

**SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
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**ASSESSING THE AVAILABILITY OF WATER, SANITATION AND HYGIENE
(WASH) SERVICES AND PATIENT SATISFACTION IN HEALTH FACILITIES IN
GA WEST MUNICIPALITY OF GREATER ACCRA REGION**

BY

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DECLARATION

I AKOSUA TAKYIWA KWAKYE declare that this is the result of my original research under the supervision of Dr. Prudence Tettey. Where other works, ideas and views have been cited they have been duly acknowledged. This research has not been submitted to any other institution for an award of any degree.



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DEDICATION

I dedicate this thesis to my father Professor Kofi Oduro Asante who led the way for me to follow in his footsteps and to my dear husband Mr. Kojo Kwakye and my wonderful daughters Ivana and Elisa, my greatest cheerleaders for inspiring me to succeed.

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LIST OF ABBREVIATIONS

CHPS	Community Health Planning Services
DHIMS	District Health Information Management System
DHMT	District Health Management Team
GHS	Ghana Health Service
HACI	Hospital Acquired Infections
HCF	Healthcare Facilities
JMP	Joint Monitoring Programme
LMICS	Lower and Middle-Income Countries
MOH	Ministry of Health
NGOs	Non-Governmental Organizations
UNICEF	United Nations Children's Fund
WASH-FIT	Water and Sanitation for Health Facility Improvement Tool
WASH	Water, Sanitation and Hygiene
WATSAN	Water and Sanitation
WHO	World Health Organization

ABSTRACT

Introduction: There is a paucity of research on the level of patient satisfaction with water, sanitation and hygiene (WASH) services in Ghanaian health facilities.

Objectives: This study aimed to assess WASH facilities in selected health facilities in the Ga West Municipality of the Greater Accra region and to ascertain patient satisfaction with these services.

Methods: An analytical cross-sectional design was used to collect data from patients aged 18 years and above accessing healthcare in 8 selected health facilities in the Ga West Municipal of the Greater Accra Region. The 428 patients were selected via consecutive sampling from all selected facilities simultaneously to meet the facility-specific sample sizes. Administrators in each of the surveyed health facilities also provided general information about the facility. A checklist was used to assess the WASH services in the selected health facilities. Data was managed and analyzed using STATA version 16 using mean gap score between patients expectation and what they perceived to measure patients satisfaction. Multiple logistic regression was used to determine factors associated with patients' satisfaction.

Results: The level of WASH services in health facilities in the municipality vary with higher level of services for water and hand hygiene than sanitation and waste management services. On the other hand, the level of patients' satisfaction with the WASH services in health facilities in the municipal was low (percentage = 21.7%; 95% CI = 17.9% - 25.9%). The place of residence patients, rural areas (aOR = 5.13; 95% CI = 1.83 – 14.39; p = 0.002), patients who visit private health facilities (aOR = 0.003; 95% CI = 0.0004 – 0.02; p < 0.001) and level of health facilities; level 2 (aOR = 228.32; 95% CI = 62.03 – 840.40; p < 0.001) and level 3 (aOR = 4.31; 95% CI = 1.70 – 10.94; p = 0.002) health facilities were factors significantly associated with patient satisfaction with WASH services in the health facilities.

Conclusion: The level of WASH services in the health facilities surveyed ranged from limited

to basic services when compared to the JMP WASH service ladder. Overall patient satisfaction with WASH services in health facilities in the municipality was low. The WASH in HCF Technical Guidelines developed by the Ghana Health Services should be implemented particularly for new upcoming facilities and old facilities should be renovated to meet the said WASH standards.

Keywords: Water, Sanitation, Hygiene, WASH Services, Patient Satisfaction, Healthcare Facilities

CHAPTER ONE

INTRODUCTION

1.1 Background

Adequate and safe water, sanitation and hygiene (WASH) services in health facilities are essential for the prevention of the spread of diseases, provision of quality of care and promotion of patient safety. In 2010 the United Nations General Assembly adopted the human right to water and sanitation under UN Resolution 64/292 (UN, 2010). This resolution called on member states to scale up efforts to provide safe, clean, accessible and affordable drinking water and sanitation for all citizens. The human rights to water and sanitation was further endorsed by the United Nations in 2015 through the UN Sustainable Development Goal (SDG 6) with target 6.2 aimed at achieving access to adequate and equitable sanitation and hygiene for all. In spite of the crucial role of WASH in infection prevention and the patient's right to safe healthcare. Healthcare-associated infections acquired during hospital visits and hospitalization affect hundreds of millions of patients every year. According to the World Health Organization (WHO, 2011), about 7% of estimated patients in high-income countries contract hospital-acquired infections during their stay in hospital. The proportion of hospital acquired infections is likely to be higher in low-income countries where the population groups at higher risk of acquiring hospital infections include, pregnant women, neonates and children under five years. Studies have however shown that in health facilities, adequate and improved WASH services can reduce the risk of infections for patients, their care givers and health workers (WHO, 2011).

The provision of adequate WASH services and practices can result in increased demand and trust in the health services and improved patients' experience with the care they receive from

healthcare providers. The positive effects of WASH practices and behaviours such as hand washing with soap can be passed on to friends and relatives of the patients, enhance staff motivation and improve performance and retention of health workers (Russo et al., 2012; Bouzid et al., 2017). In recent times, there is increasing concern of the need to monitor WASH services in settings like workplaces, schools and health facilities (Cronk et al., 2015). However, WASH services in healthcare facilities (HCF) have not been adequately researched in low-income countries, neither have the links between WASH services and patient satisfaction been sufficiently explored in Ghana to inform policy and practice discussions.

Client satisfaction for services and goods is an important measure for quality and adequate provision of services and products. There is enough evidence to show the importance clients attach to service quality in both production and service organizations, particularly in high-customer oriented industries such as healthcare and financial services (Taheri et al. 2013). In the healthcare industry, Tirsit and colleagues (2015) have defined patient satisfaction as *'an attitude resulting from a person's general orientation towards a total experience of healthcare'*. The need for patient satisfaction with health care services has been advocated at many levels. Yet, in low-income countries studies on patient satisfaction have focused on technical and functional areas accessing clinical care, with little attention to patient satisfaction for supporting services such as WASH (Tirsit et al., 2015).

1.2 Problem Statement

The main focus of the assessment of WASH services has been in communities and less on the impact of WASH services on patients in healthcare facilities in low-income countries (Bouzid, et al. 2018). In 2015 an assessment conducted by WHO and UNICEF in 66 health facilities in 54 lower and middle-income countries showed that 38% of facilities lacked access to safe water, 19% had no improved sanitation and 35% had no soap for hand washing (WHO & UNICEF, 2015). According to the World Health Organization, (WHO, 2015) inadequate

WASH services contribute to Hospital Acquired Infections (HAI). In Lower and Middle-Income Countries (LMICs) HAI is estimated at 15.5% and affects vulnerable groups such as pregnant women, neonates and children under five years (Allegranzi et al., 2011; WHO, 2011). Inadequate WASH services in healthcare facilities has resulted in several disease outbreaks. Such occurrences may increase patient dissatisfaction and limit healthcare-seeking behaviour (Bouزيد et al., 2018).

In Ghana, access to improved water is 86% and access to improved sanitation at the household is 20% (UNICEF, 2018). The low coverage of sanitation predisposes the population to infectious diseases. In 2019, the WHO/UNICEF Joint Monitoring Programme for WASH (JMP) published the baseline report for WASH in Healthcare Facilities. The Ghana estimates for basic water services defined as improved water supply, available and on-premises of the health facility was 85% (World Health Organization & United Nations International Children's Emergency Fund, 2019). However, there were no estimates for basic services for sanitation and hand hygiene due to lack of data.

Although the WHO/UNICEF estimates for basic water services appears high this is not the case for all health facilities. There are disparities in the availability of WASH services by level of health facilities, tertiary or health centre, services provided and between location rural or urban areas. A WASH in HCF assessment conducted by Ghana Health Service (GHS) in Tatale Sangule District and Kpandai district in Northern Ghana found 16% had no toilet facilities, 12% of toilets were in very bad condition, 33% had improved water supply on the health facility premises, 41% improved water far from the premises and 20% did not have an improved water source. This illustrates the inadequacy of WASH services in some health facilities and thus the importance of targeted and needs-based interventions (GHS, 2016).

In recent years the Ghana Health Service has integrated WASH in Infection Prevention Control and Quality of Care of Maternal and Child Health Programmes. WASH indicators have also been integrated into the District Health Information Management System, the second phase (DHIMS2). However, the database is in the initial stages and there is a lack of comprehensive data on the status of WASH services in Healthcare Facilities. There is also limited research on the level of patient satisfaction with WASH services in health facilities, especially in the Greater Accra region. This information is important as it will influence health-seeking behaviour and ultimately reduce adverse health outcomes (Bouzid et al., 2018)

1.3 Narrative of Conceptual Framework

The conceptual framework below (Figure 1.1) explains the correlation and contribution of factors that influence patient satisfaction. It has been established that simple measures such as improving water supply, cleanliness of toilets and installing low-cost hand washing facilities at healthcare facilities improve quality of care. Adequate water, sanitation and hygiene (WASH) are essential components of providing basic health services. The provision of WASH in healthcare facilities serves to prevent infections and spread of disease, protect staff and patients, and uphold the dignity of vulnerable populations including pregnant women and the disabled.

The adequacy of WASH facilities in health facilities from the patient's perspective is influenced by socioeconomic status. Low-income users in a Nigerian study reported better quality of services including clean toilets than high-income users (Mohammed et. al, 2013). The living conditions of the patient and previous experience in the use of WASH facilities also influence patients' perception and level of satisfaction with services (Woldeyohanes et al., 2015).

The framework illustrates how socio-economic factors and patients' perception of the adequacy of WASH service i.e. availability of improved water, functionality and cleanliness of toilets,

hand washing facilities at advantage points influence patient satisfaction. There are also interactions between the various WASH components, the availability of water supply is essential for both adequate sanitation and good hand hygiene.

1.4 Conceptual Framework

Assessing the availability of WASH services in health facilities and the effect on patient satisfaction in selected hospitals will contribute to the knowledge and evidence for strategic planning.

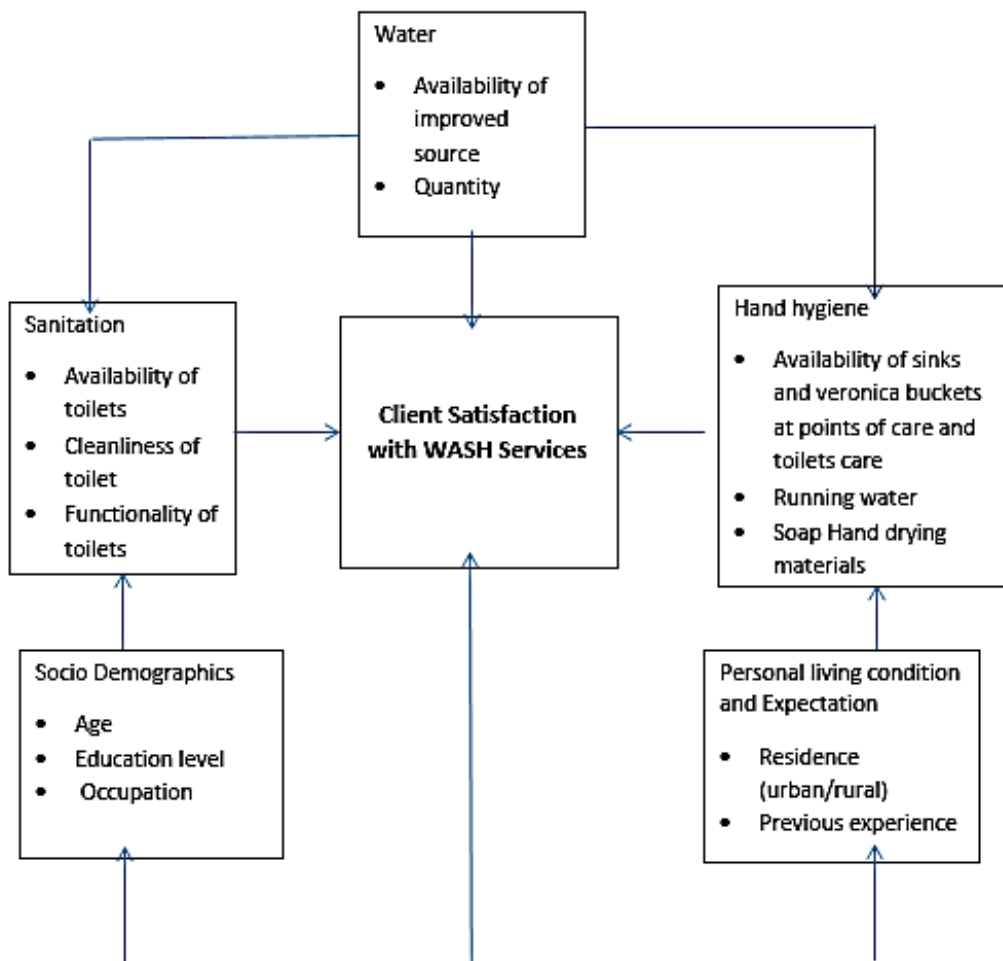


Figure 1.1: Conceptual Framework- Water Sanitation and Hygiene facilities and Patient Satisfaction

1.4 Objectives of the study

1.4.1 Main Objective

The main objective of the study is to assess the availability of WASH services in health facilities and determine factors that influence patient satisfaction with these services.

1.4.2 Specific Objectives

- To assess the availability and level of water, sanitation and hygiene (WASH) services in health facilities in the municipality;
- To determine the level of patients' satisfaction with the WASH services in health facilities in the municipality; and
- To determine the association between socio-demographic factors on patients' satisfaction with WASH services.

1.4.3 Research Questions

- What is the state and level of availability of water, sanitation and hygiene (WASH) services available in the healthcare facilities?
- Are patients satisfied with the WASH services in health facilities?
- Is patient satisfaction with WASH services influenced by socio-demographic factors?

