. These independent variables influenced the community's human excreta disposal practices in the community.

### **3.5 Sampling**

A systematic sampling strategy was utilized to make sure the study sample was representative of the population of interest. The first household was randomly chosen, and a respondent from every alternate household was interviewed until the desired sample size was for this study, the sample size was determined as;

Sample size

The Yamane's formula was used for the sample size calculation.

Total population= 10,000

Margin of error=  $(0.05)^2$

$$n = \frac{N}{1 + N(e)^2}$$

$$= \frac{10,000}{1 + 10,000(0.05)^2}$$

$$\frac{10,000}{26} = 385$$

Non- response rate is 10%

$$\frac{10}{100} \times 385 \cong 38.5$$

$$=39$$

Sample size is 385+39= 424

### **3.6. Pre-testing**

Pretesting was done using 25 households in a town called Akrade Quarters. Participants were selected for the pretesting which served as a piloting stage for the data collection itself. Questionnaires for the data collection was used for the pre-testing. Participants were invited to give feedback on the questions' relevancy and clarity throughout the pre-testing process, as well as any suggestions for changes. To make sure they were suitable for the research population and could gather the required data, this feedback was used to improve the survey questionnaire and interview guide. Pre-testing also aided in identifying any concerns with the data collection processes, such as challenges in participant recruitment or survey administration, which were resolved prior to the real data collection.



### **3.7. Data Handling**

The study team verified the data's accuracy and completeness after it was collected. By going over the data collecting forms, any missing or inconsistent data will be fixed. After that, the information was added to a safe computerized database for analysis. To preserve the anonymity of the participants, the raw data was accessible to the study team, and any published results will be presented in aggregate form. Data collected was compiled on an excel form.

### **3.8. Data Analysis**

The statistical program Stata version 17.0 was used to analyze the study's data. The study population's demographics, as well as the incidence prevalence of open defecation and inadequate sanitation practices in Senchi Ferry, was summarized using descriptive statistics, including frequencies and percentages. The correlations between the demographic factors and open defecation and inadequate sanitation practices will be evaluated using chi-square testing.

The odds ratios and 95% confidence intervals for the associations between the independent variables (sociodemographic characteristics, knowledge, attitudes, and behaviors) and the dependent variable (open defecation and inadequate sanitation practices) was calculated using logistic regression models.

### **3.9. Ethical consideration**

Ethical consent was sought from Ensign Global College, Ethical clearance committee. To ensure the safety and wellbeing of study participants as well as the validity of the research finding, the study was undertaken in accordance with ethical standards. Informed consent was sought during data collection of each study participant. This entailed informing persons who were willing to participate about the study's goals, methods, risks, and benefits and securing their voluntary involvement.

Anonymity and confidentiality were maintained throughout the study in order to preserve the privacy of all participants. No identifying information was gathered or shared with other parties.

Participation was voluntary, and participants were allowed to leave the study at any moment without incurring any penalties or repercussions.

### **3.10. Limitation of the study**

This study has a number of limitations that should be acknowledged. The use of a cross-sectional design, which only permits the observation of variables at a single point in time and limits the capacity to establish cause-and-effect links, is the study's first limitation. Second, because only people living in Senchi Ferry were included in the study, the results may not be applicable to other communities in Ghana or other developing nations.

Third, because the study depends on self-reported data, recollection bias or social desirability bias could affect the results. Participants might give answers that are seen as more socially desirable. Fourth, non-response bias could impair the study's ability to be representative of the population, as people who declined to participate in the study might have different characteristics from those who participated.

The study did not take into account the influence of other variables, such as socioeconomic position, housing conditions, and access to clean water, which may have complicated the connection between sanitation and hygiene treatments and health outcomes.

### **3.11. Assumptions**

As with every research study, this one is predicated on a number of assumptions. First, it is assumed that both the data collected and the research population are accurate and representative of the greater population of interest. Second, it is expected that the research tools—questionnaires

and interviewing protocols—are suitable for the study population and capable of gathering the required data. Third, it is expected that the research assistants who will be gathering the data have received the necessary training and will adhere to ethical standards while doing so. Finally, it is anticipated that the Stata statistical analyses will yield results that are valid and trustworthy and are appropriate for the study questions.

Despite these presumptions, there are a few ways that this study could be improved. The possibility of social desirability bias, where participants may give responses, they think are socially acceptable rather than their actual opinions or experiences, is one drawback. Another drawback is the potential for recall bias, which occurs when people have trouble correctly recalling past experiences or events. The generalizability of the study's findings may also be constrained because the study population could not be entirely representative of the larger population of interest. The study's cross-sectional methodology also makes it difficult to draw conclusions about the causes of the study variables' differences.