1.5 Justification

The aim of this study is to fill the literature gap in the water, sanitation and hygiene services in Ghana since studies in this area are limited. This study will also assess patient satisfaction on the three dimensions (3Es) of environmental factors (water, sanitation and hygiene) that might influence service delivery and patient safety in health facilities. Results attained from this current study can be generalized and applied to similar settings due to the quantitative methods proposed. The study results will also help shape policy and practice discussions on water,

sanitation and hygiene services in health facilities. It will also help policymakers of the Ministry of Water and Sanitation, NGOs and other entities to plan for effective measures on water, sanitation and hygiene interventions in health facilities in the country as a whole. Finally, the study aims to contribute to the literature on water, sanitation and hygiene services in health facilities in the country.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a detailed review of existing literature that is appropriate to develop an understanding of water, sanitation and hygiene issues in health facilities. It examines the debate on water, sanitation, and hygiene in general with a focus on clients that visit health facilities. The review is on both empirical literature and theories on the subject and explores the various aspects of water, sanitation and hygiene (meanings and components). It also describes the framework to the study and how it connects with best practices and appropriate actions employed by health facilities to improve WASH practices.

The chapter begins by describing the review process and literature search. It examines the dominant theories on patient satisfaction in healthcare facilities. It then proceeds to review empirical literature based on the various aspects of the conceptual framework (water, sanitation and hygiene) and examines best practices and challenges from other countries to serve as a guide for interpretation of results of the study.

2.2 Review process and literature search

A comprehensive literature review was conducted to understand the theoretical foundation of the study. Initial search using the words or phrases; 'water', 'sanitation', 'hygiene', 'patient satisfaction', 'health facilities' were entered into Google Scholar search engine to retrieve studies that have been conducted with the terminologies but limited to Ghana. A search strategy was designed to search the following databases: PubMed, CINAHL, and Medline. The strategy was modified across different databases. References of identified studies, as well as

grey literature, was searched by using Google search engine, a reference list of published studies and government websites that helped identify unpublished studies was also used.

2.3 Empirical literature

The objectives of the study examine three key variables; level of WASH services; patient satisfaction on WASH services; and influence of demographic factors on patient satisfaction of WASH services. Therefore, the study reviews the literature on studies that have explored; patient satisfaction with overall health services; patient satisfaction with WASH services; adequacy of water, sanitation and hygiene services and impact on specific healthcare services and finally relate the literature to the conceptual framework.

2.3.1 Patient satisfaction on overall healthcare services

There is evidence to show a strong relationship between health outcomes and patient satisfaction (Smith and Engelbrecht, 2001; Leino-Kilpi and Vuorenheimo, 1992). Patient satisfaction with the services they receive from health facilities is the judgement they make about those services. The United Kingdom Health Boards Executive (2003) views satisfaction to be the level to which patients' desired goals are attained. Woldeyohanes and colleagues (2015) consider patient satisfaction to be an attitude that emanates from a person's overall alignment with their understanding of healthcare and experience towards health services.

In a cross-sectional survey design to measure and describe the level of satisfaction within inpatient healthcare services (Woldeyohanes et al. 2015) found that almost 67% of patients sampled were satisfied by the service, they received from the hospital. Those found to be dissatisfied had concerns with nursing, pharmacy laboratory services health education, communication and information they received about their illness. This study was conducted on only inpatients and was more focused on technical quality and not support services.

Anbari and colleagues, (2014) used a cross-sectional SERVQUAL survey questionnaire to examine patients' views on different types of service in Iranian hospitals. They identified that patients had a high expectation and perception associated with the responsiveness of services provided and a lower expectation and perception associated with the reliability of services.

Peprah and Atara (2014) used the SERVQUAL model to assess the satisfaction of 214 outpatients from a regional hospital in Ghana and found that patients were not satisfied with the quality of service they received about reliability, communication/interpersonal relationship, assurance and responsiveness. However, this study was limited to only one regional hospital and conducted on the functional assessment of outpatients alone.

The SERVQUAL model applies to the healthcare sector (Herstein & Gamliel, 2006). It has the following characteristics (Herstein & Gamliel, 2006):

1. Reliability: appointments kept on schedule, accurate diagnoses;
2. Responsiveness: accessible services, no waiting, willingness to listen;
3. Assurance: knowledge, skills, credentials, reputation;
4. Empathy: patient acknowledged as a person, awareness of previous problems, good listening, patience; and
5. Tangibles: washrooms, clean environment, waiting room, examination room, available equipment, written materials.

For this study, the tangible dimension was applied to measure the client's satisfaction to WASH services in the health facility. Although some researchers have stated this dimension as the least important dimension for the patients from the use of the SERVQUAL model (Yousapronpaiboon & Johnson, 2013), the tangible dimension refers to how the physical environment of the hospital appears to the patient- the neatness, how it looks, if it is good and modern, accessibility, staff. The physical atmosphere may have a psychological impact on the patient either positively or negatively.

2.3.2 Patient satisfaction with WASH services

Indeed, the literature shows that studies conducted on patients' satisfaction in low-income countries have focused on nursing and outpatient care with a few on inpatient care and other supportive or functional services such as WASH (Woldeyohanes et al. 2015). Supportive services critical to patients' health outcome include; Water, sanitation and hygiene (WASH) services in health facilities. Yet in developing countries, there is limited empirical evidence in this area (Bouزيد et al. 2018). In a systematic literature review on patient satisfaction, (Bouزيد et al. 2018) in Nigeria retrieved only 21 WASH-related articles out of 984 papers on patient satisfaction. Bouزيد and colleagues (2018) concluded in their review that WASH was not the main driver of patient satisfaction.

The review showed that poor or inadequate WASH services correlated with patient dissatisfaction. However, the findings indicate that the level of dissatisfaction was not strong enough to prevent patients from looking for healthcare in those Nigerian facilities with poor WASH services. This systematic review also highlighted a paucity of research to describe and evaluate interventions to improve WASH conditions in HCF in a low-income setting with a high burden of healthcare-associated infections. Bouزيد and colleagues (2018) however suggest that improving WASH services in healthcare facilities will potentially reduce patient dissatisfaction - resulting in increasing care-seeking behaviour and improved health outcomes.

WASH services include several interventions ranging from health campaigns to the creation of awareness and stimulation of interest in sanitation and hygiene behaviours, infrastructure for water and sanitation improvements, and regulation of quality service and cost dimension to drinking water (Bartram and Cairncross 2010). Increasing concerns about health-related infections due to inadequate hygiene practices has resulted in several initiatives on patient safety by the World Health Organization (WHO, 2010). The WHO guidelines on hand hygiene

in healthcare facilities also recognize the importance of water and, to a minor extent, sanitation as determinants of safe hand hygiene (Pittet, 2009).

Weber, et al. (2018) used in-depth interviews and document reviews to assess the extent of WASH FIT in 3 healthcare facilities in Togo. WASH FIT is a set of 65 WASH indicators developed by the World Health Organization to assess the extent of WASH in healthcare facilities. The assessment showed that on average, the facilities improved from 18% of total indicators meeting standards at baseline to 44% after 7 months. Examples of WASH services that realized improvements include drinking water supply, medical waste segregation, and availability of soap at handwashing points. Participants reported improvements in staff and patient satisfaction, hand hygiene, and occupational safety. Findings suggest that WASH FIT, coupled with training and supervision, may help facilities improve WASH services and practices, thus contributing to global health security.

The SERVQUAL model with its associated questionnaire was adopted to determine patients' level of satisfaction with the quality of WASH services in this study. The questionnaire was designed to assess patients' level of satisfaction using two categories: 1) expectation; and 2) perception (Khamis & Njau, 2014). The patients' satisfaction scores were computed by comparing the patients' experience or their perception of service quality scores compared with their expectation scores:

Perception - Expectation = Satisfaction (Yousapronpaiboon & Johnson, 2013).

Patients' satisfaction was measured by asking the level to which patients were satisfied with the WASH services accessed based on them using four point-Likert Scale questions (Strongly disagree, Disagree, Agree, Strongly Agree).

2.3.3 Water, Sanitation and Hygiene (WASH) and Health Services --Provision

Low and middle-income countries have recorded poor access to water and sanitation (WATSAN) services in health facilities. The World Health Organization (WHO, 2015) indicates that 38% of healthcare facilities across 54 countries in poorly resourced countries do not have access to basic water sources and 19% do not have access to basic sanitation infrastructure.

A Ghanaian study in the Bongo and Kassena Nankana west districts in Ghana among 29 health care facilities revealed that concerning availability of water, 76% of healthcare facilities had uninterrupted water supply while only 55% had storage tanks. In the same study, 48% had toilet facilities for outpatients. However, half of these toilet facilities were shared by both male and female patients contrary to WHO standards. Among the health facilities, 50% disposed their fecal matter manually while 27% use sewage system, 19% use puller services and the remaining use the dig and bury method. General and medical wastes were disposed using incinerators (21%), shallow pit burning (69%) whilst the remainder used waste bins or dig and bury method. The study also noted that 93% had hand washing centres, 100% had alcohol hand rubs but only 14% had one near toilet facilities (WaterAid n.d.).

A recent study evaluating the WASH status of seven COVID-19 treatment centres in Ghana using the WHO/UNICEF water and sanitation for health facility improvement tool (WASH FIT) revealed that the centres averaged 90.5% standard score for water across the seven centres, followed by management (66.9%) and hygiene (58.7%). Poor performance was recorded in the sanitation and waste practices of the treatment centres with an average score of 44.6% (Ashinyo et al., 2021). A study involving 16,456 health facilities from eighteen sub Saharan countries excluding Ghana noted that 88 % of health facilities had an improved water source, 94 % had an improved toilet, 74 % had soap and running water or alcohol-based hand rub, and 17 % had standard precautions for infection prevention available. The study also noted a wide variability

in access to water, sanitation and hygiene services between rural and urban health facilities and between public and private facilities, with consistently lower access in both rural and public facilities (Kanyangarara et al., 2021).

Access to safe drinking water and improved hygiene is essential for preventing diarrheal diseases. Russo et al. 2012 evaluated water treatment and hygiene practices of 275 non-pregnant friends and relatives of the hygiene kit recipients in Malawi using kit recipients as a baseline to evaluate the intervention. The results showed that friends and relatives who did not receive kits or education were more likely to purchase and use a water treatment solution. They also demonstrated correct hand washing practices in the facilities. This antenatal clinic-based program resulted in improved water treatment and hygiene behaviours among non-pregnant friends and relatives living in the same communities as hygiene kit recipients, suggesting that program benefits extended beyond direct beneficiaries.

For specific service provision in health facilities, the World Health Organization (WHO, 2015) has shown that absence of water, sanitation and hygiene (WASH) services endanger the ability of midwives and birth attendants to undertake appropriate hygiene and infection prevention and control measures. Gon et al (2016) used global datasets from 58 countries to examine the effect of water and sanitation on childbirth in homes and health facilities. The results show that among the health facilities that conducted deliveries, only 44% of them had safe water and sanitation facilities and just 24% of facility delivery rooms had safe WATSAN services.

The investigation indicated regional disparities in WATSAN infrastructure within health facilities with countries from Sub-Saharan Africa adversely affected. This challenge has been a long-standing issue over the years in low-income countries. For example, Gould and Gordon (2010) showed a link between maternal mortality and hygiene at birth in health facilities in developing countries. Investigations on the interplay between poor hygiene and childbirth in

health facilities have provided enough evidence to suggest that at least 9% of maternal deaths and 680 000 neonatal deaths recorded in health facilities yearly are caused by poor hygiene (Kassebaum et al., 2013; Seale et al., 2012).

Even though hospital infections in babies can occur anywhere irrespective of the economic status of the country, research has shown that infection rate in babies is 3–20 higher in developing countries than developed countries (Zaidi et al., 2005). Yet there is enough expert view to suggest that about 27% of these deaths could be reduced with clean delivery in health facilities (Blencowe et al., 2011).

Many researchers have questioned the constituents of clean delivery in health facilities. Blencowe et al. (2011) argue that clean delivery can only be achieved through access to appropriate WATSAN facilities. According to Blencowe et al., clean delivery comprises; 'clean hands of the birth attendant, clean perineum, clean birth surface, clean cord preparation and cutting, and appropriate newborn postpartum skincare. Collignon, et al (2018) have shown that improving sanitation, increasing access to clean water, are important contributing factors towards the reduction of antimicrobial resistance.

Assessment of WASH Services

The assessment of WASH services in the health facilities was done by using a check list and categorizing the level of services for each of the four WASH components by adapting the WASH service ladder categorizing WHO/UNICEF JMP (2017) for Water, Sanitation, Hygiene and Waste Management.

Water	Sanitation	Hygiene	Healthcare Waste
<p>Basic service</p> <p>Water is available from an improved source located on premises.</p>	<p>Basic service</p> <p>Improved sanitation facilities are usable with at least one toilet dedicated for staff, at least one sex-separated toilet with menstrual hygiene facilities, and at least one toilet accessible for people with limited mobility</p>	<p>Basic service</p> <p>Functional hand hygiene facilities (with water and soap and/or alcohol-based hand rub) are available at points of care, and within 5 meters of toilets</p>	<p>Basic service</p> <p>Waste is safely segregated into at least three bins and sharps and infectious waste are treated and disposed of safely</p>
<p>Limited service</p> <p>An improved water source is within 500 meters of the facility, but not all requirements for basic service are met.</p>	<p>Limited service</p> <p>At least one improved sanitation facility, but not all requirements for basic service are met.</p>	<p>Limited service</p> <p>Functional hand hygiene facilities are available at either points of care or toilets, but not both.</p>	<p>Limited service</p> <p>There is limited separation and/ or treatment and disposal of sharps and infectious waste, but not all requirements for basic service are met</p>
<p>No service</p> <p>Water is taken from unprotected dug wells or springs, or surface water sources; or an improved source that is more than 500 m from the facility; or the facility has no water source.</p>	<p>No service</p> <p>Toilet facilities are unimproved (pit latrines without a slab or platform, hanging latrines and bucket latrines), or there are no toilets or latrines at the facility.</p>	<p>No service</p> <p>No functional hand hygiene facilities are available at either points of care or toilets.</p>	<p>No service</p> <p>There are no separate bins for sharps or infectious waste, and sharps and/or infectious waste are not treated/disposed of</p>

Figure 3 1: JMP Service Ladders for Monitoring WASH in HCF

Source WHO & UNICEF (2019), WASH in HCF Baseline Report

Note:

Improved water sources include piped water, borehole, tube wells, rainwater, and protected springs. Improved toilets include flush/poor toilets connected to piped sewer system, septic tanks or pit latrines. Hand Hygiene facilities include sink and tap, veronica buckets, tank with Waste segregation into 3 bins for general waste, infectious waste and sharps. Safe treatment of waste includes incinerated, autoclaved and buried in a protected pit

Figure 3.1 is the JMP ladder used for WASH services for the study. The categorization for WASH services was defined to establish a benchmark for assessing WASH indicators and was used for the Global baseline report on WASH in Healthcare facilities. These indicators are used for monitoring progress in WASH targets for the Sustainable Development Goals. This service ladder has also been adapted by Ghana (UNCG SDGs 2017).