Despite these restrictions, the study's findings will be valuable for understanding the frequency of open defecation and subpar sanitation practices in the Senchi Ferry community and for identifying potential underlying causes for these problems. These results can be utilized to help build focused interventions that will enhance community sanitation and hygiene standards and lessen the unfavorable health effects of poor sanitation.

## **CHAPTER FOUR**

### **Results**

#### **4.0. Introduction**

This section presents the study results. The results are presented descriptively and analytically in the form of tables and graphs and chi-square tests. This section is organized according to the objectives and research questions.

#### **4.1. Socio-demographic Characteristics of Respondents**

In order to understand the characteristics of the study population at Senchi Ferry, the study gathered demographic data for this part. The status of the respondents' sheds light on their responsibilities within their households, whether they are the head, the husband, the son or daughter, the caregiver, or another person.

Understanding home composition and the distribution of various components among distinct community segments depends heavily on the demographic features. By studying this data, we can spot trends and connections that can affect how people dispose of their waste, how they practice good hygiene, and how common diarrheal diseases are.

**Table 4.1: Summary of socio-demographics of respondents**

<b>Variable</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
<b>Status of respondent</b>		
Head of household	183	43.2%
Spouse of head of household	88	20.8%
Son/daughter of head of household	93	21.9%
Tenant	38	9.0%
Caretaker	22	5.2%
(N=424)		
<b>Gender of head of house</b>		
Male	323	76.2%
Female	101	23.8%
(N=424)		
<b>Marital status of head of household</b>		
Single	49	11.6%
Married	281	66.3%
Divorced or separated	43	10.1%
Widowed	51	12%
(N=424)		
<b>Educational level of head of household</b>		
No formal education	46	10.8%
Primary education	4	0.9%
Junior high school/ form 4	104	24.5%
Senior high education/vocational	76	17.9%
Tertiary education/ "O" level	194	45.9%
(N=424)		
<b>Ethnicity of head of household</b>		
Akan	174	41.0%
Ga-Adangbe	78	18.4%
Ewe	110	25.9%
Mole-Dagbani	62	14.7%
(N=424)		
<b>Household size</b>		
1-2	38	9.0%
3-4	123	29.0%
5-6	149	35.1%
7+	114	26.9%
(N=424)		

A total of 424 responses were gathered for the examination of the respondents' status in Senchi Ferry. About of the entire sample of respondents, or "Head of household," identified themselves as such. Respondents for "Son/Daughter of head of household" were 21.9%. "Spouse of head of household" was 20.8%, "Caretaker," represented 9% of the respondents and caretakers being 5.2%.

According to data on the gender distribution of household heads in Senchi Ferry, out of the 424 total respondents, 76.2% are men and 23.8% are women.

Out of the 424 respondents, 66.3% of the head of households were married, 12% were widowed, 11.6% were single and 10.1% were divorced or separated.

The research of the educational background of the household heads in Senchi Ferry reveals a variety of educational backgrounds. There were 424 responses in total, and 10.8% had no formal education, 0.9% finished primary education, 24.5% completed junior high school and form 4, 17.9% completed senior high school and vocational school. With the majority completing tertiary and "O" level.

Out of the 424 respondents, Akan people make up the largest ethnic group, accounting for 41.0% of respondents. 18.4% of the respondents belong to the Ga-Adangbe ethnic group, whereas 25.9% are Ewes, 14.7% of the respondents were Mole-Dagbani.

A total of 424 responses were gathered for the data analysis on Senchi Ferry's household sizes, yielding important information about the makeup of the neighborhood's households. According to the data, "5-6" household members made up 35.1%. household with members of "3-4" people

made up 29%, household with 7+ people made up 26.9%. The category with the fewest households was "1-2", accounting for 9.0%.

### **Prevalence of open defecation, use of unimproved latrine and safe excreta disposal**

**Table 4.2 Prevalence of open defecation, use of unimproved latrine and safe excreta disposal**

<b>Variables</b>	<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Practicing open defecation (N=418)</b>	Yes	120	29.0
	No	298	71.0
<b>Reasons for practicing open defecation and using unimproved latrines (N=424)</b>	Lack of access to toilet facilities	181	35.8
	Lack of funds to construct toilet facilities	134	26.0
	Lack of awareness on the importance of safe disposal of human excreta	37	13.5
	Ignorance	37	13.5
	Do not know	35	11.2
<b>Access to toilet facilities in household (N=417)</b>	Yes	305	73.1
	No	112	26.9