Summary

The literature has provided enough evidence to demonstrate that water, sanitation, and hygiene (WASH) affect diarrhoea diseases, maternal and newborn health. This means that ensuring adequate attention and monitoring of WASH services in healthcare facilities is critical to improving maternal and newborn health indicators. The evaluation of WASH activities in healthcare facilities is needed to identify effective interventions to improve WASH and consequent progress in maternal and newborn health. However, in Ghana, these links have not been adequately explored.

CHAPTER THREE

METHODS

3.1 Introduction

This chapter of the dissertation focuses on the various procedures that was used in the study. The Study Design, Study Areas and Study Population, Sampling Technique, Study Variables, Data Collection Methods and Instruments, Data Analysis, and Ethical Consideration are described in this chapter.

3.2 Study Design

In line with objective research principles, this study used quantitative research methods to collect, quantitative data and this was informed by the nature of research questions that were not easily answered by qualitative approaches and required strong statistical analysis. This study was an analytical cross-sectional design among patients aged 18 years and above accessing healthcare in 8 selected health facilities in the Ga West Municipal of the Greater Accra Region.

3.3 Study Areas

The study was carried out in the Ga West Municipal of the Greater Accra Region of the Republic of Ghana. Ga West Municipal is one of the 29 Administrative districts in the Greater Accra Region with Amasaman as the Municipal capital. The Municipal shares boundaries with Ga East and Accra Metropolitan Assembly to the East, Akuapem South to the North and Ga South to the South and West. The municipal has a population of 219,788 people with 51% females as per the 2010 housing and population census (Ghana Statistical Service, 2010). The population is mostly urban (63%) and covers 193 communities. The predominant religion is Christianity. There are however several traditional religious practitioners and Moslems. Health service provision is mainly by the Government through the Ghana Health Service and supported by private facilities. The Municipal has 30 health facilities made up of; 1 Municipal

Hospital, 15 CHPS compounds, 6 clinics, 3 health centres, 1 private hospital, 3 maternity homes and 1 Polyclinic.

3.4 Study Population

The study population included all patients, both men and women seeking healthcare at the time of the study in the health facilities in Ga West Municipal and the administrator in each of the surveyed health facilities who provided general information about the facility.

3.4.1 Inclusion Criteria

Eligible participants for this study were all patients aged 18 years and above, willing to provide answers to the study instrument, and who have made at least one visit and utilized the WASH services in the selected facilities. The administrator who has oversight responsibility at each of the selected health facility was included in the study. The study was conducted in English, Twi and Ga for the benefit of respondents who not literate.

3.4.2 Exclusion Criteria

Patients who cannot speak or hear (deaf), those who are in serious health conditions, those who have mental health conditions, and minors were excluded from the study. No hospital administrator was excluded from the study.

3.5 Sampling Technique

3.5.1 Selection of health facilities

A total of 8 health facilities were selected to be part of this study. This number represents 28% of the 30 health facilities in the municipal that provide primary and secondary healthcare to the population. The facilities were a combination of government and private sampled randomly based on facility type (CHPS, Hospital, Health Centre, Maternity Home, and Clinic). The breakdown was; 2 CHPS compounds, 1 Municipal Hospital, 1 Clinic, 1 Health Centre, 1 Polyclinic, 1 Private Hospital and 1 Maternity Home (private).

Table 3.1: List of health facilities

Facility	Type	Description
Facility A	Government	Serves a population of 151,039 persons. Average monthly outpatients are 5,376, operates 7 days a week, has 88 beds. Provides both outpatient and inpatient care.
Facility B	Government	The catchment population is 52, 864, operates 7 days a week, average monthly patients are 1,000, has 28 beds, provides both inpatient and outpatient care.
Facility C	Government	Catchment population 15,104 persons. The health centre operates 7 days and mainly on an outpatient basis, however has 7 beds and detains patients both day and night as needed.
Facility D	Private	Provides both outpatient and inpatient care and operates 7 days a week. Average monthly patients are 95. The bed capacity is 9.
Facility E	Private	Provides both outpatient and inpatient care and operates 7 days a week. Average monthly patients are 1,500. The bed capacity is 60.
Facility F	Government	The catchment population is 1,510, operates 5 days a week (Monday to Friday), Average monthly patients seen are 60. Mainly provides outpatient services with 4 beds (2 for males and 2 for females) for detainment for about 2 hours
Facility G	Government	Catchment population 6,326, operates 7 days a week. Average monthly patients seen is 60. Mainly provides outpatient care. Has two beds for short detainment.
Facility H	Government	The catchment population is 7,000, operates 5 days a week (Monday to Friday). Mainly provides outpatient care, no inpatient admissions. Average monthly patients seen are 110.

Table 3.2: Names of Health Facilities according to Level and Type

Facility	Name of Health Facility	Level	Type
Facility A	Ga West Municipal Hospital	Secondary	Government
Facility B	Oduman Polyclinic	Primary 1	Government
Facility C	Mayera Health Centre	Primary 2	Government
Facility D	Edith Maternity Home	*Primary 2	Private
Facility E	M&D Medical Centre	*Primary 1	Private

Facility F	SamSam Community Clinic	Primary 2	Government
Facility G	Akramaman CHPS	Primary 3	Government
Facility H	Ahiabukope CHPS	Primary 3	Government

Categories for Disaggregation of Data

Category A (Levels, Secondary and Primary)

1. Ga West Municipal Hospital
2. Oduman Polyclinic, *M&D Medical Centre
3. Mayera Health Centre, Samsam Clinic, *Edith Maternity Home
4. Akramaman CHPS, Ahiabukope CHPS

Category B (Public and Private)

1. **PUBLIC:** Ga West Municipal, Oduman Polyclinic, Mayera Health Centre, Samsam Clinic, Akramaman CHPS, Ahiabukope CHPS
2. **PRIVATE:** M&D Medical Centre, Edith Maternity Home

3.5.2 Sampling Size Determination

All Administrators of the selected health facilities were included in the sample, which is a total of 8 administrators.

The proportion of patients' satisfaction with OPD services reported by a study by Sagaro and friends (2015) was used in calculating the required sample size for this study. The study reported 54.2% of patients' satisfaction (Sagaro *et al.*, 2015). Thus, the sample size of this

study was calculated at a 95% confidence interval using a formula by Cochran. The formula is given by:

$$n = \frac{Z^2 pq}{e^2} \text{ (Cochran, 1977)}$$

Where:

- n= required sample size
- Z^2 = standard normal deviate for two tailed-test based on 95% confidence level = 1.96
- P= 54.2% satisfaction level based on a study in Ethiopia (Sagaro *et al.*, 2015).
- q = 1-0.542= 0.458
- e= margin of error = 5% = 0.05
- Therefore, the sample size will be calculated as follows
- $N = \frac{z^2 pq}{e^2}$
- $N = \frac{(1.96)^2 \times 0.542 \times 0.458}{0.05 \times 0.05}$
- $N = \frac{3.8416 \times 0.542 \times 0.458}{0.05 \times 0.05}$
- N = **381**
- However, to cater to a non-response rate of 10% was used to upwardly adjust the sample size. Thus, $1.1 \times 380 = 418$. This number was increased to 418 to make up for a possible 10% non-response rate.

3.5.3 Selection of Participants within the Selected Facilities

In each facility, the selection of patients (outpatients and in-patients) was done by consecutive sampling. Out-patients were recruited at the OPD after receiving treatment at the health facility. All consecutive OPD patients, if eligible were enrolled in the study if they gave consent.

For facilities that have in-patients, there were two categories, small facilities with one or two wards, these were all were included in the study, for larger health facilities the wards were visited in alphabetical order of their names and in order of bed numbers to recruit participants for the study. Wards visited were the children wards, general ward, maternity ward and surgical ward.

3.5. 4 Sampling Process

Using proportionate sampling, the number of patients were distributed among the health facilities as shown in table 3.3 below.

Table 3.3 Distribution of Patients among the Health care Facilities

Health facility	Average monthly OPD attendance (x)	Proportion (x/sample size) in %	Sub sample (x/sample size*N)	Sub sample size N - OPD	Sub sample size N - Inpatient
1. Ga West Municipal Hospital	5,043	55.4	232	207	Yes
2. Oduman Polyclinic	1427	15.0	63		Yes*
3. Mayera Health Centre	660	7.0	29		Yes*
4. Edith Maternity Home	78	0.8	3		
5. M&D Medical Centre	1676	18.0	75		Yes*
6. Samsam Community Clinic	99	1.0	4		
7. Akramaman CHPS	108	1.2	5		
8. Ahiabukope CHPS	149	1.6	7		

- Yes 24 hour detention exists but not in DHIMS

Total Sample Size 418, over response rate of 2%

1. Ga West Municipal Hospital

2. Oduman Polyclinic
3. Mayera Health Centre
4. Edith Maternity Home
5. M&D Medical Centre
6. Samsam Community Clinic
7. Akramaman CHPS
8. Ahiabukope CHPS

Ga West outpatient 5403 + 662 (Inpatient) = 6065

Proportion of inpatient = 10.9%

Total sample size = 232; inpatient = $232(0.109) = 25$ (Outpatient) = 207

3.6 Study Variables

The variables measured in the study were categorized into dependent and independent variables.

Dependent variable

The dependent variable measured in this study was patients' satisfaction.

Independent variables

Patients related factors / Socio-demographic characteristics (sex, age, educational level, marital status, occupation, income).

3.7 Data Collection Method and Instruments

Data were collected in two phases:

- i. Assessment of WASH facilities and facility administrator interviews
- ii. Survey questionnaires administered to patients.

Phase 1: This phase involved an initial interview with the hospital administrators on general information about the health facility followed by the use of the WHO/UNICEF Core Indicators

WASH in Healthcare facilities assessment tool (WHO & UNICEF, 2018) to assess the WASH infrastructure in health facilities. The process included observations of the water supply, toilets and waste management facilities and informant interviews for clarifications. The Assessment Tool was used in collecting the data on availability and status of WASH services in health facilities. The WHO/UNICEF tool examines the water, sanitation and hygiene situation in health facilities. It assesses water from sources, availability and accessibility. On sanitation, the tool assesses toilet types, separation for patients and staff, separation for males and females, disability friendliness, and cleanliness. With regards to hygiene, the tool examines the flow of water and the use of soap or alcohol solution for hand washing. Waste management was also covered due to its relevance during the COVID-19 outbreak which was on-going at the time of the survey.

Phase 2: Patients who fell within the sample group, that is above 18 years accessed services at the facility either out-patient and in-patient and utilized WASH facilities at the facility were interviewed using a pre-designed questionnaire (Appendix 2). A total of 428 patients were interviewed, which is an over-response rate of 2%. Patients' satisfaction was measured by asking the level to which patients were satisfied with the WASH services accessed based on them using four point-Likert Scale questions (Strongly disagree, Disagree, Agree, Strongly Agree).

3.8 Training of Data Collectors and Supervision

A team of six data collectors and a supervisor were recruited to carry out the data collection. The researcher trained the team thoroughly on the rationale of the study, the data collection tools, i.e. Administrator and Patient Questionnaires and WASH assessment checklist, research ethics and COVID-19 protocols. Each member of the team was provided with a set of data

collection tools, a copy of the WHO/UNICEF WASH in Healthcare Facilities Core Questions and Indicators Document as reference materials. They were also oriented on the COVID-19 protocols and provided with face masks and sanitizers for use during the training, pre-testing and data collection.

3.9 Pretesting and Data Collection

The developed questionnaires and WASH Assessment checklist were pre-tested at a Ga South Municipal Hospital. The pre-testing was done for 30 patients; 20 outpatients and 10 inpatients. The pre-testing was done to test the validity and reliability of the instruments. This helped to identify, exclude or modify ambiguous items; a situation that might lead to biased responses (Bowden, Fox-Rushby, Nyandieka, & Wanjau, 2002). Following the pre-testing, a few corrections were made in the questionnaires and the data collection tools were revised for the final data collection.

The data collection was carried out over a 3 week period in September 2020. The data collectors were assigned to health facilities and the team compositions varied depending on the size of the facility and the sample size. The questionnaires were reviewed daily by the supervisor and the researcher to ensure all gaps were addressed.

3.10 Data Analysis

Pre-coded data was entered and cleaned in an Excel Spreadsheet and analyzed using STATA version 16.0.

The WASH Infrastructure (availability of toilets, functionality accessibility, cleanliness, water source, availability, hand washing facilities) was categorized into 3 WASH service ladders. The service ladders are (i) no service (ii) limited service and (iii) basic service, figure 3.2, as defined for the WASH in Healthcare Facilities Core Indicators (WHO/UNICEF2018). Evaluation of

WASH infrastructure was computed by calculating the proportion of health facilities that met the criteria for each indicator.