<b>Types of toilet facilities in the household</b> (N= 305)	Flush/pour flush to piped sewer system	47	15.6
	Flush/pour flush to septic tank	89	29.6
	Flush/pour flush to pit latrine	25	8.3
	Ventilated Improved Pit latrine	69	22.9
	Pit latrine with slab	65	20.6
	Pit latrine without slab	7	2.1
	Hanging toilet	3	0.9
	<b>No toilet facility inside household</b> (N= 112)	Bush	42
	Public toilet	64	55.2
	Neighbor's household	6	8.6
<b>Number of toilet facilities available in households</b> (N= 417)	None	112	27.1
	1	203	47.9
	2	75	17.7
	3+	27	7.3
<b>Condition of toilet facilities in household</b> (N= 305)	Very clean	96	35.1
	Somewhat clean	135	43.3
	Dirty	55	17.0
	Very dirty	19	4.6

Practicing open defecation had 418 respondents. 29.0% responded to practicing open defecation. 71.0% responded to never engaging in open defecation. 6 people did not respond to this section.



Out of the total 424 respondents, one hundred and eighty one people making up 35.8% stated lack of access to toilet facilities, 134 people forming 26% responded that there is lack of funds to construct toilet facilities, 37 people forming 13.5% stated that lack of awareness on the importance of safe disposal of human excreta and 37 other people forming another 13.5% stated ignorance as the reason whiles the remaining 35 making up the remaining 11.2% responded to not knowing the reason whiles people engaged in open defecation or used unimproved latrines in the community.

With a response rate of 98%, Three hundred and five people responded having access to a toilet facility in the household making up 73.1% of the 417 whiles 112 people responded to not having access to toilet facilities in the household making up the remaining 26.9% of the 417 who responded.

Respondents for having access to toilet facilities was 305, 47 people responded to using flush/ pour flush to piped sewer system making up 15.6%, 89 respondents use flush/pour flush to septic tank being 29.6%. 25 people said they use flush/pour flush to pit latrine 8.3%, 69 people responded to using Ventilated improved pit (VIP) latrine which forms 22.9%. 65 of the respondents answered to using Pit latrine with slab being 20.6%. 7 respondents answered to using Pit latrine without slab making up 2.1% whiles 3 respondents answered to using hanging toilet making 0.9%.

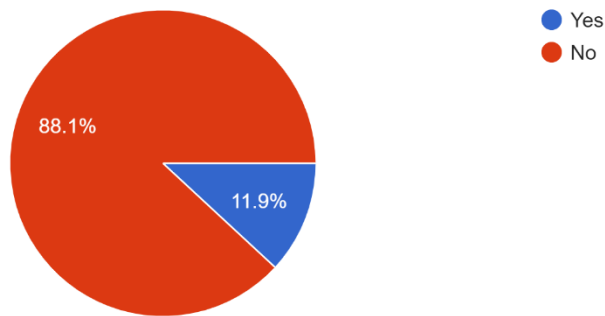
For the 112 people who responded that they did not have access to a household toilet facility, 42 responded to using the bush making 36.2%, 64 people making up 55.2% responded using public toilet, 6 people responded of sharing toilet facilities with neighbors which makes up 8.6%.

A total of 417 responded. 112 responded having no toilet facility at home making 27.1%, 203 people responded to having 1 toilet facility in the household being 47.9%, 75 respondents had 2

toilet facilities in the household being 17.7% and 27 people responded to having 3 or more toilet facilities in the household making up 7.3%.

Out of the 305 respondents who said they had toilet facilities in the household, 35.1% said their toilet facility was very clean, 43.3% responded to having somewhat clean toilet facilities, 17.0% had dirty toilets while 4.6% of them had very dirty toilets.

Have you ever passed stool along the banks of the Volta Lake before?  
412 responses



**Figure 4.1: Ever passed stool at the banks of the volta lake**

With a response rate of 97%, 363 people being 88.1% answered that they have never passed stool along the lake banks and 49 people responding yes to ever defecating along the volta lake making 11.9%.

## Factors influencing human excreta disposal practices in Senchi Ferry

**Table 4.3. Factors Influencing Human Excreta Disposal Practices in Senchi Ferry**

<b>Variables</b>	<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Factor that influences decision on how to dispose human excreta (N=418)</b>	Availability of toilet facility	130	31.4
	Convenience of toilet facility	141	33.7
	Cost of using toilet facility	14	3.3
	Culture or tradition	6	1.2
	Health concerns	127	30.4
<b>Education or training on proper human excreta practices (N= 424)</b>	Yes	231	54.5
	No	193	45.5
<b>Access to toilet facilities influences human excreta practices (N= 424)</b>	Strongly agree	109	25.71
	Agree	129	30.43
	Disagree	174	41.03
	Strongly disagree	12	2.83
<b>Convenient use of toilet facility (N= 424)</b>	Very convenient	161	38.1
	Somewhat convenient	139	33.7
	Not very convenient	89	19.9
	Not at all convenient	35	8.3
<b>Importance of hygienic toilet facility (N= 424)</b>	Very important	161	37.9
	Somewhat important	139	32.8
	Not very important	89	21.0
	Not at all important	35	8.3

For the factors that influenced the decision on the type of excreta disposal practices, 31.4 % out of the 418 respondents chose availability of toilet facilities. 34.7% chose convenience of toilet facilities, 3.3% chose cost of using toilet facilities, 1.2% chose culture or tradition while the remaining 30.4% chose Health concerns to be the factors that influences their choice when choosing excreta disposal facilities. Non response of 6 was had for this section.

On education or training on proper human excreta practices, 54.5% being 231 respondents said they have had education on proper human excreta practices while 193 of the respondents making 45.4% said they have not had any education on it.

For this section, if having access to toilet facilities influences human excreta disposal practices, 25.71% of them said they strongly agreed, 30.43% said they agreed, 41.03% of the respondents said they disagreed while the remaining 2.83% said they strongly disagreed.

How convenient a toilet facility is influences its usage. With this, all 424 responded. 161 respondents said their toilet facilities were very convenient to use which makes up 38.1%. 139 respondents said their toilet facilities were somewhat convenient being 33.7%. 89 respondents, 19.9% said they did not have very convenient toilet facilities and 8.3% being 35 respondents said they did not have convenient toilet facilities.

On the importance of having hygienic toilet facilities, all 424 respondents answered. 161 of the total respondents 37.9% said it was very important to have a very hygienic toilet facility. 139 respondents 32.8% stated it was somewhat important to have hygienic toilet facilities. 89 people 21.0% stated that it was not very important while 35 responded to not at all important making up 8.3%.

## Human excreta disposal practices and diarrhea disease

**Table 4.4. Human excreta disposal practices and diarrhea disease**

<b>Variables</b>	<b>Response</b>	<b>Frequencies</b>	<b>Percentages</b>
<b>Education or training on prevention of diarrhea</b> (N=424)	Yes	245	57.8
	No	134	31.6
	Don't know	45	10.6
<b>Household experience diarrhea in the past 3 months</b> (N= 424)	Yes	111	26.0
	No	263	63.0
	Don't know	50	11.0
<b>Number of times household member experienced diarrhea</b> (N= 424)	Rarely	228	53.2
	Occasionally	98	23.1
	Frequently	13	3.7
	don't know	85	20.5

In assessing the number of people who have had education on diarrhea, 57.8% of the respondents said they have had education on diarrhea, 31.6% responded to have never had an education on diarrhea while 10.6% of them responded to not knowing if they have had any education on diarrhea

In assessing if the respondents or anyone in their household have had diarrhea within the past three months from when the data was collected, 26.0% of the respondents answered yes to they or

someone in their household having diarrhea in the past months, 63.0% answered no to that whiles the remaining 11.0% responded that they do not know if they or anyone in their household have had diarrhea in the past month.

For the number of times a household member experienced diarrhea, 53.2% responded to rarely having diarrhea in the household, 23.1% said occasionally some people in the household had diarrhea, 3.7% responded to there being frequent diarrhea cases in their household whiles the remaining 20.5% said they do not know how often they or anyone in their household had diarrhea.

#### **Association between Household toilet availability and diarrhoea prevalence**

**Table 4.5 Bivariate association between Household toilet availability and diarrhoea prevalence**

<b>Household Toilet</b>	<b>Diarrhoea</b>		<b>X<sup>2</sup></b>	<b>p-value</b>
	<b>No</b>	<b>Yes</b>		
Yes	76.64%	23.27%	4.97	0.026
No	65.77%	34.23%		

From Table 4.5, it was observed that there is a statistically significant association between Household toilet availability and diarrhoea prevalence at 0.05 level of significance,  $X^2 = 4.97$ ,  $p = 0.026$ . Further observation showed that households without toilet facilities reported higher (34.23%) cases of diarrhoea compared to households with toilet facilities (23.27%).

# CHAPTER FIVE

## Discussion of findings

### 5.0. Introduction

This chapter provides more detail about the conclusions drawn from the data analysis carried out in the previous section in the discussion of findings chapter. Using the data gathered during the research process, this chapter provides a framework for interpreting and contextualizing the results.

### 5.1. Prevalence of open defecation, use of unimproved latrines and safe excreta disposal

In assessing the prevalence of open defecation, results from this study revealed that 29.0% of the respondents engaged in open defecation. Among the respondents, open defecation was attributed to a number of reasons. Out of the total 424 respondents, 35.8% stated lack of access to toilet facilities, 26% responded that there is lack of funds to construct toilet facilities, 13.5% stated that lack of awareness on the importance of safe disposal of human excreta, another 13.5% stated ignorance as the reason. These reasons contribute to the prevalence of open defecation. The results was in contrast in a study conducted in Wa Municipality, Ghana stated the prevalence of open defecation to be 49.8%. Non-the-less a much lesser prevalence was recorded by Belay et al., (2022). The prevalence (18%) recorded in their study was a pooled prevalence of Countries in Sun-Saharan Africa. The very low prevalence might be due to the presence of more urban area in their result.