Descriptive and analytical statistics were employed to determine patients' level of satisfaction. To calculate the mean gap, score for patients' level of satisfaction, the following procedures were used. A total mean score was calculated for the dimension (e.g. Tangibles) for both expectation and perception questions. The total gap score was derived by subtracting mean perception score from the mean expectation score. A paired t-test was conducted to assess whether the two scores are statistically different from each other. The gap was considered as the level of patients' satisfaction on the quality of care. Quality of care was deemed indifferent or sufficient when patients' level of satisfaction is equal or greater than the expected level of service or vice versa (Senel & Senel, 2006). This was to dichotomize patients into "satisfied" and "not satisfied". Following this, a test of the association on factors associated with patients' satisfaction was done using Chi-Square / simple logistic regression. The association between patients' satisfaction and each independent variable was analyzed using multiple logistic regression analysis with statistical significance set at $p\text{-values} < 0.05$. This was done by first running a bivariate analysis (Chi-Square/simple logistic regression) between patients' satisfaction and all the independent variables selecting those with $p\text{-values} \leq 0.2$. These were then fitted in a final multiple logistic regression model and the strength of association was assessed looking at Adjusted Odds Ratio (AOR) with 95% confidence interval (CI).

3.11 Ethical Consideration

Permission

Approval of the study was obtained from the Ghana Health Service Ethics Review Committee (GHS-ERC). Following this, permission was sought from the Ghana Health Services at both the regional and district level and hospital authorities of the selected health facilities before

data was collected. All respondents were assured of the confidentiality of any information given and their consent was also obtained before they were interviewed. Respondents were all also made aware of their right to withdraw from the survey at any point if they so wished. The respondents were given further assurance that only the research team, principal investigator and supervisor would have access to the information and data was stored securely under lock and key.

Risk and Benefits

Respondents were assured that the research did not present any risk to them and would not harm them in any way nor cost them anything except their precious time that they would use to fill the questionnaire. However due to the ongoing COVID-19 outbreak, before the interview began both the interviewer and the respondent sanitized their hands with alcohol-based sanitizer, wore facemasks and kept a few meters apart to ensure physical distancing protocols throughout the interview. Respondents did not receive any monetary or material compensation for the study.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents the results obtained from the study. The results are presented under the specific objectives. The socio-demographic characteristics of the respondents are presented first after which the results on the specific objectives are presented.

4.2 Socio-demographic characteristics of respondents

Table 4.1 below shows the socio-demographic characteristics of respondents. The mean age of respondents is 34.1 years ($SD \pm 11.9$). Majority of the respondents were females 330 (77.1%). Also, 39.7% of respondents had senior high school education. More than half of the respondents 235(54.9%) were married with 158(36.9%) residing in peri-urban areas. Nearly seventy percent (69.6%) of respondents had nuclear families with 255(59.6%) residing in compound houses. Out of the 428 respondents, 43.2% had to fetch water outside their homes and 49.8% also had toilet facilities in their homes. Majority of the respondents 347(81.1%) were employed with 39.0% earning a monthly income between GHC500 - GHC1000. More than half of the respondents 226(52.8%) indicated that they had used the health facility more than once with 51.4% also stating they had used the health facility for less than 6 months.

Table 4.1: Socio-demographic characteristics of respondents (n = 428)

Variables	Frequency	Percent (%)
Age in years (M ± SD)	34.1 ± 11.9	
Sex		
Male	98	22.9
Female	330	77.1
Educational level		
No education	17	4.0
Primary school	17	4.0
Junior high school	116	27.1
Senior high school	170	39.7
First degree	96	22.4
Master's degree	8	1.9
Not applicable	4	0.9
Marital status		
Single	115	26.9
Married	235	54.9
Widowed	19	4.4
Separated	25	5.8
Divorced	10	2.3
No answer	24	5.6
Place of residence		
Urban	142	33.2
Peri-urban	158	36.9
Rural	128	29.9
Family structure		
Nuclear	298	69.6
Extended	116	27.1
No answer	14	3.3
Type of residence		
Standalone residence	171	40.0
Compound house	255	59.6
Other	2	0.5

Table 4.1 Continued: Socio-demographic characteristics of respondents (n = 428)

Variables	Frequency	Percent (%)
Main water source		
Piped into compound	119	27.8
Fetch outside house/premise	185	43.2
Buy water from a tanker	110	25.7
Other	14	3.3
Type of toilet facilities at home		
Household has own toilet facilities	213	49.8
Shared household toilet facilities	196	45.8
No toilet facilities	18	4.2
No answer	1	0.2
Employment status		
Employed	347	81.1
Student	23	5.4
Unemployed	48	11.2
Other	1	0.2
No answer	9	2.1
Household monthly income (GHC)		
< 500	158	36.9
500-1000	167	39.0
1001-3000	77	18.0
3001-5000	23	5.4
5001-7000	3	0.7
First time / user of facility		
First time user	202	47.2
Recurrent user	226	52.8
Duration of use of health facility		
<6 months	220	51.4
6months - 1year	136	31.8
1 - 3years	48	11.2
3 - 5years	18	4.2
> 5 years	6	1.4

4.3 Health Facility Assessment of WASH Facilities

The table below (4.2) shows assessment of the availability of water, sanitation and hygiene facilities available in the eight health facilities surveyed. All the 8 facilities had water available from an improved water source (piped water, borehole and rain water) located on-premises. Functional improved toilets (flush and pour flush toilets,) were available in all health facilities. The proportion of health facilities with toilets dedicated to staff was 6 (75%), three health facilities (37.5%) had toilets that were sex segregated and 62.5% had facilities for menstrual hygiene. Only one health facility had improved toilets which are functional sex-separated, provided for menstrual hygiene management, separated for patients and staff and accessible for ill, aged or disabled/handicapped people with limited mobility. The proportion of health facilities with hand washing/hygiene facilities (veronica buckets, or sink and tap) at points of care with water and soap and/or alcohol for sanitizing/rubbing hands available and hand washing facilities within 5 metres of toilets with water and soap available was 7(87.5%). Waste was segregated correctly in 87.5% of health facilities, However only 3(37.5%) health facility correctly segregated waste (3 bins for general waste, infectious waste and sharps) in the consultation and treatment areas and disposed of infectious and sharps waste safely (autoclaved, incinerated or buried in lined protected pit).

Table 4.2: Health Facility Assessment of WASH Facilities

Indicator	Frequency (No. of Health Facilities)	Percent (%)
Water		
Health facility with improved water supply within 500 metres	0	0
Health facility with an improved water supply on-premises	8	100
	8	100

Table 4.2: Health Facility Assessment of WASH Facilities

Indicator	Frequency (No. of Health Facilities)	Percent (%)
Health facility with an improved water supply with water available		
Sanitation		
Health facility with improved toilets	8	100
Health facility with usable improved toilets	8	100
Clean toilet	8	100
Toilet with unpleasant smell	1	12.5
Toilet with flies	1	12.5
Toilet with good lighting	7	87.5
Toilets with secure door`	8	100
Health facility with improved toilets dedicated to staff	6	75
Health facility with improved toilets which are sex separated	3	37.5
Health facility with improved toilets and facilities for menstrual hygiene management	5	62.5
Health facility with improved toilets accessible for people with limited mobility	2	25
Health facility with improved toilets, usable, sex-separated, provide for menstrual hygiene management, separate for patients and staff and accessible for people with limited mobility	1	12.5

Table 4.2: Health Facility Assessment of WASH Facilities

Indicator	Frequency (No. of Health Facilities)	Percent (%)
Hand Hygiene		
Health facility with hand hygiene facilities at points of care with water and soap and/or alcohol hand rub available	8	100
Health facility with handwashing facilities within 5 metres of toilets with water and soap available	7	87.5
Health facility with hand hygiene facilities at points of care with water and soap and/or alcohol hand rub available and handwashing facilities within 5 metres of toilets with water and soap available	7	87.5
Healthcare Waste		
Health facility with waste correctly segregated	7	87.5
Health facility with infectious waste safely treated/disposed	4	50
Health facility with sharps waste safely treated/disposed	5	62.5
Health facility with waste correctly segregated in the consultation area and infectious and sharps waste safely treated/disposed	3	37.5

Level of WASH Services

The level of WASH services is presented in Figure 4.1 below. All health facilities (100%) had basic services for water. Only one health facilities (12.5%) had basic services for sanitation. The hand hygiene was 87.5% for basic services, with only one facility with limited service. In terms of healthcare waste, the majority of health facilities had limited service (62.5%).

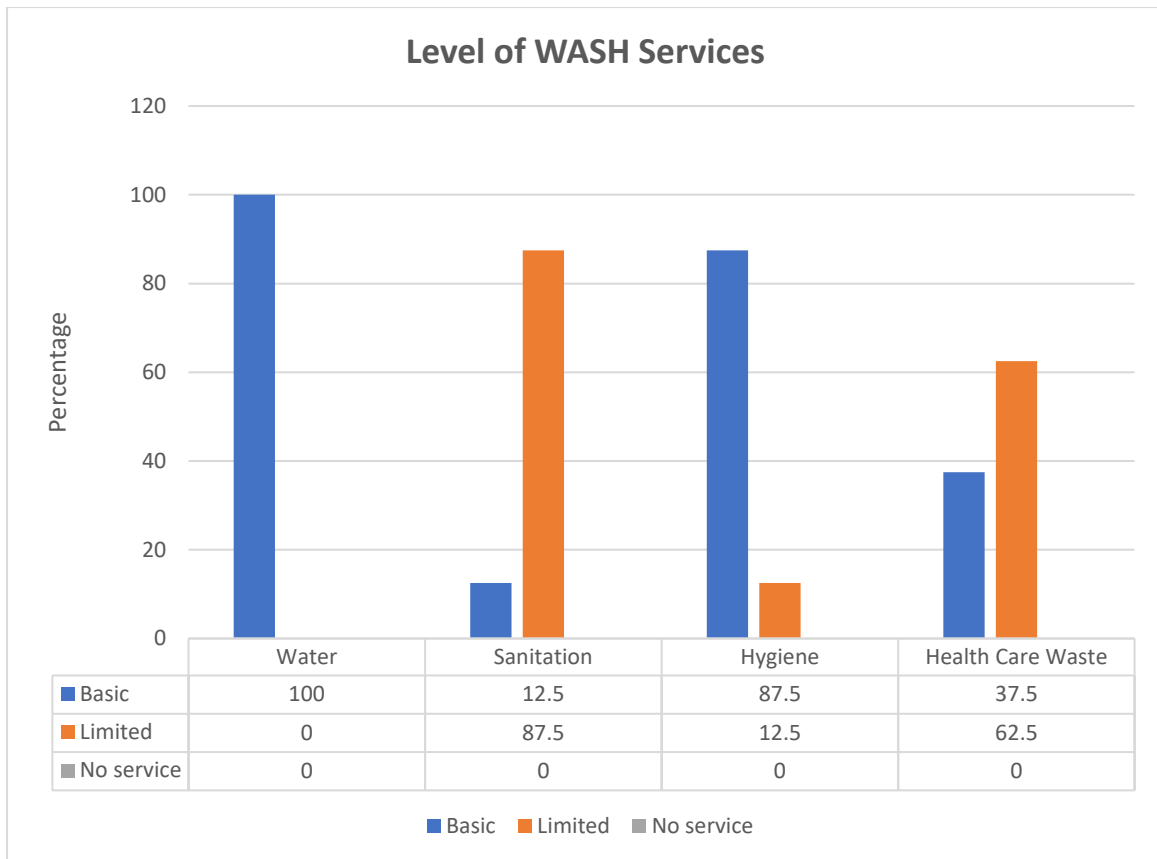


Figure 4. 1 Level of WASH Services according to the JMP WASH Service ladders

4.4 Patient Satisfaction with WASH Services

Tables 4.3 and figure 4.2 present results on patient satisfaction with WASH services. From figure 4.2 below, four dimensions (satisfaction with toilet facilities, satisfaction with availability of water, satisfaction with hand hygiene facilities and satisfaction with waste management) were used to assess patient satisfaction with WASH services in health care facilities in the Ga West Municipal. Satisfaction was analyzed by a paired t test of mean perception score and mean expectation score for each dimension. Satisfaction was determined by the mean perception score minus the mean expectation score. A negative mean score gap equalled dissatisfaction whilst a positive mean gap score equalled satisfaction. Of these dimensions, patients’ were most satisfied with waste management which had an expectation score of 3.34 and standard error (SE) 0.05, mean perception score of 3.40 and SE 0.02. The mean gap score was 0.05 (table 4.3). However, all three items (waste bins provision, waste

bins covered, fenced and protected waste storage facility) used to determine the satisfaction of patients' with waste management was not statistically significant.

Patients' were also satisfied with availability of water at the WASH facilities. The mean expectation score was 3.36 and SE 0.11 and the mean perception score was 3.36 and SE 0.05. The mean gap score was 0.00. Patients' were satisfied with the availability of water on the wards (0.11; SE = 0.05; $p = 0.031$). However, they were dissatisfied with the availability of hot water for bathing (-0.25; SE = 0.11; $p = 0.031$).

Patients' were also dissatisfied with hand hygiene facilities provided by the health facilities. This dimension had a mean expectation score of 3.36 and SE 0.10, mean perception score of 3.33 and SE 0.045. The mean gap score was -0.03. Respondents were dissatisfied with sanitizers available for usage (-0.61; SE = 0.07; $p < 0.001$). They were less dissatisfied with the drying materials available for usage (- 0.25; SE = 0.07; $p < 0.001$). The availability of hand washing facilities at the OPD satisfied the patients (0.11; SE = 0.05; $p = 0.032$).

In addition, patients were mostly dissatisfied with toilet facilities. The mean expectation score was 3.20 and SE 0.06 and the mean perception score was 3.12 and SE = 0.02. The mean gap score was -0.08. Female respondents were however disappointed with provisions made for menstrual hygiene management in the health facilities (-0.72; SE = 0.07; $p < 0.001$).