Also in contrast with a paper by Berling (2013), on the persistent of open defecation in fishing communities of Lake Victoria, Tanzania, 44% of the people said they either openly defecate either in farms/shrubs areas to the lake shore or they defecate inside the lake water. This can be because

the study sample was larger as a total of 3 villages were involved in the study as compared to only Senchi ferry where 88.1% of the respondents said they have never defecated along the volta lake but 11.9% of the respondents admitted to defecating along the lake.

### **5.1.1 Unimproved latrines and safe disposal of human excreta**

Different types of excreta disposal facilities were used among the respondents. 15.6% responded to using flush/ pour flush to piped sewer system, 29.6% responded to using flush/pour flush to septic tank. 8.3% use flush/pour flush to pit latrine, 22.9% people responded to using Ventilated improved pit (VIP) latrine. 20.6% uses Pit latrine with slab. 2.1% use Pit latrine without slab while 0.9% uses hanging toilet. A sizable percentage (47.9%) of homes reported having just one toilet facility, according to data on toilet availability. A reasonable amount of sanitation coverage is indicated by this study, which is encouraging for home hygiene. However, 27.1% of homes claimed to have no toilets, which is a worrying problem that needs policymakers and development organizations' immediate attention. A study conducted in Nigeria reported similar percentage (44.2%) of households having a toilet facility (Abubakar, 2017). In the same study 31.5% were reported not to be having any form of toilet facility which is similar to what was reported in this study. Abubakar, (2017) further attributed the access to toilet facility to the household size, gender of head of household, types of water sources, number of rooms and access to electricity.

### **5.2. Factors influencing human excreta disposal practices**

The elements affecting Senchi Ferry's techniques for disposing of human excreta are thoroughly discussed in this section. The investigation examined the role of education and training, the significance of sanitary restrooms, and the variables influencing respondents' choices of excreta disposal techniques. The research presented in this section sheds light on the social psychological



factors that influence community sanitation practices and provide useful information for creating interventions that will improve excreta disposal.

The study investigated how respondents felt about the significance of clean toilet facility, and the results showed that the majority of respondents (70.75%) thought these facilities were "very important" or "somewhat important." This result is in line with studies by GHS, (2021) which emphasized the importance of sanitary and easily accessible toilet facilities in encouraging proper excreta disposal habits. The potential for behavior modification and the adoption of better sanitation practices is highlighted by the awareness of the significance of hygienic sanitation facilities.

The study looked at the variables affecting respondents' choices on how to dispose of human waste. The "availability of toilet facility" (30.66%) and the "convenience of toilet facility" (33.25%) were the most common reasons. These results are consistent with WHO/UNICEF, (2021) studies, which similarly emphasized the significance of accessibility and practicality in influencing sanitation habits. The simplicity of utilizing toilet facilities and the availability of such facilities within an acceptable distance of homes both have a significant impact on how people dispose of their waste. This highlights the demand for better sanitation infrastructure and upkeep in order to promote ethical excreta disposal practices.

It's interesting to note that the influence of "cost of using a toilet facility" (3.30%) is rather low, indicating that cost may not be a major impediment to Senchi Ferry adopting better sanitation practices. The study by WHO, (2021) found that cost was a major barrier to sanitation access in some low-income communities, which is in contradiction to the findings of this study. The government and NGOs' attempts to provide free or inexpensive sanitation services in the area may be responsible for the comparatively low-cost influence.

Moreover, just a small percentage of respondents (1.78%) indicated that cultural and traditional ideas influenced them. This result is in contrast with that of Khantum et al (2020) and GHS (2021), who highlighted the waning impact of cultural norms on sanitation practices in some communities. A change in attitudes toward sanitation and excreta disposal techniques may have been influenced by urbanization and exposure to outside influences. However, it is crucial to recognize that cultural variables could still be pertinent in some circumstances and should be taken into account when creating specialized solutions.

Overall, the study's findings show strong consistency with previous research on the factors affecting rural populations' practices for disposing of human excreta. Numerous research WHO/UNICEF, 2021; Aryeetey et al., 2020; have reported on the significance of education, accessibility, and the convenience of toilet facilities, as well as the relatively lesser influence of cost and cultural factors. These similarities imply that there may be common patterns among the variables influencing sanitation practices in many contexts and geographical areas.