Figure 4.2 Mean score for items used to assess satisfaction with WASH services

Table 4.3 Patient Satisfaction with WASH Services

Expectation, experience quality of WASH Services	Mean perception score	Standard error (SE)	Mean expectation score	Standard error (SE)	Mean gap score	Standard error (SE)	p-value
I Expectation/Perception of Toilet Facilities							
Toilets designated/available for patients use	3.27	0.02	3.27	0.05	-0.002	0.05	0.964
Toilets at the health facility to be accessible to patients	3.29	0.03	3.26	0.05	0.03	0.05	0.624
Separate toilets for males and females	3.21	0.03	3.32	0.05	-0.11	0.06	0.056
Toilets not broken and function or work well	3.17	0.03	3.19	0.05	-0.02	0.05	0.692
A working flush system	3.13	0.03	3.20	0.05	-0.07	0.05	0.235
Flow of water and ease of flushing	3.17	0.02	3.19	0.05	-0.02	0.05	0.656
Clean toilets	3.18	0.03	3.17	0.05	0.01	0.05	0.857
Smell from toilets	3.21	0.03	3.20	0.05	0.01	0.05	0.819
Female toilets with provision for management of menstrual hygiene	2.55	0.05	3.27	0.06	-0.72	0.07	0.000*
Average Satisfaction with Toilet facilities	3.12	0.02	3.20	0.06	-0.08	0.05	0.125
II Expectation/Perception of Water Availability							
Availability of water at the health facility	3.36	0.02	3.37	0.05	0.01	0.05	0.856
Improvement to source of water	3.31	0.03	3.36	0.05	-0.05	0.05	0.345
Availability of water on the premises	3.33	0.02	3.29	0.05	0.04	0.05	0.512
Availability on the wards	3.33	0.03	3.22	0.05	0.11	0.05	0.031*
Access to water whenever it's needed	3.41	0.07	3.36	0.11	0.05	0.11	0.607
Enough water available for bathing and washing	3.30	0.09	3.25	0.12	0.05	0.10	0.590
Availability of hot water for bathing	2.89	0.10	3.13	0.13	-0.25	0.11	0.031*
Availability of water every day	3.39	0.06	3.36	0.11	0.03	0.10	0.741
Availability of water storage facilities	3.48	0.06	3.36	0.11	0.12	0.10	0.229

Average Satisfaction with Availability of Water	3.36	0.05	3.36	0.11	0.00	0.08	0.989
III Expectation/Perception of Hand Hygiene Facilities							
Hand washing facilities for patient use	3.35	0.02	3.32	0.05	0.03	0.05	0.585
Flowing water at hand washing facilities	3.36	0.03	3.32	0.05	0.04	0.05	0.478
Availability of soap for hand washing	3.25	0.03	3.21	0.05	0.04	0.06	0.445
Availability of sanitizer for patient use	2.57	0.05	3.19	0.05	-0.61	0.07	0.000*
Availability of hand drying materials for patient use	2.90	0.04	3.15	0.05	-0.25	0.07	0.000*
Availability of hand washing facilities at the toilet	3.18	0.03	3.16	0.05	0.02	0.06	0.748
Availability of hand washing facilities at the OPD	3.33	0.03	3.21	0.05	0.11	0.05	0.032*
Availability of hand washing facilities at the wards	3.41	0.06	3.43	0.11	-0.02	0.10	0.834
Availability of hand washing facilities at/near the nurses and doctors treatment areas	3.24	0.03	3.15	0.05	0.09	0.06	0.103
Average Satisfaction with Hand Hygiene Facilities	3.33	0.04	3.36	0.10	-0.03	0.09	0.753
IV Expectation/Perception of Waste Management							
Provision of waste bins at all areas/departments	3.45	0.03	3.36	0.05	0.09	0.05	0.075
Proper coverage of waste bins	3.43	0.03	3.35	0.05	0.08	0.05	0.089
Availability of a fenced and protected waste storage facility for waste awaiting disposal	3.31	0.03	3.32	0.05	-0.01	0.05	0.820
Average Satisfaction with Waste Management	3.40	0.02	3.34	0.05	0.05	0.05	0.264
Overall Satisfaction	3.23	0.02	3.25	0.05	-0.02	0.05	0.663

Statistically significant ($p \leq 0.05$)

4.5 Patient satisfaction with WASH services in health care facilities

The proportion of respondents who were satisfied (mean gap score > 0) with WASH services in their respective health facilities was 21.7% (percentage = 21.7%; 95% CI = 17.9% - 25.9%) is shown in Figure 4.3.

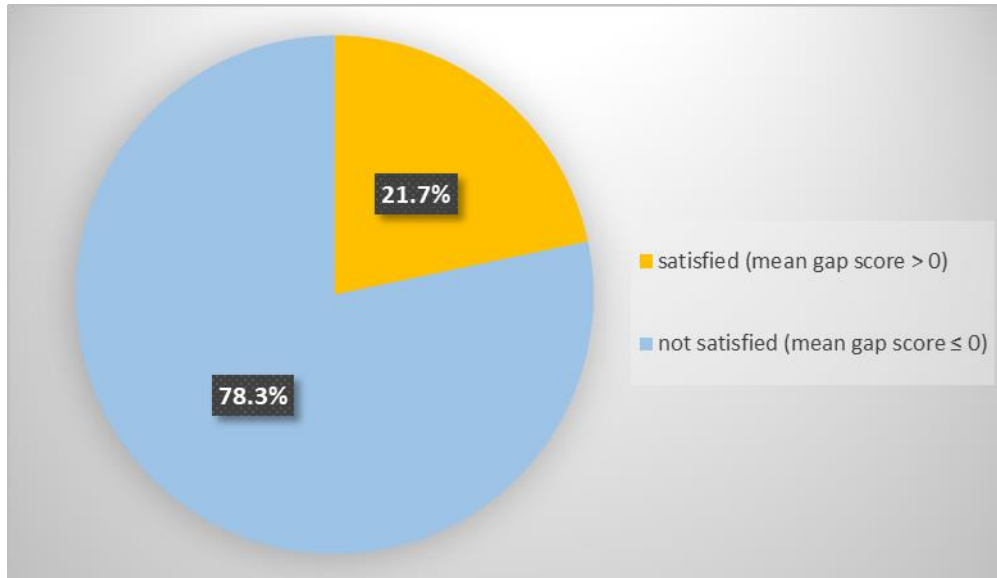


Figure 4.3 Proportion of patients satisfied with WASH services in health care facilities

In terms of overall satisfaction with WASH services in the health facilities a large majority 78.3% were not satisfied.

4.6 Bivariate analysis of Socio-demographic factors associated with patient satisfaction with WASH Services

Results from a Chi-squared/Fischer's exact test and a the paired t-test showed that, the socio-demographic factors associated with patient satisfaction with WASH Services are as follows; place of residence ($p = 0.015$), type of residence ($p < 0.001$), main water source ($p < 0.001$), type of toilet facilities at home ($p < 0.001$), employment status ($p = 0.002$), household monthly income ($p = 0.002$), category of health facility ($p < 0.001$) and level of health facility ($p < 0.001$). (Table 4.4).

Table 4.4 Association between socio-demographic factors and patient satisfaction with WASH Services

Variables	Satisfaction		χ^2 p-value
	Satisfied (n = 93)	Not satisfied (n = 335)	
Age in years (M ± SD)	34.0 ± 11.7	34.3 ± 12.8	0.867
Sex			0.140
Male	16(16.3)	82(83.7)	
Female	77(23.3)	253(76.7)	
Educational level			+0.069
No education	3(17.6)	14(82.4)	
Primary school	6(35.3)	11(64.7)	
Junior high school	30(25.9)	86(74.1)	
Senior high school	41(24.1)	129(75.9)	
First degree	12(12.5)	84(87.5)	
Master's degree	0(0)	8(100)	
Not applicable	1(25)	3(75)	
Marital status			+0.094
Never married	32(27.8)	83(72.2)	
Married	53(25.5)	182(77.5)	
Widowed	3(15.8)	16(84.2)	
Separated	2(8)	23(92)	
Divorced	0(0)	10(100)	
No answer	3(12.5)	21(87.5)	
Place of residence			+0.015*
Urban	39(27.5)	103(72.5)	
Peri-urban	23(14.6)	135(85.4)	
Rural	31(24.2)	97(75.8)	
Family structure			+0.157
Nuclear	72(24.2)	226(75.8)	
Extended	20(17.2)	96(82.8)	
No answer	1(7.1)	13(92.9)	
Type of residence			+0.000*
Standalone residence	57(33.3)	114(66.7)	
Compound house	35(13.7)	220(86.3)	
Other	1(50)	1(50)	

+ (fisher's exact)

*(statistically significant, p≤0.05)

Table 4.4 continued Association between socio-demographic factors and patient satisfaction with WASH Services

Variables	Satisfaction Satisfied (n = 93)	χ^2 Not satisfied (n = 335)	p-value
Main water source			0.000*
Piped into compound	41(34.5)	78(65.5)	
Fetch outside house/premise	35(18.9)	150(81.1)	
Buy water from a tanker	9(8.2)	101(91.8)	
Other	8(57.1)	6(42.9)	
Type of toilet facilities at home			0.000*
Household has own toilet facilities	64(30)	149(70)	
Shared household toilets	27(13.8)	169(86.2)	
No toilet facilities	1(5.6)	17(94.4)	
No answer	1(100)	0(0)	
Employment status			+0.002*
Employed	67(19.3)	280(80.7)	
Student	12(52.2)	11(47.8)	
Unemployed	10(20.8)	38(79.2)	
Other	0(0)	1(100)	
No answer	4(44.4)	5(55.6)	
Household monthly income			0.002*
< 500	50(31.6)	108(68.4)	
500-1000	31(18.6)	136(81.4)	
1001-3000	11(14.3)	66(85.7)	
3001-5000	1(4.4)	22(95.6)	
5001-7000	0(0)	3(100)	
First time / user of facility			0.361
First time user	40(19.8)	162(80.2)	
Recurrent user	53(23.5)	173(76.5)	
Duration of use of health facility			+0.216
<6 months	54(24.5)	166(75.5)	
6months - 1yr	31(22.8)	105(77.2)	
1 - 3years	6(12.5)	42(87.5)	
3 - 5years	2(11.1)	16(88.9)	
> 5 years	0(0)	6(100)	
Category of health facility			0.000*
Public	90(25.6)	261(74.4)	
Private	3(3.9)	74(96.1)	

Level of health facility			0.000*
Level 1	21(8.7)	221(91.3)	
Level 2	74(54.0)	63(46.0)	
Level 3	9(27.3)	24(72.7)	
Level 4	0(0.0)	16(100.0)	

+ (fisher's exact) *(statistically significant, $p \leq 0.05$)

Level 1 corresponds to secondary level / district Level Hospital
 Level 2 corresponds to primary level A Polyclinic and Private Hospital
 Level 3 corresponds to primary level B Health Centres and Community Clinic
 Level 4 corresponds to primary level C Community Health Planning Services (CHPS)

4.7 Factors associated with patient satisfaction with WASH Services

Table 4.5 below show results from a multiple logistic regression on factors associated with patient satisfaction with WASH Services. After adjusting for potential confounders (type of residence, main water source, type of toilet facilities at home, employment status, household monthly income, category of health facility and level of health facility), patients who resided in rural areas were 5.13 times more likely to be satisfied with WASH services as compared to those who resided in urban areas (aOR = 5.13; 95% CI = 1.83 – 14.39; $p = 0.002$).

Also, after adjustment for confounders, patients who visit private health facilities (place of residence, type of residence, main water source, type of toilet facilities at home, employment status, household monthly income and level of health facility) were significantly less likely to be satisfied with the WASH services available as compared to patients who visit public health facilities (aOR = 0.003; 95% CI = 0.0004 – 0.02; $p < 0.001$).

After adjusting for all variables, (place of residence, type of residence, main water source, type of toilet facilities at home, employment status, household monthly income, category of health facility), the odds of respondents being satisfied with WASH services was significantly increased by nearly 200 fold and 4 fold among those who visited level 2 (aOR = 228.32; 95% CI = 62.03 – 840.40; $p < 0.001$) and level 3 (aOR = 4.31; 95% CI = 1.70 – 10.94; $p = 0.002$) health facilities respectively compared to those who visited level 1 health facilities. For level 4

which are CHPS compounds no comparison could be made as all respondents who visited these health facilities were not satisfied with the WASH services (Table 4.4).

Table 4.5 Factors associated with patient satisfaction with WASH Services

Variables	cOR(95% CI)	p-value	aOR(95% CI)	p-value
Place of residence				
Urban	1.00		1.00	
Peri-urban	0.45(0.25 - 0.80)	0.007*	1.32(0.39 - 4.55)	0.656
Rural	0.84(0.49 - 1.46)	0.544	5.13(1.83 - 14.39)	0.002*
Type of residence				
Standalone residence	1.00		1.00	
Compound house	0.32(0.19 - 0.51)	0.000*	0.45(0.11 - 1.81)	0.261
Other	2.00(0.12 - 32.56)	0.626	25.67(0.53 - 1237.61)	0.101
Main water source				
Piped into compound	1.00		1.00	
Fetch outside house/premise	0.44(0.26 - 0.75)	0.003*	0.28(0.07 - 1.11)	0.070
Buy water from a tanker	0.17(0.08 - 0.37)	0.000*	0.37(0.09 - 1.39)	0.141
Other	2.54(0.82 - 7.81)	0.105	0.28(0.03 - 2.98)	0.291
Type of toilet facilities at home				
Household has own toilet facilities	1.00		1.00	
Shared household toilet facilities	0.37(0.23 - 0.61)	0.000*	0.68(0.15 - 3.16)	0.627
No toilet facilities	0.14(0.02 - 1.05)	0.056	0.69(0.04 - 11.45)	0.800
No answer	1		1	

*(statistically significant, $p \leq 0.05$)

Table 4.5 continued Factors associated with patient satisfaction with WASH Services

Variables	cOR(95% CI)	p-value	aOR(95% CI)	p-value
Employment status				
Employed	1.00		1.00	
Student	4.56(1.93 - 10.78)	0.001*	2.11(0.32 - 13.83)	0.438
Unemployed	1.09(0.52 - 2.32)	0.803	1.30(0.27 - 6.21)	0.742
Other	1		1	
No answer	3.34(0.87 - 12.79)	0.078	2.52(0.22 - 29.16)	0.460
Household monthly income				
< 500	1.00		1.00	
500-1000	0.49(0.29 - 0.82)	0.007*	1.44(0.49 - 4.29)	0.509
1001-3000	0.36(0.18 - 0.74)	0.005*	0.72(0.17 - 3.15)	0.664
3001-5000	0.09(0.01 - 0.75)	0.025*	0.33(0.03 - 4.07)	0.390
5001-7000	1		1	
Category of health facility				
Public	1.00		1.00	
Private	0.12(0.04 - 0.38)	0.000*	0.003(0.0004 - 0.02)	0.000*
Level of health facility				
Level 1	1.00		1.00	
Level 2	8.96(5.12 - 15.68)	0.000*	228.32(62.03 – 840.40)	0.000*
Level 3	3.95(1.63 - 9.58)	0.002*	4.31(1.70 – 10.94)	0.000*
Level 4	1		1	

*(statistically significant, $p \leq 0.05$)

Level 1 corresponds to secondary level / district Level Hospital

Level 2 corresponds to primary level A Polyclinic and Private Hospital

Level 3 corresponds to primary level B Health Centres and Community Clinic

Level 4 corresponds to primary level C Community Health Planning Services (CHPS)

4.8 Expectations and Considerations of Patients

Tables 4.6 below shows the WASH facilities expected by patients and amenities considered before choosing any health facility. Out of the 428 patients, 40.2% stated that they expected more toilets for patients. More than half of the respondents 235(54.9%) indicated that toilet facilities are considered in choosing a facility for ANC or childbirth. Also, 190 out of 428 patients (44.4%) stated their desire that hand sanitizers should be provided at hand washing facilities. Generally, 140 (32.7%) of patients were impressed with the maintenance of the health facilities surveyed.

Table 4.6 Expectations and Considerations

Variables	Frequency	Percent (%)
Expected changes in toilet facilities		
Better toilets	28	6.5
More toilets for patients	172	40.2
Separate toilets for males and females	47	11.0
Female toilets with provision for the management of menstrual hygiene	39	9.1
Water and soap in toilets	88	20.6
Other, specify	37	8.6
No answer/do not want to answer	17	4.0
Consideration of toilets in choosing a facility for ANC or childbirth		
Yes	235	54.9
No	115	26.9
No answer/do not want to answer	78	18.2
Expected changes in water supply		
An improved water source	34	7.9
Improved water quantity	117	27.3
Constant flow of water 24-7	152	35.5
Other, please specify	59	13.8
No answer/do not want to answer	66	15.4

Table 4.6 Continuation Expectations and Considerations

Variables	Frequency	Percent (%)
Consideration of water availability in choosing a facility for ANC or childbirth		
Yes	241	56.3
No	110	25.7
No answer/do not want to answer	77	18.0
Location of hand washing facilities		
At the toilets	109	25.5
At OPD	125	29.2
In the wards	34	7.9
At/ near the nurses treatment area	87	20.3
At/ near the doctors treatment area	49	11.5
Other, please specify	24	5.6
Desired changes in hand washing facilities		
Provide flowing water for hand washing	19	4.4
Provide soap	71	16.6
Provide sanitizer	190	44.4
Provide hand drying tissues	66	15.4
Permit patients to use hand washing facilities at point of care	62	14.5
Other, please specify	20	4.7
Consideration of soap and water for hand washing and hand drying materials		
Yes	270	63.1
No	156	36.5
No answer/do not want to answer	2	0.4
General impression of the health facility		
Facility is clean	123	28.7
Facility is well maintained	140	32.7
Staff are nice to clients	117	27.3
Facility is not clean	6	1.4
Facility is not well maintained	4	0.9
Staff are not nice to clients	4	0.9
Other, please specify	34	7.9

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Introduction

This chapter presents a discussion of the results obtained from the study. The chapter presents the discussions under the specific objectives which includes the adequacy of water, sanitation and hygiene (WASH) services in health facilities, the level of patient's satisfaction with the WASH services in the health facilities and the influence of socio-demographic factors on patients' satisfaction with WASH services in the municipality.

5.2 Discussions

This section presents a discussion of the results. The discussions are presented under the specific objectives and done in line with related studies.

5.2.1 Availability and level of water, sanitation and hygiene (WASH) services in health facilities in the municipality

The study revealed that all the facilities had an improved water supply with water available on the premises at the time of the survey. This shows that the availability of improved water sources in health facilities in the municipality is high. The WHO (2015) revealed that 38% of healthcare facilities across 54 countries in poorly resourced settings do not have access to basic water sources. The WHO finding is consistent with a study conducted by Gon and colleagues (2016) who revealed that among the health facilities that conducted deliveries in East Africa, coverage for water was only 30%. These results suggest that the unavailability of water sources makes it difficult for health institutions to provide adequate WASH services. This in the long run can lead to an increase in infection and in some cases death. Availability of water is therefore critical to infection control as supported by Blencowe and colleagues (2011) who indicated that clean delivery can only be achieved through access to appropriate WATSAN facilities. They explained that clean delivery comprises; 'clean hands of the birth attendant,

clean perineum, clean birth surface, clean cord preparation and cutting, and appropriate newborn postpartum skincare'. In other words, the lack of water makes it impossible to engage in these activities which can lead to infections.

This study also revealed that 87.5% of health facilities had hand washing facilities at points of care with water and soap and/or alcohol for hand sanitizing available and hand washing facilities that are within 5 meters of toilets with water and soaps available. A Ghanaian study in the Bongo and Kassena Nankana west districts revealed that water was available in 76% of healthcare facilities. The study noted that 93% had hand washing centres, 100% had alcohol hand rubs but only 14% had one near toilet facilities (WaterAid n.d.). Another recent study in Ghana showed that all the health centres assessed scored 90.5% standard score for water (Ashinyo et al., 2021). This finding is contrary to a study conducted in Uganda where only 38% of the health care facilities had hand washing facilities at the toilets (Mulogo et al, 2018). A possible reason for the high availability of hand hygiene services could be because of the time of the study which was during the COVID-19 pandemic when the implementation of hygiene protocols was quite high. Improved compliance to hand hygiene protocols has been reported elsewhere (Isreal et al. 2020).

Sanitation on the other hand was a bit of a challenge, in as much as all health facilities had improved toilets, 87.5% had limited services as not all facilities could satisfy all the other requirements of having toilets dedicated to patients and staff, sex segregated, with facilities for menstrual hygiene and disability friendly facilities. This finding is in line with a study conducted in Indonesia (Odagiri et al., 2018) to determine baseline WASH indicators for the SDGs which found that the majority of health facilities had limited services when it comes to sanitation. In the Bongo and Kassena Nankana west districts only 48% had toilet facilities for outpatients of which half of these toilet facilities were shared by both male and female patients.

Another study recorded poor performance in the sanitation and waste practices of the treatment centres with an average score of 44.6% (Ashinyo et al., 2021).

Another component of WASH that had lower level of services was healthcare waste management with 62.5% of health facilities having limited services. The proper segregation of waste into three bins colour coded and clearly labelled as per WHO standards (2015) was not found in most of the health facilities. Healthcare waste management, segregation, treatment and disposal remain a challenge in developing countries (WHO, 2015). Similar findings have been found in a study conducted in Bangladesh (Unicomb et al 2018). In the Upper East Region, 50% of health facilities disposed their fecal matter manually, 27% use sewage system, 19% use puller services and the remaining use the dig and bury method. General and medical wastes were disposed using incinerators (21%), shallow pit burning (69%) whilst the remainder used waste bins or dig and bury method (WaterAid n.d.).

5.2.2 The level of patients' satisfaction with the WASH services in health facilities in the Municipal

The level of patients' satisfaction is dependent on the kind of service being provided. Thus, Woldeyohanes et al. (2015) indicated that poor or inadequate WASH services correlated with patients' dissatisfaction. In this study, patients were most satisfied with waste management, based on the provision of waste bins in all areas of the hospital and the availability of water at the health facility. They were also satisfied with water availability in the facility and on the wards which were both significant when comparing their expectation prior to their visit and their perception. They were however less satisfied with the lack of hot water on the wards. The patients' perception are somehow in line with the health facility WASH assessment as all facilities had basic services for water. However, findings from the assessment of health care waste and patients' satisfaction with waste management cannot be compared as the parameters assessed were not the same. Whilst the assessment looked at the waste segregation, treatment

and disposal, the patients' perception was based mainly on the environmental cleanliness and the provision of waste bins by the facility. The high ranking perception of general cleanliness and the availability of waste bins was also reported in a study of patient satisfaction with WASH in health facilities (Steinmann et al, 2015). This result shows that a clean environment is perceived to be an indicator of a good hospital which leads to an increase in patient satisfaction. This study revealed that only 1 (12.5%) health facilities had basic services for sanitation. The lack of toilets dedicated to patients and the lack of facilities for the management of menstrual hygiene among female patients may be some of the reasons for the lower level of patient satisfaction with the sanitation services in the health facilities surveyed. These findings are in line with a similar study conducted at the Sunyani regional hospital, Ghana by Pephrah and Atarah (2014) that revealed a low patient satisfaction with the quality of sanitation service they received in the health facilities surveyed in their study. An interesting finding of this study is that although patients were satisfied that they had handwashing facilities for their use, they were, however, dissatisfied that there were no hand sanitizers and hand drying materials available. The expectations of these items may have been heightened by the COVID-19 pandemic as sanitizers are perceived to be more effective than handwashing with water and soap. Effective use of hand hygiene protocols has been shown to reduce hospital acquired infections or cross infections in health facilities (WHO, 2010). In fact, increasing concerns about health-related infections due to inadequate hygiene practices has resulted in several initiatives on patient safety by the World Health Organization (WHO, 2010) yet patients are not satisfied because most health facilities are unable to go by the guidelines made available by the WHO (Weber et al, 2018). In terms of overall satisfaction with WASH services in the facilities, this study found that majority of patients (78.3%) were not satisfied. This is partly attributed to the deficiencies in the provision of some WASH services identified by the patients.

5.2.3 The influence of socio-demographic factors on patient's satisfaction with WASH services

Socio-demographic factors of people determine how they perceive issues and the kind of approach they might consider in addressing the issues. Thus Cronk et al (2015) explained that socio-demographic factors of a patient influence their level of satisfaction. The current study revealed that there were socio-demographic factors that affected patients' satisfaction with WASH services. The result showed that health facility type influences a patient's level of satisfaction. In this case, if the hospital is a level 2 or 3 health facilities (polyclinics, clinics and health centres), the possibility of patient satisfaction is high as compared to a level 1 hospital (district level facility), serving more of an urban population. This is better explained with the results from the study which revealed that patients who resided in rural areas had a high chance of being satisfied with WASH services as compared to those who reside in urban areas. Similarly, patients who visit level 2 and level 3 hospitals are more likely to be satisfied with WASH services as compared to those who visit level 1 hospitals. Again, the study found that patients who visited private health facilities were less likely to be satisfied with WASH services available as compared to patients who visit public health facilities. These results mean that a high level of patient satisfaction is recorded among patients who live in rural areas and visit level 2 and 3 hospitals whereas patients who visit private hospitals are not satisfied with WASH services as compared to those who visit public hospitals. These findings may be because people living in rural areas have lower level of service at the household when it comes to sanitation services such as toilet facilities and therefore find better sanitation facilities at the facility and are therefore more satisfied. On the contrary the patients visiting private health facilities are from probably from higher income brackets and have higher expectations and therefore tend to less be satisfied with the sanitation services they find in the health facilities. According to Mohammed et al (2013), patients' perception of the adequacy of WASH services affects their

level of satisfaction. The findings of this study confirmed the influence of socio-demographic factors on patient satisfaction. The study also found that a clean environment increases the satisfaction of patients whereas an unclean environment leads to a decrease in patient satisfaction. Mohammed and colleagues also indicated that some of the socio-demographic factors that affect patient satisfaction are the availability of water supply, cleanliness and functionality of toilets and hand washing facilities at vantage points. Russo et al. (2012) and Bouzid et al. (2017) indicated that there is an increasing concern to monitor WASH services in settings like health facilities if patients' satisfaction is a critical challenge.

5.3 Strengths and Limitations

The study used a cross sectional study design which is was able to measure satisfaction to WASH facilities as well as factors influencing the satisfaction at the same time. The statistical methods employed, t test and logistic regression were robust making the empirical evidence found in this study statistically sound.

However, since the study was conducted in selected facilities, generalization to other facilities in other districts and Ghana as whole is a limitation. Factors found to be associated with satisfaction to WASH facilities are not temporal due to the selected study design.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Introduction

This chapter presents the conclusions of the study which are made based on the results obtained from the study. The chapter also presents recommendations which are made based on the results obtained from the study.

6.2 Conclusion

The study aimed to assess WASH facilities in selected health facilities in the Ga West Municipal of the Greater Accra region and ascertain patient satisfaction with these services.

From the results obtained from the study, the following conclusions are made:

i. Availability and level of WASH services in the municipality

Clean water was available in health facilities in the municipality. Sanitation and health care waste services were not available in some health facilities in the municipality.

ii. Patients' satisfaction with WASH services in the Municipal

The study concludes that the level of patients' satisfaction with the WASH services in health facilities was generally low (21.7%).

iii. Socio-demographic factors affecting patient's satisfaction of WASH services

Finally, the study concludes that the socio-demographic factors of patients' satisfaction with WASH services are the patients' place of residence, and the level of the health facility.

6.3 Recommendation

Based on the results obtained from the study, the following recommendations are made:

- I. The study recommends that health facilities, particularly government facilities must improve the infrastructure of water and sanitation and hand washing facilities. They should take into consideration gender and make appropriate provisions in setting up these WASH facilities to improve the health of patients and prevent the spread of diseases such as urinary tract infections. Gender sensitive facilities also improve privacy, increase patient satisfaction and protect the dignity of patients, which are all essential components for improving quality of care. The low level of satisfaction could affect attendance to health facilities resulting in poor health outcomes.