But it's important to recognize that every community has its own particular problems and dynamics. While some aspects might be consistent with more general literature, others might show variances based on regional circumstances and particular cultural contexts. Therefore, for improved excreta disposal habits to be effectively promoted, customized interventions that take the community of Senchi Ferry's unique requirements and preferences into account are necessary.

The results of this section shed important light on the variables affecting Senchi Ferry's techniques for disposing of human excreta. The perception of the necessity of clean toilet facilities, as well as their accessibility and convenience, are key factors in behavior modification. Education and training on good sanitation procedures are also important. These results highlight the necessity for focused interventions that target the identified issues in order to encourage sanitary excreta

disposal and lower the incidence of diarrheal illnesses in the neighborhood. We can better comprehend sanitation practices and create complete methods to bring about long-lasting changes in excreta disposal habits by consulting the body of existing knowledge.

### **5.3. Human excreta disposal practices and diarrheal disease**

This section delves deeply into the data of the methods used to dispose of human excreta and its relationship to the frequency of diarrheal sickness in Senchi Ferry. The study examined how common diarrheal illnesses are in homes, how frequently they occur, and how well education and training prevent diarrheal illnesses. These results offer important new understandings of the connection between community diarrheal illness incidence and sanitation practices.

Households without toilet facilities reported higher (34.23%) cases of diarrhoea compared to households with toilet facilities (23.27%). In contrast with a study by Yaya et al (2018) on Improving Water, Sanitation and Hygiene Practices, and Housing Quality to Prevent Diarrhea among Under-Five Children in Nigeria stated that 14% of people with lack of improved toilet facilities had higher rates of diarrhea compared to those who have improved toilet facilities.

According to the study, a sizable fraction of households (26.18%) reported having at least one case of diarrhea in the previous several months. This result is in line with investigations of a similar nature carried out in other Ghanaian rural regions WHO, (2021). In underdeveloped nations like Ghana, where poor sanitation practices contribute to the transmission of diarrheal infections, diarrheal diseases continue to be a serious public health concern.

Senchi Ferry's high rate of diarrheal sickness highlights the urgent need for better excreta disposal methods and sanitary infrastructure. The high prevalence of diarrheal disorders might result in higher medical expenses, decreased productivity, and a general decline in community well-being.

To improve public health outcomes in the area, it is essential to address the root causes of diarrheal illness prevalence.

The study also looked at how frequently households experienced diarrheal episodes. While most households reported "rare" or "occasional" cases of diarrheal illness, a sizeable number of respondents (3.07%) reported "frequent" episodes. This conclusion is compatible with Mbuya and Humprey (2016)'s research, which described comparable diarrheal illness occurrence patterns in rural locations.

Frequent diarrheal episodes are common in a sizable fraction of families, which raises suspicions of ongoing exposure to diarrheal infections. Particularly in susceptible populations like children and the elderly, repeated occurrences might cause long-term health issues WHO/UNICEF, (2021). The link between poor sanitation practices and diarrheal diseases is clear, highlighting the demand for focused interventions to improve excreta disposal and lessen the prevalence of diarrheal diseases in Senchi Ferry.

According to the survey, a sizable percentage (57.79%) of respondents or members of their households have received instruction or training on preventing diarrheal illnesses. The need of effective excreta disposal procedures and cleanliness is best communicated through education. According to studies, health education initiatives can significantly lower the prevalence of diarrheal disease (Kapti *et al.*,2022).

The results highlight the value of educational initiatives for supporting behavior modification and the adoption of hygienic sanitation methods.

## CHAPTER SIX

### CONCLUSIONS AND RECOMMENDATIONS

#### 6.1. Introduction

Based on the findings from the analyzed data, this chapter offers conclusions and recommendations for the research.

#### 6.2. Conclusion

In summary,

- Majority (73.1%) of the respondents in Senchi Ferry have access to toilet facilities in their households with 26.9% still lacking access to toilet facilities in their households.
- Open defecation is still a common practice with 29.0% of the respondents still practicing it.
- Different homes maintained very clean facilities (35.1%), while others reported dirty or very dirty conditions.
- There were 26.0% diarrhea cases within the past 3 months.
- For those who used improved toilet facilities responded to Flush/ pour flush to piped sewer system made up 15.6%, Flush/pour flush to septic tank 29.6%, Ventilated Improved Pit (VIP) latrine 22.9%, Pit latrine with slab 20.6% and for those who responded to using unimproved latrines; Flush/pour flush to pit latrine 8.3%, Pit latrine without slab 2.1% and Hanging toilet 0.9%.

Even though there has been an increase in access to toilet facilities, there are still large gaps that must be filled in order to reach universal sanitation coverage.

Open defecation continues to be a serious problem, endangering the community's health and the environment. A multifaceted strategy is needed to solve this issue, including the provision of sanitary infrastructure, hygiene education, and community engagement to alter promoting long-lasting improvements in sanitation practices requires culturally sensitive strategies that involve community members and stakeholders.