- II. It is recommended that the WASH in HCF Technical Guidelines developed by the Ghana Health Services should be implemented particularly for new upcoming facilities and old facilities should be renovated to meet the said WASH standards. These guidelines provide the minimum WASH standards per type of health facility. Monitoring of WASH services to ensure adherence to standards and protocols as well as maintenance upkeep is equally important.

- III. Finally, the study recommends that future studies should consider adopting or adding on a qualitative research approach in data collection and analysis. With a qualitative research approach, the study can obtain in-depth information from participants to further understand the reasons behind patient's perception.

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APPENDICES

APPENDIX 1 RESPONDENT INFORMATION SHEET AND CONSENT FORM

Institutional Affiliation:

Department of Biological Environment and Occupational Health Sciences, School of Public Health,
University of Ghana, Legon

Project Title: Assessment of water, sanitation and hygiene and patient satisfaction in health facilities
in Ga West Municipal of Greater Accra Region

I am Akosua Takyiwa Kwakye, a student of the Department of Biological, Environmental
and Occupational Health Sciences in the School of Public Health, University of Ghana Legon
pursuing a Master of Public Health Degree Programme.

Contact: 0243 316 706 E-mail: akostak04@gmail.com

I am here with my research assistants to carry out a research to find out about Patient
satisfaction with water, sanitation and hygiene in health facilities in Ga West Municipal of
Greater Accra Region. This is purely for academic purposes and forms part of the
requirement for the award of Master of Public Health Degree.

Procedure

To find answers that will meet the study objectives, I invite you to take part in this research.

If you accept, you will be required to participate in a survey with the principal investigator or
a representative. Your selection into this survey was based on a simple random sampling.

You are assured that any information you provide will be kept strictly confidential and
anonymous and will be used for the purpose of this study.

Benefits and Risks

There will be no monetary or material compensation for the study. There are also no known risks associated with this study and I am always available to assist with any questions.

However due to the ongoing COVID-19 outbreak, before the start of the interview, you would have to wash your hands under running water with soap, sanitize your hands with alcohol-based sanitizer wear a face mask and keep it on throughout the interview, and I will maintain a physical distance of 6 feet. I will keep the interview as short as possible to limit the length of interaction with you.

Confidentiality

I will not record your name on the questionnaire. Your name and identity are not needed in the study and the information you are going to provide will be treated strictly confidential.

You are assured of total confidentiality to the information you will give. Apart from the researcher and supervisor of this research, no one else will have access to the information provided whether in part or whole. Data collected will be stored under lock and key then destroyed after a minimum of three years as per research protocol.

Right to refuse

Your participation in this study is voluntary you are doing so at own free will. You therefore have the right to withdraw from the study at any point in time. If you wish to withdraw, you may do so and no one will be upset with your decision. You will just have to inform the interviewer and your request would be granted. Nonetheless, your full participation is highly encouraged.

Dissemination of results

Findings and recommendations would be available at the School of Public Health and it will also be disseminated through a meeting with different stakeholders at the end of the study.

Before Taking Consent

Do you have any questions you wish to ask about the study? Yes/No

If yes, please indicate the questions below

.....
.....
.....
.....

I will give you a copy of this information sheet and consent form to keep and refer to as needed. If you have any question(s) or further clarification concerning this study and/or the conduct of the primary investigator and research assistants, please do not hesitate to contact the following: Akosua Takyiwa Kwakye, School of Public Health, University of Ghana, Legon Email: akostak04@gmail.com Tel: 0243 316 706 ; Dr Prudence Tettey, School of Public Health, University of Ghana, Legon, Email: narhtsay@gmail.com / ptettey@ug.edu.gh Tel: 055 042 4815 and; Nana Abena Kwaa Ansah Apatu (Administrator), Ghana Health Service Ethical Review Committee Secretariat, Accra. Tel: 0503539896 Email: ethics.reasearch@ghsmail.org

APPENDIX II INFORMED CONSENT

STUDY TITLE: ASSESSMENT OF WATER, SANITATION AND HYGIENE AND PATIENT SATISFACTION IN HEALTH FACILITIES IN GA WEST MUNICIPAL

PARTICIPANTS' STATEMENT

I acknowledge that I have read or have had the purpose and contents of the Participants' Information Sheet read and all questions satisfactorily explained to me in a language I understand (English, Akan, Ga). I fully understand the contents and any potential implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form.

I voluntarily agree to be part of this research **and I have been given a copy of the consent form for my own records.**

Name or Initials of Participant.....

Participants' SignatureOR Thumb Print.....

Date:.....

INVESTIGATOR STATEMENT AND SIGNATURE

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Researcher's name.....

Signature

Date.....

APPENDIX III: QUESTIONNAIRES

Health Facility Administrator / In-charge Questionnaire_

Survey – WASH in Health Care Facilities

Name of Interviewer:			
Date:			
Name of Health Facility:			
Location of health facility:			
Type of Facility:			
Interviewee Code:			
Function of Interviewee:			
General Hospital Information:			
Sr. No.	Question	Categories/Codes	Answer
Q1.	What is the catchment population of the health facility?		_____
	What is your staff strength?	Cadre of Staff	<i>i Write No.</i>
Q2.	What services do you provide?	1. Out-patient services 2. In-patient services 3. A 24-hour emergency services Ambulance services (functioning 24/7) 4. Primary health care services 5. Antenatal Care 6. Deliveries 7. Other, Specify _____	<i>Tick and Write No.</i> <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____
Q3.	On average how many patients are seen per month?		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Q4.	On average how many days in a month are outpatient seen?		<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Q5.	What is your bed-capacity of this facility?		<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Q6.	On average how many inpatients are at the health facility?		<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
WASH Infrastructure			
Q7.	What is the main source of water?	01. Piped supply from outside the facility 02. Borehole 03. Protected dug well 04. Rain Water 05. Tanker truck 06. Other	<input type="text"/> <input type="text"/>
Q8.	Where is the main source of water located?	01. On premises 02. Off premises within 500m 03. Off premises, further than 500m 04. No water source	<input type="text"/> <input type="text"/>
Q9.	Is water accessible to all users of the facility at all times?	01. Yes 02. No, patients and care givers do not have access at times 03. No, staff do not have access at times 04. No, both staff and patients/caregivers do not have access at times	<input type="text"/> <input type="text"/>
Q10.	How often is the main water source unavailable?	01. For part of the day, rarely 02. For part of the day frequently 03. For part of the year (seasonal problem), frequently 04. For part of the year (seasonal problem), rarely	<input type="text"/> <input type="text"/>
Q11.	Is there a time of the year when the facility has a severe shortage or lack of water?	01. Yes 02. No If Yes when _____	<input type="text"/> <input type="text"/>

Q12.	Does the facility has water storage facilities to cater for water shortage?	01. Yes 02. No If Yes specify _____	<input type="checkbox"/> <input type="checkbox"/>
Q13.	How many departments do you have?		<input type="checkbox"/> <input type="checkbox"/>
Q14.	How many functional toilets do you have at each department?	<i>List the departments and number of functional toilets</i>	
Q15.	On average what is the inpatient usable improved toilet ratio?	Calculate using average number of patients and number of usable toilets available (no. of toilets for every 20 patients)	_____
Q16.	Is fecal waste from toilet safely managed?	01. Yes 02. No If Yes specify how fecal waste is managed _____	<input type="checkbox"/> <input type="checkbox"/>
Q17.	Does the health facility provide hand washing facilities for patients?	<i>List areas within the facility where provision has been made</i>	

HEALTH FACILITY ASSESSMENT OF WASH FACILITIES TOOL

Name of Interviewer:	
Date:	
Name of Health Facility:	
Location of Health Facility:	
Type of Health Facility:	
SECTION W: WATER SUPPLY	
W1. What is the main water supply for the facility?	
01. Piped supply inside the building	
02. Piped supply outside the building	
03. Tube well / Borehole	
04. Protected dug well	
05. Unprotected dug well	
06. Protected spring	
07. Unprotected spring	
08. Rain water	
09. Tanker truck	
10. Surface water (river/dam/lake/pond)	
Other (specify) _____	
No water source (skip to Section S- Sanitation)	

W2. Where is the main water supply for the facility located?	
01. On premises	
02. Up to 500 m	
02. 500 m or further	
W3. Is water available from the main water supply at the time of the survey?	
01. Yes	
02. No	
W4. Is water available in all departments?	
OPD	01. Yes
03. No	
Maternity	01. Yes
	02. No
Child Health	01. Yes
04. No	Yes
Surgery	01. Yes
	02. No
Medical	01. Yes
	02. No
W5. Is water piped into the wards? Check ward for availability of water at the time of the survey	
Maternity Ward	01. Yes
05. No	
Pediatric Ward	01. Yes
06. No	
Medical	01. Yes
07. No	

SECTION S – SANITATION		
S1. What type of toilets/latrines are at the facility for patients?		
Department / Ward:		
01. Flush / Pour-flush toilet to sewer connection		
02. Flush / Pour-flush toilet to tank or pit		
03. Pit latrine with slab		
04. Composting toilet		
05. Flush / Pour-flush toilet to open drain		
06. Pit latrine without slab/open pit		
07. Bucket		
08. Hanging toilet/latrine		
09. No toilet/latrine (skip to Section H on Hand Hygiene)		
10. Other (specify) _____		
Note If more than one type of toilet is used, the most common type of toilet/latrine in the service area should be selected. A separate form should be completed for each department / ward if applicable		
S2. Is at least one toilet usable (available, functional, private)?		
01. Yes		
02. No		
S 3. Are there toilets that ...	01. Yes	02. No
Are dedicated for staff?		
Are in sex-separated or gender-neutral		
Have menstrual hygiene facilities?		
Are accessible for people with limited mobility?		

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S 4. Are the toilets clean?	01. Yes	02. No
Is the toilet block visibly clean, with no presence of feces, blood or bodily substances?		
Is there an unpleasant smell (of urine or feces) on the block?		
Do usable improved toilets have flies?		
S 5. Are the toilets Private and Safe?	1.Yes	2.No
Do the toilet blocks have adequate light, including at night?		
Do the toilets have doors or screens that can be locked when needed?		

Section H: HAND HYGIENE	
H1. Is there a functional handwashing facility at the toilets on the day of the survey?	
01. Yes, functional with soap and water and or alcohol-based hand rub	
02. No, there are handwashing facilities near the toilets but lacking soap and/or water	
03. No, no handwashing facilities near toilets	
H2. Is there a functional hand hygiene facility at points of care on the day of the survey?	
01. Yes, functional with soap and water and or alcohol-based hand rub	

02. No, there are hand hygiene facilities at points of care but not functional, or lacking soap and water or alcohol-based hand rub.	
03. No, no hand hygiene facilities at points of care	
04. No, no hand hygiene facilities at the health care facility	

G-WM1. Is waste correctly segregated into at least three labelled bins in the consultation area?	
Yes, waste is segregated into three labelled bins	
No, bins are present but do not meet all requirements or waste is not correctly segregated	
No, bins are not present	
<p><i>Note</i></p> <p>For facilities with multiple consultation rooms, select one at random and observe whether sharps waste, infectious waste and non-infectious general waste are segregated into three different bins.</p> <p>The bins should be colour-coded and/or clearly labelled, no more than three quarters (75%) full, and each bin should not contain waste other than that corresponding to its label. Bins should be appropriate to the type of waste they are to contain; sharps containers should be puncture-proof and others should be leak-proof. Bins for sharps waste and infectious waste should have lids.</p>	
G-WM2. How does this facility usually treat/ dispose of infectious waste?	
Autoclaved	
Incinerated (two chamber, 850-1000 °C incinerator)	
Incinerated (other)	
Burning in a protected pit	
Not treated, but buried in lined, protected pit	
Not treated, but collected for medical waste disposal off-site	
Open dumping without treatment	
Open burning	
Not treated and added to general waste	
Other (specify)	
<p><i>Note</i></p> <p>If more than one applies, select the method used most often.</p> <p>Methods considered to meet the basic service level include autoclaving; incineration; burial in a lined, protected pit; and collection for medical waste disposal off-site.</p>	

G-WM3. How is COVID-19 Waste Treated (Facemasks, PPEs, used tissue etc..)	
Autoclaved	
Incinerated (two chamber, 850-1000 °C incinerator)	
Incinerated (other)	
Burning in a protected pit	
Not treated, but buried in lined, protected pit	
Not treated, but collected for medical waste disposal off-site	
Open dumping without treatment	
Open burning	
Not treated and added to general waste	
Other (specify)	
G-WM4. How does this facility usually treat/ dispose of sharps waste?	
Autoclaved	
Incinerated (two chamber, 850-1000 °C incinerator)	
Incinerated (other)	
Burning in a protected pit	
Not treated, but buried in lined, protected pit	
Not treated, but collected for medical waste disposal off-site	
Open dumping without treatment	
Open burning	
Not treated and added to general waste	
Other (specify)	
<p>Note</p> <p>If more than one applies, select the method used most often.</p> <p>Methods considered to meet the basic service level include autoclaving; incineration; burial in a lined, protected pit; and collection for medical waste disposal off-site.</p>	

Patient Questionnaire – WASH in Health Care Facilities

Name of Health Facility _____			
Department _____			
Outpatient <input type="checkbox"/> _____ Inpatient <input type="checkbox"/> _____			
Name of Interviewer _____			
Date _____			
SECTION 1. Demographic information			
Sr. No.	Question	Categories/Codes (one only unless indicated "all that apply")	Answer
Q1.	Name / ID number	Write name	_____
Q2.	Age	In years	<input type="text"/> <input type="text"/>
Q3.	Sex	01. Male 02. Female	<input type="text"/> <input type="text"/>
Q4.	Education level	01. No education / formal schooling 02. Primary School 03. Middle/JSS/JHS 04. Secondary School/ SHS 05. Completed graduate course 06. Completed Postgraduate course 77. Not Applicable	<input type="text"/> <input type="text"/>
Q5.	Marital Status	01. Never married 02. Currently married / co-habiting 03. Widowed 04 Separated 05. Divorced 99. No answer/do not want to answer	<input type="text"/> <input type="text"/>
Q6.	Place of Residence	0.1 Urban 0.2 Peri-urban 0.3 Rural	<input type="text"/> <input type="text"/>
Q7.	Family structure	01. Nuclear 02. Joint/Extended 99. No answer/do not want to answer	<input type="text"/> <input type="text"/>