### **6.3. Recommendations**

Based on the study's findings, the following suggestions are made to enhance Senchi Ferry's policies for disposing of human waste and lower the incidence of diarrhea:

- **Campaigns to Change Behavior:** Public health nurses and the district health directorate should create programs that can be held every 6 months to the people of Senchi Ferry. This program is to help spread awareness of the side effects of open defecation to the people and the individuals themselves. Local leaders and community members should serve as champions for these efforts, which should be adapted to the beliefs and norms of the locality.
- **Building of toilet facilities in households:** the community members who do not have toilet facilities in their households, should build toilet facilities that is within their financial means but is an improved toilet facility. This would help reduce the rate of open defecation and diarrhea in the community.
- **Community-Led Approaches:** the chief in the community should form a committee which includes some representatives from the community to be in charge of sanitation. Fines can be cut for anyone who openly defecates and this must be made known to the community to make them aware that it is wrong to engage in open defecation.

- Research: researchers should conduct this study using quantitative method and using health center records to gather information on diarrhea cases.

Senchi Ferry can significantly enhance human excreta disposal practices and lower the prevalence of diarrhea disease by putting these ideas into effect, thus improving the community's health and well.

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# **APPENDIX**

## **INFORMED CONSENT**

### **ASSESSING HUMAN EXCRETA DISPOSAL PRACTICES AT SENCHI FERRY IN THE EASTERN REGION OF GHANA**

#### **INTRODUCTION AND INFORMED CONSENT FORM TO PARTICIPANTS**

Hello Sir/ Madam,

My name is Cordelia Naa Dedei Bruce I am a student at Ensign College of Public Health, Kpong. I am conducting research on human excreta disposal practices at Senchi Ferry. This is an academic work which could be used to formulate a policy. I would very much appreciate it if you could spare some time to answer this questionnaire.

Human excreta disposal refers to the process of managing and disposing of feces and urine in a safe and hygienic manner to prevent the spread of diseases. It involves the use of facilities such as toilets, latrines, and wastewater treatment systems to contain, treat, and dispose of human waste appropriately. The aim of this questionnaire is to assess the current human excreta disposal practices in Senchi Ferry and identify factors that influence these practices to promote safe and sustainable sanitation practices.

The findings from this study will help to inform public health interventions aimed at improving sanitation practices and reducing the prevalence of diarrheal diseases in the community. Your participation in this study is vital in helping us to achieve this goal.

**Dear participant,**

We would like to invite you to take part in our study on human excreta disposal practices at Senchi Ferry in the Eastern Region of Ghana. This study aims to assess the prevalence of open defecation, use of unimproved latrines, and safe disposal of human excreta, as well as identify the factors associated with safe disposal of human excreta.

Your participation in this study is voluntary, and you may withdraw at any time without penalty or loss of benefits. Your responses will be kept confidential and anonymous, and your identity will not be revealed in any publications or reports.

There are no known risks associated with participating in this study, and you may benefit by contributing to the understanding of human excreta disposal practices in the study area.

The questionnaire will take approximately 20-30 minutes to complete. By agreeing to participate, you are indicating your informed consent to participate in the study.

**Do you have any questions to ask about the interview?**

Do you want to partake in it? YES  NO

**ANSWER ANY QUESTIONS AND ADDRESS RESPONDENT'S CONCERNS.**

RESPONDENT AGREES TO BE INTERVIEWED

1      - - - - - → BEGIN

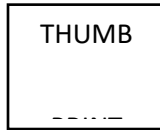
RESPONDENT DOES NOT AGREE TO BE INTERVIEWED

2      - - - - - → END

Name of Interviewer \_\_\_\_\_

Date: \_\_\_\_\_

RESPONDENT'S SIGNATURE: \_\_\_\_\_





# QUESTIONNAIRE

## ASSESSING HUMAN EXCRETA DISPOSAL PRACTICES AT SENCHI FERRY IN THE EASTERN REGION OF GHANA

Please circle appropriate answer

### SECTION A- DEMOGRAPHICS

1. Status of respondent

- A. head of household
- B. spouse of the head of household
- C. son/daughter of head of household
- D. caretaker
- E. other (specified) \_\_\_\_\_

2. Gender of respondent (if not head of household)

- A. Male
- B. Female

3. Level of education of respondent (if not head of household)

- A. No formal education
- B. Primary education
- C. Junior high school/ Form-4
- D. Senior high school/ Vocational School

E. Tertiary education/ “O” level

4. Age of respondent (if not head of household) \_\_\_\_\_

5. What is the gender of the head of the household?

A. Male

B. Female

6. What is your age of the head of the household? \_\_\_\_\_

7. What is the marital status of the head of household?

A. Single

B. Married or living together

C. Divorced or separated

D. Widowed

8. What is the highest educational level of the head of the household?

A. No formal education

B. Primary education

C. Junior high school/ Form-4

D. Senior high school/ Vocational School

E. Tertiary education/ “O” Level

9. What is the employment status of the head of household?

A. Unemployed

B. Employed

10. What is the religion of the head of household?

A. Christian

B. Muslim

C. Traditional

D. Other (please specify) \_\_\_\_\_

11. What is the ethnicity of the head of household?

A. Akan

B. Ga-Adangbe (Krobo)

C. Ewe

D. Mole-Dagbani

12. How many people live in your household?

A. 1-2 people

B. 3-4 people

C. 5-6 people

D. 7 or more people

**Section B: "Types of Human Excreta Disposal Facilities in Senchi Ferry."**

13. Do you have access to a toilet facility in your household?

A. Yes

B. No

14. How many toilet facilities are available for use in your household?

A. None

B. 1

C. 2

D. 3 or more

15. If No to q.13, then how do you access toilet facility?

A. Bush

B. Public Toilet

C. Polythene bag (wrap and throw)

D. Neighbors' household

16. If yes to q.13, What type of toilet facility do you use in your household?

A. Flush/pour flush to piped sewer system

B. Flush/pour flush to septic tank

C. Flush/pour flush to a pit latrine

D. Ventilated improved pit (VIP) latrine

- E. Pit latrine with a slab
- F. Composting toilet
- G. Flush/pour flush not to sewer/septic tank/pit-latrine
- H. Pit latrine without slab/open pit
- I. Bucket
- J. Hanging toilet/hanging latrine
- K. Other (please specify) \_\_\_\_\_

17. Where is the toilet facility located?

- A. Inside the room
- B. In the compound
- C. Just outside the compound
- D. A distant location from the house

18. Do you share a toilet facility with other households?

- A. Yes
- B. No

19. If yes how many people do you share the toilet facility with? \_\_\_\_\_

20. What is the condition of the toilet facility you use?

- A. Very clean

B. Somewhat clean

C. Dirty

D. Very dirty

21. Do you practice open defecation?

A. Yes

B. No

22. If yes to q. 21, why? \_\_\_\_\_

23. Have you ever passed stool along the banks of the Volta Lake before?

A. Yes

B. No

24. If yes, why? \_\_\_\_\_

25. What do you think is the main reasons why people practice open defecation or use unimproved latrines in your community? (Please select one)

A. Lack of access to toilet facilities

B. Lack of funds to construct toilet facilities

C. Cultural beliefs and practices

D. Lack of awareness on the importance of safe disposal of human excreta

E. Ignorance

F. Other (please specify) \_\_\_\_\_

**Section C: "Factors Influencing Human Excreta Disposal Practices in Senchi Ferry."**

26. Do you think your current toilet facility is convenient to use?

- A. Yes, very convenient
- B. Somewhat convenient
- C. Not very convenient
- D. Not at all convenient

27. How do you dispose of human excreta waste in your household?

- A. Municipal waste collection service
- B. Private waste collection service
- C. Burning
- D. Burying
- E. Throwing in open spaces
- F. Other (specify) \_\_\_\_\_

28. How important is it to you to have a hygienic toilet facility?

- A. Very important
- B. Somewhat important
- C. Not very important

D. Not at all important

29. Have you ever received any education or training at an event or in school on proper human excreta disposal practices?

A. Yes

B. No

30. What factors most influences your decision on how to dispose of human excreta? (Choose one)

A. Availability of toilet facility

B. Convenience of toilet facility

C. Cost of using toilet facility

D. Culture or tradition

E. Health concerns

F. Environmental concerns

G. Other (specify)

31. Do you think having access to a toilet facility within your household influences your human excreta disposal practices?

A. Strongly agree

B. Agree

C. Disagree

D. Strongly disagree



32. Do you think social norms and beliefs at Senchi affect human excreta disposal practices?

A. Yes

B. No

33. If yes to q 32, why? \_\_\_\_\_

**Section D: "Human excreta disposal practices and diarrheal diseases".**

34. Have you or anyone in your household experienced diarrhea within the past 3 months?

A. Yes

B. No

C. Don't know

35. How often do you or anyone in your household experience diarrhea?

A. Rarely (once a year or less)

B. Occasionally (a few times a year)

C. Frequently (at least once a month)

D. Don't know

36. Have you or anyone in your household received any education or training on preventing diarrhea disease?

A. Yes

B. No

C. Don't know

# PLAGIARISM REPORT

To assess human excreta disposal practices in Senchi Ferry at the Asuogyaman District in the Eastern region of Ghana.

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