Name of Health Facility _____			
Department _____			
Outpatient <input type="checkbox"/> _____		Inpatient <input type="checkbox"/> _____	
Name of Interviewer			
Date			
SECTION 1. Demographic information			
Sr. No.	Question	Categories/Codes (one only unless indicated "all that apply")	Answer
Q8.	Type of Residence	0.1 Standalone Residence (House / apartment) 0.2 Compound House 0.3 Other 99 No answer / do not want to answer	<input type="checkbox"/> <input type="checkbox"/>
Q9.	Type of facilities in home setting – Main Water Source	0.1 Piped into compound 0.2 Fetch outside house/premise 0.3 Buy water from a tanker 0.4 Other 0.5 99 did not answer	<input type="checkbox"/> <input type="checkbox"/>
Q10.	Type of toilet facilities at home	0.1 Household has own toilet facilities 0.2 Shared household toilet facilities 0.3 No toilet facilities 99. No answer	<input type="checkbox"/> <input type="checkbox"/>
Q11.	Primary occupation (respondent)	01. Technical / Professional 02. Managerial 03. Clerical 04. Sales and Services 05. Skilled manual 06. Un skilled manual 07. Agricultural 08. Student 09. Unemployed 11. Other (specify) 99. No answer/do not want to answer	<input type="checkbox"/> <input type="checkbox"/>

Name of Health Facility _____			
Department _____			
Outpatient <input type="checkbox"/> _____ Inpatient <input type="checkbox"/> _____			
Name of Interviewer			
Date			
SECTION 1. Demographic information			
Sr. No.	Question	Categories/Codes (one only unless indicated "all that apply")	Answer
Q12.	Household Monthly Income	01. <500 GHC 02. 500 -1000GHC 03. 1001 – 3000GHC 04. 30001 - 5000GHC 05. 5001 – 7,000GHC 06. >7000GHC	<input type="checkbox"/> <input type="checkbox"/>
Q13.	First time /user of facility	01. First time user 02. Recurrent user	<input type="checkbox"/> <input type="checkbox"/>
Q14.	How long have you been using this health facility?	01. < 6 months 02. 6months – 1 year 03. 1 -3 years 04. 3-5 years 05. > 5 years	<input type="checkbox"/> <input type="checkbox"/>

Section 2 Expectation, Experience Quality of WASH Services**SECTION 2.1 EXPECTATION of Toilets**

For the next set of questions, TICK (✓) whether you;

1-Strongly disagree, 2- Disagree, 3- Agree, 4- Strongly Agree.

The first part has to do with your **EXPECTATIONS**. Indicate whether the patient strongly disagree, disagree, agree or strongly Agree with the expectation from the Hospital.

No.	QUESTIONNAIRE	1	2	3	4	CODE
Q15.	I expect toilets to be designated / available for patients use					EOT1
Q16.	I expect the toilets at the health facility to be accessible to patients					EOT2
Q17.	I expect separate toilets for males and females					EOT2
Q18.	I expect the health facility to have enough toilets for patients (no long queues)					EOT3
Q19.	I expect the toilets are not broken and function or work well					EOT4
Q20.	I expect the flush system to work well					EOT5
Q21.	I expect the water to flow and easy to flush					EOT6
Q22.	I expect that the toilets are clean					EOT7
Q23.	I expect that the toilets do not smell bad and					EOT8
Q24.	I expect female toilets with provision for the management of menstrual hygiene					EOT9
Q25.	I expect water and soap in toilets					EOT10

SECTION 2.2 PERCEPTION (EXPERIENCE) of Toilets

For the next set of questions, TICK (✓) whether you;

1-Strongly disagree, 2- Disagree, 3- Agree, 4- Strongly Agree.

For the next set of questions, TICK (✓) whether you;

1-Strongly disagree, 2- Disagree, 3- Agree, 4- Strongly Agree.

The second part has to do with your **PERCEPTION**. Indicate whether you strongly disagree, disagree, agree or strongly Agree with the perception (based on experience) from the Hospital

No.	QUESTIONNAIRE	1	2	3	4	CODE
Q26.	I am satisfied that toilets were available for patient use					POT1
Q27.	I am satisfied that the toilet I used was easily accessible					POT2
Q28.	I am satisfied that the toilet I used was specifically for male / female (depending on sex of patient)					POT3

Q29.	I am satisfied that the toilets I used are functioning well				POT4
Q30.	I am satisfied the toilets flush system in the toilet I used was working well				POT5
Q31.	I am satisfied water was flowing in the toilet I used				POT6
Q32.	I am satisfied the toilets I used were clean				POT7
Q33.	I am satisfied the toilets I used did not smell bad				POT8
Q34.	I am satisfied the toilets I used had provision for the management of menstrual hygiene <i>Ask to female patients</i>				POT9
<p>SECTION 2.3 EXPECTATION of Water Availability For the next set of questions, TICK (✓) whether you; 1-Strongly disagree, 2- Disagree, 3- Agree, 4- Strongly Agree. The first part has to do with your EXPECTATIONS. Indicate whether the patient strongly disagree, disagree, agree or strongly Agree with the expectation from the Hospital.</p>					
Q35.	I expect water to be available at the health facility				EWA1
Q36.	I expect the source of the water to be improved (piped, borehole, rain water, tanker truck)				EWA2
Q37.	I expect the water to be located on the premises				EWA3
Q38.	I expect to have access to water whenever I need it				EWA4
	For In patient				EWA5
Q39.	I expect water to be available on the wards (in toilets and bathroom)				EWA6
Q40.	I expect that there is enough water available for bathing and washing				EWA7
Q41.	I expect hot water for bathing				EWA8
Q42.	I expect water to be available every day				EWA9
Q43.	I expect the facility to have water storage facilities for interrupted service				EWA10
<p>SECTION 2.4 PERCEPTION of Water Availability For the next set of questions, TICK (✓) whether you; 1-Strongly disagree, 2- Disagree, 3- Agree, 4- Strongly Agree. The first part has to do with your PERCEPTIONS. Indicate whether the patient strongly disagree, disagree, agree or strongly Agree with the perception (based on experience) from the Hospital.</p>					
Q44.	I am happy that water is available at the health facility				PWA1
Q45.	I am satisfied with the source of water I found at the health facility				PWA2
Q46.	I am satisfied that the water I used is on the premises of the facility				PWA3
Q47.	I am satisfied that I had access to water whenever I needed				PWA4

Q48.	I am satisfied that there is water on the ward in the (toilets and bathrooms) where I am admitted					PWA5
Q49.	I am satisfied I have enough water for bathing and washing					PWA6
Q50.	I am satisfied that I have hot water for bathing					PWA7
Q51.	I am satisfied that water flows every day					PWA8
Q52.	I am satisfied that water storage facilities are available at the health facility					PWA9

SECTION 2.5 EXPECTATION of Hand Hygiene Facilities

For the next set of questions, TICK (✓) whether you;

1-Strongly disagree, 2- Disagree, 3- Agree, 4- Strongly Agree.

The first part has to do with your **EXPECTATIONS**. Indicate whether the patient strongly disagree, disagree, agree or strongly Agree with the expectation from the Hospital.

Q53.	I expect the health facility to have hand washing facilities for patient use					EHH1
Q54.	I expect the hand facilities to have flowing water (from tap/sink or veronica bucket)					EHH2
Q55.	I expect soap to be available for hand washing					EHH3
Q56.	I expect sanitizer to be available for patient use					EHH4
Q57.	I expect hand drying materials to be available for patient use					EHH5
Q58.	I expect to find hand washing facilities at the toilet					EHH6
Q59.	I expect to find hand washing facilities at the OPD					EHH7
Q60.	I expect to find hand washing facilities at the wards					EHH8
Q61.	I expect to find hand washing facilities at/near the nurses and doctors treatment areas					EHH9

SECTION 2.6 PERCEPTION of Hand Hygiene Facilities

For the next set of questions, TICK (✓) whether you;

1-Strongly disagree, 2- Disagree, 3- Agree, 4- Strongly Agree.

The first part has to do with your **PERCEPTIONS**. Indicate whether the patient strongly disagree, disagree, agree or strongly Agree with the perception (based on experience) from the Hospital.

Q62.	I am satisfied that the health facility has hand washing facilities for patient use					PHH1
Q63.	I am satisfied that the hand facilities I used had flowing water from tap/sink or veronica bucket					PHH2
Q64.	I am satisfied I used soap for hand washing					PHH3
Q65.	I am satisfied I used sanitizer					PHH4
Q66.	I am satisfied I used hand drying materials (disposable tissues)					PHH5
Q67.	I am satisfied the toilets I used had hand washing facilities					PHH6

Q68.	I am satisfied the OPD I attended had hand washing facilities					PHH7
Q69.	I am satisfied the wards I am admitted has hand washing facilities					PHH8
Q70.	I am satisfied the nurses and doctors treatment areas where I was attended to has hand washing facilities					PHH9
	<p>SECTION 2.6 EXPECTATION of Waste Management</p> <p>For the next set of questions, TICK (√) whether you;</p> <p>1-Strongly disagree, 2- Disagree, 3- Agree, 4- Strongly Agree.</p> <p>The first part has to do with your PERCEPTIONS. Indicate whether the patient strongly disagree, disagree, agree or strongly Agree with the perception (based on experience) from the Hospital</p>					
Q71.	I expect waste bins are provided at all areas /departments (OPD waiting area, consultation room, ward on the compound)					EWM1
Q72.	I expect the waste bins to be properly covered and not overflowing					EWM2
Q73.	I expect fenced and protected areas will be available for the storage of waste awaiting disposal or removal?					EWM2
	<p>SECTION 2.6 PERCEPTION of Waste Management</p> <p>For the next set of questions, TICK (√) whether you;</p> <p>1-Strongly disagree, 2- Disagree, 3- Agree, 4- Strongly Agree.</p> <p>The first part has to do with your PERCEPTIONS. Indicate whether the patient strongly disagree, disagree, agree or strongly Agree with the perception (based on experience) from the Hospital</p>					
Q74.	I am satisfied waste bins are provided at all areas /departments (OPD waiting area, consultation room, ward, on the compound)					PWM1
Q75.	I am satisfied the waste bins are properly covered and not overflowing					PWM2
Q76.	I am satisfied fenced and protected areas are available for the storage of waste awaiting disposal or removal?					PWM3

CONCLUDING QUESTIONS WASH IN HEALTH FACILITIES			
Sr. No.	Questions	Categories/Codes (one only unless indicated “all that apply”)	Answer
Q77.	What would you like to see changed in the toilets at the health facility to make you happier?	01. Better toilets (more modern and updated toilets) 02. More toilets for patients 03. Separate toilets for males and females 04. Female toilets with provision for the management of menstrual hygiene 05. Water and soap in toilets 06. Other, specify _____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Q78.	Do you consider the toilets when you decide which health care facility to use for antenatal care or childbirth?	01. Yes 02. No 99. No answer/do not want to answer	<input type="checkbox"/> <input type="checkbox"/>
Q79.	What would you like to see changed about the water at the health facility to make you happier?	01. An improved water source 02. Improved water quantity 03. Constant flow of water 24 – 7 04. Other , please specify _____ _____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Q80.	Do you consider water availability when you decide which health care facility to use for antenatal care or childbirth?	01. Yes 02. No 99. No answer/do not want to answer	<input type="checkbox"/> <input type="checkbox"/>

Q81.	Where in the health facility are hand washing facilities available?	01. At the toilets 02. At OPD 03. In the wards 04. At/ near the nurses treatment area 05. At/near the doctors treatment area 06. Other, please specify <hr/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Q82.	What would you like to see changed about the hand washing facilities at the health facility?	01. Provide flowing water for hand washing 02. Provide soap 03. Provide sanitizer 04. Provide hand drying tissues 05. Permit patients to use hand washing facilities at point of care 06. Other, please specify <hr/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Q83.	Do you consider availability of soap and water for hand washing and hand drying materials when deciding which health facility to go for care?	01. Yes 02. No	<input type="checkbox"/> <input type="checkbox"/>
Q84.	What is your general impression of this facility	01. Facility is clean 02. Facility is well maintained 03. Staff are nice to clients 04. Facility is not clean 05. Facility is not well maintained 06. Staff are not nice to clients 07. Other, please specify <hr/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Notes

APPENDIX IV ETHICAL APPROVAL LETTER

case of reply the number and date of this Letter should be quoted.



GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE
 Research & Development Division
 Ghana Health Service
 P. O. Box MB 190
 Accra
 Digital Address: GA-050-3303
 Tel: +233-302-681109
 Fax + 233-302-685424
 Email: ethics.research@ghsmail.org

MyRef. GHS/RDD/ERC/Admin/App/20/279
 Your Ref. No.

2nd August, 2020

Akosua Takyiwa Kwakye
 P.O. Box 9347
 KIA – Accra

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

GHS-ERC Number	GHS-ERC 036/01/20
Study Title	Assessment of Water, Sanitation and Hygiene and Patient Satisfaction in Health Facilities in Ga West District of Greater Accra Region
Approval Date	2 nd August, 2020
Expiry Date	1 st August, 2021
GHS-ERC Decision	Approved

This approval requires the following from the Principal Investigator

- Submission of yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report after completion of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.

You are kindly advised to adhere to the national guidelines or protocols on the prevention of COVID -19

Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED..... *James Akazili*
 Dr. James Akazili
 (Head, Ethics & Research Management Department)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra