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COLLEGE OF HEALTH SCIENCES

ASSESSING THE QUALITY OF ART SERVICES FOR PEOPLE LIVING WITH HIV AT THE GREATER ACCRA REGIONAL HOSPITAL IN ACCRA, GHANA

BY

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THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE AWARD OF MASTER OF PUBLIC HEALTH DEGREE

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DECLARATION

I, Esther Kawiah Allan, do hereby declare that apart from people's knowledge that have been duly acknowledged, this research proposal is the result of my hard work under competent supervision.

I take full responsibility for any shortcomings in this work.

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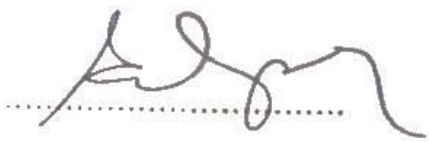

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28/10/19

DATE

DEDICATION

This thesis is dedicated to my brother in law for his support and encouragement. **Dr. Bright Kelvin Wereh,** thank you very much for believing in us. God bless you.

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I am thankful to God Almighty for His love and protection.

To my supervisor, Prof. Kwasi Torpey for not giving up on me. To the lectures and staff of University of Ghana School of Public Health for the support and knowledge provided to us. I am thankful to the management, staff and clients of the Greater Accra Regional Hospital ART unit for allowing me to conduct the study at their facility. God bless you all. Now to my family and friends, you are my highest motivation. Thank you all for your love.

ABSTRACT

Introduction: Poor adherence to Antiretroviral Therapy (ART) services compromises the effectiveness of available treatments. In Ghana, the ART coverage stands at 33.88%. Greater Accra Region is among the major regional contributors of the low ART coverage in Ghana. The staggering fold in coverage difference in ART coverage in Ghana compared to other countries is an issue of concern to the health management team. The perceptions of clients and service providers on ART services quality are important in ART service utilization. Similarly, expectations from the client perspectives play a major role in improving ART services and subsequent coverage.

Objectives: This study seeks to assess the quality of ART services for People Living with HIV at the Greater Accra Regional hospital.

Methods: The study was a mixed design using quantitative and qualitative methods. The source population was HIV positive clients ≥18 years, nurses and pharmacists working at the ART clinic. Conveinient and purposive sampling techniques were used to select clients and nurses/pharmacists for survey IDIs and KII respectively. An observational checklist in a form of facility assessment tool was used to determine quality of ART services in relation to readiness for initiating ART. Simple descriptive statistics was used to represent factors influencing ART quality. Service providers and clients' expectations on improving quality of ART services were analyzed using thematic Content Analysis (TCA).

Results: Among the participants, adherence to ART was 65.9%. Majority (88.9%) of the patient's perceived service offered at ART to be of good quality. Waiting time to see doctor, travel time to ART facility and adherence to ART medication were major predictors of quality ART service. Health workers believe provision of logistics and trained staff could improve ART service quality at the ART unit.

Conclusion Health providers at the ART unit lack adequate understanding of quality ART services. However, patients, despite the inadequate comprehensive understanding of quality ART service among service providers, perceive ART services at the unit to be of good quality. Waiting time to see doctor, travel time to ART facility and adherence to ART medication were factors influencing quality ART service

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LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ANOVA	Analysis of Variance
ART	Antiretroviral Therapy
GAC	Ghana AIDS Commission
GARH	Greater Accra Regional Hospital
GHS-ERC	Ghana Health Service Ethical Review Council
HIV	Human Immunodeficiency Virus
ILO	International Labour Office
MOH	Ministry Of Health
NACP	National AIDS Control Programme
NHIS	National Health Insurance Scheme
PLHIV	People Living with HIV
TCA	Thematic Content Analysis
UNAIDS	Joint United Nations Programme on HIV and AIDS
UNDP	United Nations Development Project
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background

The world has progressed in the fight against Human Immunodeficiency Virus (HIV) epidemic, especially in low and middle income countries. By the end of 2017, 36.9 million people were living with HIV/AIDS with 1.8 million new infections worldwide compared with 3.4 million new infections in 1996 (UNAIDS, 2018c). HIV related annual mortality for all ages worldwide has decreased from 1.9 million in 2004 to 940,000 in 2017. This is about 34% reduction of global HIV mortality (UNAIDS, 2018c). Access to Antiretroviral Therapy (ART) in low- and middle-income countries for People Living with HIV (PLHIV) has also increased from 400,000 in 2003 to 21.7 million in 2017 (UNAIDS, 2018c).

Several global declarations have been made towards ending the AIDS epidemic. In 2014 the Joint United Nations programme on HIV/AIDS (UNAIDS) set ambitious new targets towards elimination of HIV. The new "90-90-90" targets for 2020 included diagnosis of 90% of HIV infected individuals, 90% of diagnosed HIV infected persons access sustained ART and achieve 90% viral load suppression among those initiated on ART (UNAIDS, 2014). It is of paramount interest in achieving these targets, to retain clients in care when enrolled on ART and also maintain 90% of HIV positive clients on treatment (UNAIDS, 2018c).

The Sustainable Development Goal 3.3 also focuses on ending the AIDS epidemic by 2030 (UNDP, 2015) and in 2016, the United Nations made a declaration to end AIDS by 2020 (UNAIDS, 2018b). Despite the many declarations and international focus, HIV remains a public health challenge for many developing countries. Asia and the Pacific had 5.2 million PLHIV with 280,000 new infections of which 2.7 million were on ART in 2017. HIV/AIDS

related deaths in these areas were 17,000 in the same year (UNAIDS, 2018a). In sub-Saharan Africa, the estimated number of PLHIV was 25.7 million in 2017, of which 15.3 million were receiving ART. It was also estimated that 660,000 died from AIDS related illness in 2017 (UNAIDS, 2018a).

In Ghana, the National AIDS Commission estimated the national HIV prevalence as 1.67% with 310,000 persons living with HIV/AIDS, 0.68 as incidence, making about 19,101 new cases of HIV in 2017 (GAC, 2017). An estimated number of 44,811 people also died from HIV/AIDS related causes in the same year (GAC, 2017). The Greater Accra region recorded 73,556 people living with HIV/AIDS, out of which 4,488 were new infections and 368 HIV/AIDS related deaths and a prevalence of 2.1% (GAC, 2017).

Achieving the 90-90-90 global target by the year 2020 (UNAIDS, 2016), will therefore require people to get tested, know their status, put the positive individuals on treatment and maintain them in care in order to achieve viral suppression (Rabkin, 2017). The quality of care given to HIV clients must be improved to achieve this target. Poor or inadequate quality of care can be a hindrance to the achievement of the target.

All over the world, quality of products or services is an indicator for purchase or utilization. Everyone has an expectation to get the best of services or products they receive or use. From the areas of aviation, transportation, hospitality, education, fashion, food and agriculture, construction, etc. quality is important. Quality is now part of our life (Mosadeghrad, 2012). The health sector is no exception in the demand for quality. People visiting the health environment expect to get the best quality of care. Good health and well-being are a fundamental human right that must be enjoyed by all. Everyone has a right to health. The World Health Organization's (WHO) essential elements of the right to health are the principles of availability, accessibility, acceptability and quality (WHO, 2018). The quality of healthcare for everyone in the population is a human right that must be enjoyed by all.

Quality is difficult to describe (Donabedian, 1988) due to its subjective, complex nature and hence depends on who is describing it based on their experience and expectation. There is not a definite definition for quality. Donabedian classified quality of care into three categorical approaches as the structure, process and outcome. The structural component of healthcare quality is the setting in which the care is given, including the availability of human, material and financial resources, qualification and accreditation of personnel and the overall organizational structure. The process component is what transpires between the client and providers on care received in making diagnosis and offering treatment. The outcome is the result of care given. When all three components are well linked, they yield positive health for the individual and population (Donabedian, 1988).

Mosadeghrad (2014a) also defined quality healthcare as "consistently delighting the patient by providing efficacious, effective and efficient healthcare services according to the latest clinical guidelines and standards, which meet the patient's needs and satisfies providers". He identified some attributes of quality of healthcare and grouped them into five categories which are environment, empathy, efficiency, effectiveness and efficacy. He also described the characteristics to include availability, accessibility, affordability, acceptability, appropriateness, competency, timeliness, privacy, confidentiality, attentiveness, caring, responsiveness, accountability, accuracy, reliability, comprehensiveness, continuity, equity, amenities, and facilities (Mosadeghrad, 2014b).

Visiting a health facility for treatment is a nightmare for many people across the world. Clients have an expectation to receive the best of care but the obstacles such as long queues, large number of people, unfriendly personnel, confusing instructions, delays and cost among others, make it unpleasant for many healthcare seekers (Kapoor, 2011). Utilizing services provided in the health institution such as laboratory services, pharmacy, accommodation,

radiography, access to skilful personnel remain difficult for many people both in urban and rural areas (Kapoor, 2011).

Some studies on quality of care in Ghana in the areas of maternal and neonatal care, trauma, hypertension and malaria, identified poor administrative functioning, lack of equipment, supplies, laboratory services, adherence to treatment protocols, unprofessional staff attitude as some of the problems affecting client satisfaction (Escribano et al., 2016).

The patient and health care provider's perception on quality differ. The patient's perceptions on quality of care are "accessibility and affordability of healthcare, promptness of delivery, early diagnosis and treatment, to enable them return to their normal function and also to be treated with respect". Whereas the healthcare providers also perceive quality of care as "availability of resources, satisfaction with client outcome, self-satisfaction, knowledge and skills acquisition" (Kapoor, 2011).

Improving healthcare quality will yield positive outcome on the service provided to clients and will result in low expenditure on health systems. The burden on the health system will be reduced since the client would not spend much time in the facility, resulting in increased staff productivity and performance, to yield high organizational output and conserve the use of supplies and resources (Mosadeghrad, 2012).

1.2 Problem Statement

At all levels of healthcare, providers are expected to provide clients with quality healthcare that meet their expectation. However, the concern of most clients visiting the health sector is the poor client provider relationship which affects the quality of care they receive. The perspectives of clients and service providers on the quality of care are important in

identifying factors that influence quality of care (Anosike et al., 2018). These help improve interventions and treatment outcomes for HIV clients.

For PLHIV, loss to follow up, non-adherence to treatment, poor retention in care and high defaulter rates can occur if clients are not satisfied with the quality of care they receive (Anosike, 2018). This can affect their treatment outcome, resulting in poor viral suppression and increased mortality.

Further, the 2016 Ghana National Health Policy identified concerns of clients with regards to abusive and humiliating treatment by health care providers, shortage of logistics and pharmaceuticals as issues affecting quality of care (MOH, 2016). Although these are known facts about the importance of quality of care for PLHIV, there have been few endeavors targeted at assessing the quality of these services.

The national ART coverage in Ghana is 33.88%. In Greater Accra region there are about 73,556 PLHIV (GAC, 2017) of which as at 2018 only 24% of the clients were receiving ART services (GHS, 2018). It is necessary to know the quality of ART services in this region. The Ridge Hospital, being the regional hospital sees a lot of PLHIV and no known studies have been conducted at the facility to consider the quality of ART services and seek the perceptions of both clients and providers on the factors influencing quality of ART services. These will inform policies and measures to help improve on the quality of care provided to clients at the ART centre. This study therefore seeks to assess the quality of ART services for PLHIV at the Ridge Hospital in Accra.

1.3 Research Questions

1.3.1 General Question

What is the quality of ART services for PLHIV at the Ridge Hospital in Accra?

1.3.2 Specific Questions

1. What are service provider's perceptions on quality of ART services?
2. What is the quality of ART services from the client's perspective?
3. What are the factors influencing quality of ART services?
4. What are client's expectations on improving quality of ART services?

1.4 Objectives

1.4.1 General Objective

This study seeks to assess the quality of ART services for PLHIV at the Ridge Hospital in Accra.

1.4.2 Specific Objectives

1. To assess the service providers perceptions on quality of ART services
2. To assess the quality of ART services from the client's perspective.
3. To examine factors influencing quality of ART services.
4. To explore clients expectations on improving quality of ART services.

1.5 Significance of the Study

With a national ART coverage of 33.88% in 2017, it is very unlikely to achieve 90% ART coverage by the year 2020. It is important to identify factors influencing the quality of ART services to retain people in care. To ensure the facilities providing services to HIV/AIDS clients are well prepared to meet the demand and maintain the clients in care, it is important

to assess the factors affecting the quality of care and understand clients and service provider's perspectives on this to be able to achieve the HIV 90-90-90 target.

There has not been any known study at the Ridge Hospital on the factors influencing the quality of care of PLHIV at the ART centre. Therefore, this study will help to understand this from the providers and client perspective and identify the factors influencing quality of care at the ART centre to improve on the services provided in order to achieve the 2030 HIV/AIDS agenda. Findings from this study will also contribute greatly to knowledge, inform policy and improve on HIV care in the region and country at large.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

According to the United Nations programme on HIV/AIDS (UNAIDS, 2013) there are an estimated 35.3 million people living with the human immunodeficiency virus (HIV) worldwide. HIV/AIDS continues to be of global concern, although the status has shifted from being a fatal disease, to a chronic, but controlled disease (Jin et al., 2014). Since the implementation of antiretroviral therapy (ART) services, morbidity associated with HIV/AIDS has reduced significantly (Hogg et al., 1998). Standard quality ART services will allow patients return to their normal lives, support their families, achieve their goals and live productive lives. However, if the quality of life of PLHIV who patronize ART services does not improve in any way, they will not adhere to the treatment. Non-adherence to treatment has the cascading effect of treatment failure and drug resistance (Jin et al., 2014).

Treatment for HIV/AIDS is lengthy. ART services must be tailored in such a way as to encourage patient participation, in order to avoid any relapses in treatment. Several factors influence the quality of ART services in our health facilities. These shall be discussed in this literature under three broad topics: client factors, including age, educational level, and marital status among others; structural factors, including infrastructure, distance of facility and staff availability; and process factors, including client-provider relationship, privacy and waiting time.

Antiretroviral treatment was started in Ghana in 2003 (NACP, 2010). The introduction of ART is reported to have reduced the progression of HIV to AIDS, as well as the death rate of AIDS on a global count (Wasti et al., 2012). Following the guidelines provided by the WHO, efforts were put in place to make ART medications available and accessible to PLHIV.

Client perspective on quality of ART services can be assessed by client satisfaction towards healthcare delivery. Batbaatar et al., (2017) identified two main factors that influence patient satisfaction as being patient-related and provider-related. Understandably, healthcare delivery involves both patients and healthcare providers. Provider-related factors include provider competence and interpersonal relationship (Batbaatar et al., 2017), whereas patient-related factors include age, gender, socio-economic status and expectation (Bleich & Jl, 2009). However, these are weak-linked and are not very good indicators of patient satisfaction with healthcare services (Adhikary et al., 2018).

Client perspectives on the quality of ART services tend to affect adherence and non-adherence to prescribed medications. Several studies have been conducted to ascertain client adherence and non-adherence to medications. Wasti et al (2012), showed that PLHIV in Africa are more compliant on ART medications than in other parts of the world. Some factors that contribute to non-adherence of ART medications have been documented to include illiteracy, alcohol intake and religious beliefs (Wasti et al., 2012). In other studies, adherence to medications is influenced by such factors as social support, counselling, and motivation from other clients on ART (Gugsa et al., 2017).

2.2 Client Factors that Affect Quality of ART Services

2.2.1 Socio-Demographic Factors

Socio-demographic factors include ethnicity, gender, age and educational level. These factors play a role in affecting the quality of health services. It has been documented to influence the interaction between a health service provider and a client, which consequently affects the quality of service provided (Mosadeghrad, 2014b). It is noteworthy that, aside socio-demographic factors of patients, those of care providers also influence care provision.

Educational level as a socio-demographic factor has been elucidated to affect quality of service. According to Widayati et al, (2019), the higher the patient's educational level, the lower the assessment of quality health service. Accordingly, Péfoyo & Wodchis (2013), found out in their study that patients with higher education tend to have higher expectation on service quality. On the contrary, Babatunde (2013), states that the higher the educational level of the patient, the higher the level of satisfaction to the quality of the service given.

Client economic status is another factor to quality of service. Nyandwe et al,. (2017) documented that perception of the quality of service provided is depended on the socioeconomic status of the client. The higher the patient's income, the greater the patient's expectation on the quality of service.

2.2.2 Patient Cooperation

In relation to socio-demographic factors of patients, patient cooperation is needed to assess the quality of service provided at health facilities. This is because, the outcome of health care provided at any facility can be influenced by the patient's ability to provide all information associated with their ailment (Mosadeghrad, 2014b). When a client is forthcoming with information concerning their health condition, a good outcome is expected. Patient cooperation is closely linked to socio-demographic factors of both

caregivers and patients. Each of these variables can affect information provided to the clinician. In a local public hospital, patients are more likely to divulge information about their health to care providers who are fluent in the local dialect (Mosadeghrad, 2014b).

2.3 Structural Factors that Affect Quality of ART Services

2.3.1 Distance from Facility and Cost

The provision of comprehensive care for PLHIV who patronize ART services in Ghana has greatly declined the morbidity rate of HIV/AIDS in the country (NACP, 2016). This is because ART services in the country are covered under the National Health Insurance Scheme (NHIS). Clients therefore, have access to the medications at little or no cost at all. The cost of ART services in Ghana has been documented to be dynamic, rather than constant (Mikkelsen et al., 2017). Even so, patients fail to visit health facilities for follow-up and refill of medications. This has been attributed to the long distance between clients' homes and the health facilities that provide ART services. A study in Uganda by the World Health Organization (WHO, 2006) reported a similar situation. The study reported that transport costs are not the only reason why PLHIV fail to turn up for follow-up and refill. For others, lack of the means of transportation, especially for those in remote areas, is also a challenge (WHO, 2006). In addition, due to inadequate funding sources for the NHIS, many clients are denied medicines at their visit to the health facilities, and tend to buy them, which have been documented to be expensive (Nketiah-Amponsah et al,. 2019).

2.3.2 Infrastructure and Resources

Infrastructure and resources influence the quality of healthcare services. Mosadeghrad, (2014b) identified that working with low-quality material decreases productivity, whereas high-quality services are because of high-quality machinery. Awuah Peprah (2014), stated that the ability of a health facility to provide the services they promise has a positive influence on assessing the quality of service provided in that facility. Awuah Peprah (2014),

further states that a clean environment can positively influence the assessment of quality of service. Insufficient infrastructure and resources inhibit delivery of good quality medical services (Mosadeghrad, 2014b).

2.3.3 Availability of Medications and Side Effects

The World Health Organization (WHO, 2006) reported that there are periodic shortages of antiretroviral medications at health facilities located in Botswana, Tanzania and Uganda. Quality of service as analysed by patient satisfaction is affected because of unavailability of medications. On the other hand, patient satisfaction will be boosted, and thus affect the quality of service provision, in the instance of available medicines at the health facilities.

Clients on antiretroviral medications usually report side effects (WHO, 2005). These include body rashes, nausea, headache, diarrhoea and vomiting. Clients therefore refuse follow-up and refill medications after a short while of taking the medicines.

2.3.4 Availability of Treatment Guidelines

According to the current treatment regimen for PLHIV in Ghana, "ART should be given to all confirmed HIV positive clients regardless of WHO clinical stage and at any CD4 cell count" (NACP, 2016). In 2013, the WHO propounded that ART treatment should be started for all adults with CD4 cell counts of ≤500 cells/μL (WHO, 2013). Two years later, in 2015, the organization recommended treatment to begin at any CD4 cell count (WHO, 2015). The availability of these treatment guidelines in the various health facilities in the country influences the quality of care. Accordingly, Mikkelsen et al., (2017) assert that ART treatment and treatment guidelines require adequate coverage in the country.

2.3.5 Staff Capacity

The demand for healthcare increases by the year, but most hospitals are not equipped with adequate number of staff to care for the increasing patient number. In Iran, Mosadeghrad,

(2014b) reported that the large volumes of patients overwhelm most public hospitals. Zhang et al,. (1999) reported that inadequate staff capacity is influenced by the health facilities economic restrictions. In addition, in Uganda and Tanzania, health workers are overworked as they struggle to cope with the large number of patients who report daily to health (WHO, 2005).

2.4 Process Factors

2.4.1 Waiting Time

The length of time that patients spend to receive care in facilities have received attention from many people. Long waiting time is a major challenge that has been identified to affect the provision of healthcare delivery in several African countries. In Tanzania, it was reported that clients spent an average of six hours in accessing ART services (WHO, 2006). In Botswana, clients spend averagely four hours to receive care WHO (2006). The situation is no different in health facilities in Ghana. Demoulin (2014), asserts that waiting time is a problem that affects negatively the quality of health services. Patients become less interested in visiting health facilities because of this issue.

2.4.2 Confidentiality and Trust

Client confidentiality and trust influence service quality. This can be attributed to patient-provider relationship status (Atinga & Abekah-Nkrumah, 2011). Patients tend to trust caregivers based on the relationship that they establish with them. Good interpersonal relationship brings good relations and trust between healthcare providers and their clients (GHS, 2004). To achieve the desired outcomes at health facilities, caregivers and clients must co-exist in a good relationship, to the end of generating trust (Mosadeghrad, 2014b).

2.4.3 Client-Provider Relationship

The Guidelines for Antiretroviral Therapy in Ghana according to the NACP (2016), recommend that management of PLHIV be done through a multidisciplinary approach, involving a team, including a clinician, nurse, counsellor and laboratory staff, among others. Mosadeghrad, (2014b) stated the quality of medical services delivery is influenced by the continuity of the relationship between a patient and the caregiver. Agreeably, Ditto et al.,. (1995) reported that this relationship is dependent on the physician's personal qualities of empathy, honesty and compassion to gain the client's trust. Good interpersonal relationship among patients and caregivers have been proven to improve client adherence to ART regimen (Ditto et al., 1995).

2.4.4 Privacy

Quality of service has been shown to be improved by privacy of client data (Wierda et al., 2018). In recent times, privacy has become an important global concern. Healthcare providers in the USA have been the target of hackers stealing personal client data (HIPAA, 2018).

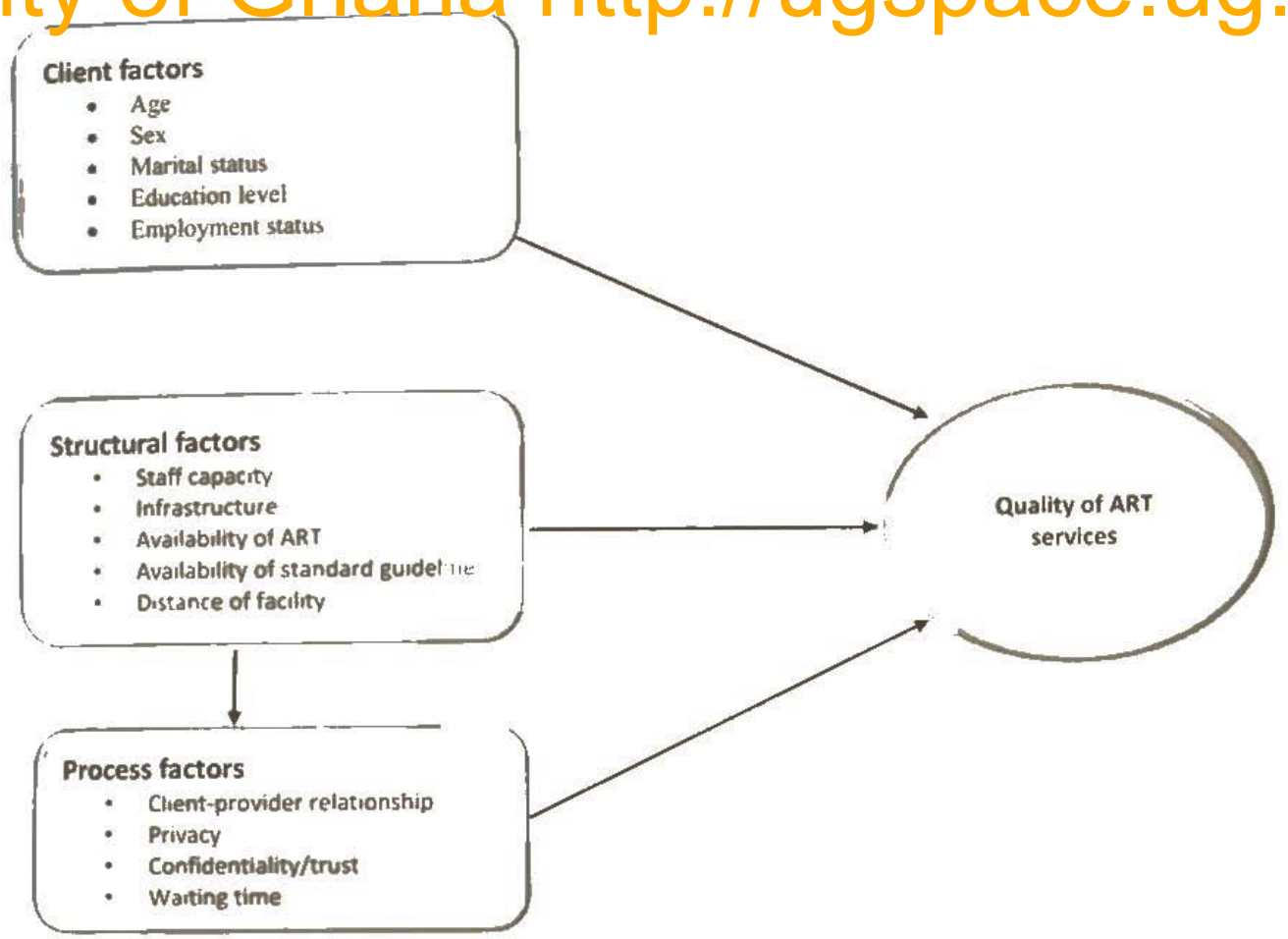

Figure 1: Conceptual Framework for Quality of Care for People Living With HIV at the Greater Accra Regional Hospital

2.5.1 Narrative on Conceptual Framework

The conceptual framework for this study was developed under client factors, structural factor and process factors. The client factors comprise of age, sex, marital status, educational level and employment status. The structural factors are staff capacity, infrastructure, availability of ART, availability of standard guidelines and distance to facility. The process factors include client-provider relationship, privacy, confidentiality and trust and waiting time. These three categories of factors will influence the quality of care of ART services. The outcome variable in this study is quality of care of ART services with client factors, structural factors and process factors as independent variables.

CHAPTER THREE

METHODS

3.1 Introduction

This chapter presents the research methodology for this study. The primary components of this chapter includes study location, study population, study design, study procedure, sample size, participant recruitments, sampling procedure, inclusion criteria, data collection method, data security, data analysis and ethical considerations.

3.2 Study location

The study was conducted at the ART unit of the Greater Accra Regional Hospital (GARH), which serves as a Learning Centre for various tertiary students, and also a referral centre for district hospitals and other health centres in neighboring communities such as Nima, Maamobi, Kanda, Accra Newton, Kotobabi, Osu, La, Adabraka, Achimota and Central Accra. It has all the various departments in a tertiary institution except for few specialized areas such as a cardiothoracic centre, oncology and plastic surgery departments. Such cases are often referred to the Korle-Bu Teaching Hospital and sometimes the 37 Military Hospital (GHS, 2014). The Greater Accra Regional Hospital (formerly known as Ridge Hospital) is sited within the Osu Klotey Sub-Metropolitan Assembly, which is one of the fifteen sub-metros in Accra. The hospital occupies a total land area of about 15.65 acres (GSS, 2010). The hospital provides both inpatient and out-patient care with a bed capacity of four hundred and twenty (420) to be increased to 620 in the future.

The ART unit between 2006 and 2018 had a total number of 5710 clients registered for ART services, of which a total of 4491 clients active in the clinic. Total number of clients reported dead between this period was 200 and clients lost to follow up was 361(Greater Accra Regional Hospital Annual Report 2017).

3.3 Study Design

The study was a mixed method design using a descriptive cross sectional survey (quantitative method) and a key-informant interview and in-depth interview (qualitative methods).

3.4 Study procedure

This was a facility based study where clients and health workers at the ART centre were interviewed on the quality of ART services provided to clients. A health facility assessment was also conducted to determine the quality of the services provided. The quantitative survey for the client was meant to measure the quality of the services provided and the qualitative interviews for both clients and health workers was meant to get individual views on the services provided and their expectations on improving the care.

3.5 Study Population

The study population included HIV positive clients above 18 years as well as ART service providers such as nurses and pharmacists working at the ART centre were also interviewed.

Participant Recruitments

The study recruited participants from the ART centre of the Greater Accra Regional Hospital, recruitment was on an enrolling bases where study participants (ART clients above 18years) were recruited for the study after they had been seen and assessed by the nurses and served at the pharmacy.

3.6 Inclusion and Non-Inclusion Criteria

3.6.1 Inclusion Criteria

For clients:

All HIV positive clients above 18 years who came to the ART centre for treatment;

All HIV positive clients above 18 years who have been on ART for at least one month.

For service providers:

Head of the ART unit and/or their deputies who have spent at least six months in the facility providing the ART services.

3.6.2 Exclusion Criteria

For Clients:

Clients who were very ill (clients who were too weak to walk or were being assisted by others);

Clients who refused to consent.

For Service Providers:

ART providers who refused to be interviewed;

3.7 Sample Size Determination

Sample Size for Quantitative Data

The Yamane formula was used to estimate the sample size:

$$n = \frac{N}{1+Ne^2}$$

Where:

N = is the expected total population which is 749 (number of clients visiting the ART centre monthly)

e = is the margin of error

In this case the expected total population N = 749 (average number of client who visit the Ridge Hospital ART centre monthly)

Margin of error is 0.05

Hence the minimum required sample was

$$n = \frac{749}{1+749x\ (0.05)^2}$$

$$n = 260.38$$

$$n = 261$$

Hence the minimum required sample size was **261** clients

Sample size for Qualitative Data

For the qualitative part of the study purposive sampling was used to recruit five healthcare providers and five clients for the study.

3.8 Sampling technique

Convenient sampling was used to select clients for the study after they had been seen and served at the pharmacy. This was necessitated by the low attendance of clients to the clinic.

Purposive sampling was used to select service providers. They were identified and the study objectives were explained to them, and then they were invited for the interviews as key informants in this study.

Data Collection Tool

A structured questionnaire was used to collect the quantitative data from the clients. In-depth interview with an interview guide was used to gather views on client's expectations

on improving quality of ART services. Beyond the clients, key informant interviews were conducted to gather service provider's perspectives on the quality of ART services, using a semi-structured interview guide. A health facility assessment tool through observation was also used to assess the facility, whilst a Morisky adherence scale was used to measure patients' adherence to ART treatment.

3.9 Data Collection Procedure

Written informed consent was obtained from eligible participants before administration of questionnaire or the conduction of interviews. Data was collected by the researcher assisted by two research assistants who were trained for the purpose of this study. Interviews were conducted in English, however, questions were translated into the local language for eligible participants who could not understand and speak English. Data collected was cross-checked and validated after each session by the principal investigator.

3.10 Study Variables

3.10.1 Outcome Variable

- Quality of ART services.

This was rated on a five point Likert scale rating from "very bad, bad, moderate good and very good".

3.10.2 Independent Variables

- Client factors: Age, Sex, Marital status, Education level, Employment status.
- Structural factors: Staff capacity, infrastructure, availability of art, availability of standard guidelines, distance of facility.

- Process factors: Client-provider relationship, privacy, confidentiality/trust, waiting time.

3.11 Data Security

The principal investigator closely monitored the data collection process to ensure the accuracy of data collected from the clients and kept questionnaire and audio records secured and safe in a locker to prevent access by any third party. Collected data were stored on the personal pass-worded computer of the principal investigator with limited access to the research team.

3.12 Quantitative Data analysis

Data was entered into Microsoft excel version 2016 and exported to Stata/IC 15.0 for analysis. The variables were coded and some continuous variables such as age, sex, marital status and years on ART were categorized. Descriptive statistics such as frequencies, percentages means, and standard deviation were used to describe categorical variables, and continuous variables. For quality of services measures, a binary outcome of '1' was designated if responses were either a moderate good/ or very good and '0' if any of the response was very bad and/bad. The Morisky 8 –item scale was used to measure adherence to ART. Clients were asked to give account on adherence by answering eight questions. A recall period of seven days was used, thus approximately one week. The scale was made up of first seven (7) Yes/No questions whiles the remaining constituents a 5-point Likert response. A score of '0' was given to No response and a score of '1' was given to a Yes response. All Yes/No questions under Morisky scale were combined making a total score of seven. A total score of 1-2 was defined as optimal adherence whiles a total score greater than two was defined as sub-optimal adherence.

3.13 Qualitative Data Analysis

The qualitative data gathered were transcribed verbatim and translated from the local languages into English, then back-translated to ensure consistency with content and meaning. It was organized using NVivo version 12, where codes were used to generate themes.

3.14 Ethical Considerations

The protocol of this study was reviewed and approved by Ghana Health Service Ethics Review Committee (GHS-ERC 053/05/19) before field activities. Formal permission was also granted from the Greater Accra Regional Hospital Directorate.

3.15 Consent form

Written and verbal informed consent was granted from participants before starting the data collection. The informed consent form was read to participants in either English or translated into their local language for easy understanding. Participation was voluntary and respondents were reminded of their liberty of refusal to answer any question when they felt uncomfortable as well as to even withdraw from the study at any time if they wished.

3.16 Confidentiality

Information was collected for academic purposes only. No personal identifying information was collected from clients. All information gathered remained confidential and stored in a box and locked with a key with access restricted to only the principal investigator and the academic supervisor. The data will be permanently discarded after a period of five years.

3.17 Potential benefits and risks

There was no direct benefit to clients for participating in this research. However, information shared voluntarily might contribute to knowledge that would help improve on the ART service quality in the unit and Ghana at large. Again, there is no known harm or risk associated with this study.

CHAPTER FOUR

RESULTS AND FINDINGS

4.1 Introduction

This chapter presents detailed analysis of data collected. The aim of this study was to assess service providers' perception on quality of ART services, determine quality of ART services quality from the client perspective, determine factors influencing adherence to ART services and explore clients' expectations on improving ART services in the Greater Accra Region of Ghana.

4.2 Socio-demographic Characteristics of PLHIV

Table 1 summarizes the socio-demographic characteristics of the participants. Out of 261 ART clients interviewed, more than half (69%) were females with majority (31%) within the age group of 40-49 years. Nearly half (45.6%) of them were married. The highest level of education attained by most of them (39.8%) was the senior high school. Majority (70.5%) were self-employed with only 14.9% of them unemployed. Most of them (67.1%) used more than an hour to arrive at ART facilities and majority (89.7%) waited for more than an hour to see a doctor. More than half of the respondents (67.4%) spent GHS 10 to 20 as cost of transportation to arrive at ART facilities whilst 64% of them were extremely satisfied with the quality of health care offered them at ART clinics.

Table 1: Socio-demographic characteristics PLHIV

Variable	Frequency N=[261]	Percentage (%)
Age(years)	42.6(11.26)	
< 30 years	36	13.8
30-39 years	71	27.2
40-49 years	81	31.0
50-59 years	50	19.2
60+ years	23	8.8
Sex		
Male	81	31.0
Female	180	69.0
Marital status		
Single	64	24.5
Married	119	45.6
Divorced	35	13.4
Separated	3	1.1
Widowed	35	13.4
Co-habiting	5	1.9
Education		
None	20	7.7
Primary	36	13.8
JHS	63	24.1
SHS	164	39.8
Tertiary	38	14.6
Employment status		
Employed	39	14.9
Unemployed	38	14.6
Self-employed	184	70.5
Satisfaction of quality of health care		
Not satisfied	9	3.4
Satisfied	41	15.7
Very satisfied	44	16.9
Extremely satisfied	167	64.0
Travel time to ART facility		
< 1 hour	24	9.2
1 hour	62	23.7
> 1 hour	175	67.1
Waiting time to see doctor		
≤ 1 hour	27	10.3
> 1 hour	234	89.7

Cost of transportation to ART facility		
< GHS 10	54	20.7
GHS 10-20	176	67.4
>GHS 20	31	11.9
ART type		
First line	228	87.4
Second line	32	12.3
Third line	1	0.4
ART refill		
Monthly	10	3.8
Two months	36	13.8
Three months	127	48.7
Six months	88	33.7

4.3 Adherence to ART medication among PLHIV

Respondent's level of adherence to ART medication was assessed. Majority (72.4%) indicated they do not forget to take their ART pills. A few (4.2%) missed taking their medications for reasons other than forgetting. Only a few (4.2%) stopped taking their medication without their doctor's knowledge. All of the respondents took their medications a day earlier whilst nearly all (99.6%) indicated that taking medication every day does not inconvenient them. More than half (69%) always remembered to take their medication without any difficulty while 19 (7.3%) sometimes found it difficult remembering to take their medication.

Table 2: Adherence to ART medication

herence measuring scale	Frequency N=[261]	Percentage (%)
rget to take your pills?		
)	189	72.4
s	72	27.6
iss taking their medications for reasons other than forgetting.		
)	250	95.8
:s	11	4.2
pped taking your medication without telling your doctor		
)	250	95.8
:s	11	4.2
rget to bring along your medication due to travelling		
)	247	94.6
:s	14	5.4
id you take your medicine yesterday?		
o	0 (	0.0
es	261	100
aking medication every day is a real inconvenience for you		
o	260	99.6
es	1	0.4
eel hassled about sticking to your treatment plan.		
o	248	95.0
es	13	5.0
ifficulty remembering to take all your medications.		
lever	180	69.0
)nce a while	60	23.0
ometimes	19	7.3
sually	1	0.4
ll the time	1	0.4

Adherence to ART Medication

Adherence to ART medications among clients using the Morisky medication adherence scale. Majority (65.9%) had good adherence while 34.1% of them had poor adherence to ART medication.

4.4 Quality of ART services

Quality of ART services rendered by health personnel was assessed in terms of some parameters (

Table 3). In terms of health personnel practice and conduct, majority of the respondents (94.6%) stated that ART support and compassion they received from health providers were very good. In the same vein, 95.8% also stated that they were respected and treated with dignity by health care providers. In terms of adequacy of health resources and services, 95% of the respondents stated that ART clinics have adequate medical equipment, and 91.2% reported that ART clinics had very good spacious in-waiting area and examination room. In terms of healthcare delivery, 94.2% of the respondents opined that ART facilities provide clients with very good diagnostic services. Most respondents (93.5%) stated that it was very easy to get access to ART supplies.

Table 3: Quality of ART Services

Variable	Very Bad n (%)	Bad n (%)	Moderate n (%)	Good n (%)	Very Good n (%)
Health personnel practice and conduct					
ART Support and compassion received from the health providers?	0(0.0)	0(0.0)	3(1.1)	11(4.2)	247(94.6)
Respect and dignity from health care providers	0(0.0)	0(0.0)	4(1.5)	7(2.7)	250(95.8)
Courtesy of the staff?	0(0.0)	0(0.0)	3(1.1)	6(2.3)	252(96.6)
Honesty from health professionals with ART	0(0.0)	1(0.4)	1(0.04)	6(2.30)	253(96.9)
Level of privacy given at the ART clinic?	1(0.4)	9(3.4)	3(1.2)	38(14.6)	210(80.5)
Involvement in decisions regarding best medicine	0(0.)	0(0.0)	1(0.4)	11(4.2)	249(95.4)
Physical examination by your physician and nurses	(0.0)	0(0.0)	0(0.0)	11(4.2)	260(95.8)
Adequacy of resources and services					
ART clinic having enough medical equipment?	0(0/0)	0(0.0)	1(0.4)	12(4.6)	248(95.0)
ART supplies within the facility	0(0.0)	0(0.0)	1(0.4)	15(5.8)	245(93.9)
Spaciousness in waiting area and examination room	0(0.0)	1(0.4)	1(0.4)	21(8.1)	238(91.2)
Sanitation at the ART facility	0(0.0)	1(0.4)	0(0/0)	9(3.5)	251(96.2)
Healthcare delivery					
Diagnostic services provided at the facility	0(0.0)	0(0.0)	0(0.0)	15(5.8)	246(94.2)
Good quality of ART given at the facility	0(0.0)	0(0.0)	0(0.0)	16(6.1)	245(93.9)
ART given at facility helping to restore your health	0(0.0)	0(0.0)	1(0.4)	11(4.2)	249(95.4)
Accessibility of care					
Operational hours of the facility suites you?	0(0.0)	2(0.8)	5(1.9)	16(6.1)	238(91.2)
Ease to get your ART supplies	0(0.0)	2(0.8)	1(0.4)	14(5.4)	244(93.5)
Distance from your home to the ART facility	2(0.8)	5(1.9)	8(3.1)	21(8.1)	225(86.2)
Waiting time to see a doctor at the ART centre	2(0.8)	5(1.9)	6(2.3)	24(9.2)	224(85.8)
Cost involved in ART	0(0.0)	4(1.5)	5(1.9)	20(7.7)	232(88.9)
How well does the operational hours of the facility suites you?	1(0.4)	0(0.0)	2(0.8)	19(7.3)	239(91.6)

To complement the quantitative findings, the qualitative data established from service providers interviewed that, there was adequate understanding of what entails quality of ART services. They mentioned that, quality of ART services focused on how satisfied clients were with the services. As mentioned by the service providers, quality of ART services also focused on addressing the needs of clients. Some of the service providers said:

> *Quality ART services to clients will basically just be a patient coming in and having satisfactory response to whatever he or she came here for. I think we are on a better side. We are doing well, compared to other facilities which normally fall on us for assistance and all that..* **Pharmacist**
>
> *Quality has to do, in my opinion quality has to do with the clients getting the needed care that they are supposed to get, free from stigma, the medications they are supposed to get, they get the right dosage, on time and then basically that's it. Ever since I started working here for this period I will say the quality is ok. Why will I say it's ok? I will say it's ok because there are times we get clients that we are supposed to refer to other places but then they insist on being catered for here....* **Nurse**

4.5 Quality of ART services.

Error! Reference source not found. summarizes the quality of ART services provided by health personnel to clients coming for ART services. Most (88.9%) of the respondents indicated ART services they receive are of good quality while 11.1 % indicated the services are of poor quality.

4.6 Association between Quality of ART service, demographic characteristics and adherence to ART medication.

Association was tested between quality of ART services, socio-demographic characteristics and adherence to ART medication. The study found no statistically significant association between sex [χ^2=0.00, p value= 1.00], marital status [χ^2=10.74, p= 0.057], education [χ^2=1.99, p= 0.737], employment status [χ2=3.17, p = 0.205], travel time to ART facilities [χ2= 1.30, p= 0.523] and adherence to ART medication. In addition, there was no statistical significant between cost of transportation to ART facilities, [[χ2=0.27, p= 0.874], ART type [χ2= 0.86, p value 0.649], ART refill [χ^2=0.36, p = 0.948] and adherence to ART services.

However, there was statistically significant association between age [χ2= 10.25, p= 0.036], satisfaction of quality of health care [χ2= 13.23, p=0.004], waiting time to see doctor [χ2= 15.06, p value <0.001] and adherence to ART services. Also, there was a statistically significant difference between quality of ART services and adherence to ART medication [χ2= 6.45, p= 0.011].

Table 4: Association between quality of ART service, demographic characteristics and adherence to ART medication.

Variable	Outcome of Preterm birth		
	Poor quality N (%) [n=29]	Good quality N (%) [n=232]	χ^2 (p-value)
Age(years)			10.25(0.036)
< 30 years	7(24.1)	29(12.5)	
30-39 years	10(34.5)	61(26.3)	
40-49 years	2(6.9)	79(34.0)	
50-59 years	6(20.7)	44(19.0)	
60+ years	4(13.9)	19(8.2)	
Sex			0.00(1.00)
Male	9(31.0)	72(31.0)	
Female	20(69.0)	160(69.0)	

Marital status			10.74(0.057)
Single	13(44.8)	51(22.3)	
Married	8(27.6)	111(47.8)	
Divorced	2(6.9)	33(14.2)	
Separated	1(3.5)	2(0.9)	
Widowed	4(13.8)	31(13.4)	
Co-habiting	1(3.4)	4(1.7)	
Education			1.99(0.737)
None	1(3.4)	19(8.2)	
Primary	4(13.8)	32(13.8)	
JHS	8(27.6)	55(23.7)	
SHS	10(34.5)	94(40.5)	
Tertiary	6(20.7)	32(13.8)	
Employment status			3.17(0.205)
Employed	7(24.1)	32(13.8)	
Unemployed	2(6.9)	36(15.5)	
Self-employed	20(69.0)	164(70.7)	
Satisfaction of quality of health care			13.23(0.004)
Not satisfied	2(6.9)	7(3.0)	
Satisfied	5(17.2)	36(15.5)	
Very satisfied	11(37.9)	33(14.2)	
Extremely satisfied	11(37.9)	156(67.2)	
Travel time to ART facility			1.30(0.523)
< 1 hour	4(13.8)	20(8.6)	
1 hour	8(27.6)	54(23.3)	
> 1 hour	17(58.6)	158(68.1)	
Waiting time to see doctor			15.06(<0.001)
≤ 1 hour	9(31.0)	18(7.7)	
> 1 hour	20(69.0)	214(92.2)	
Cost of transportation to ART facility			0.27(0.874)
< GHS 10	7(24.1)	47(20.3)	
GHS 10-20	19(65.5)	157(67.7)	
>GHS 20	3(10.3)	28(12.1)	
ART type			0.86(0.649)
First line	24(82.8)	204(87.9)	
Second line	5(17.2)	27(11.6)	
Third line	0(0.0)	1(0.4)	
ART refill			0.36(0.948)
Monthly	1(3.4)	9(3.9)	
Two months	3(10.3)	33(14.2)	
Three months	15(51.7)	112(48.3)	
Six months	10(34.5)	78(33.6)	
Adherence to ART medication			6.45(0.011)
Poor adherence	16(55.2)	73(31.5)	
Good adherence	13(44.8)	159(68.5)	

Although clients were satisfied and appreciated the ART services offered to them as illustrated in table 4 below, some made views on how to improve ART services. Typical comments included;

> *... one suggestion I will give is to make doctors available... anytime that we do the lab test, they should let us have it on time... P3*
>
> *so if they could maintain some number of staff and then work with them for a period of time... if they can maintain a number of people for some time, yeh err for the lab, I don't know what is the main issue but if they should secure equipment, or they could even set up a lab in, in the hospital... P1*

4.7 Factors influencing quality of ART services among PLHIV

Waiting time to see doctor and adherence to ART medication were identified as factors influencing quality of ART services. The regression model showed that waiting time of ≤ 1 hour is likely to increase the quality of ART services among clients by 4.64 times compared to waiting time of > 1 hour [AOR= 4.64, CI= (1.70-12.62), p= 0.003]. The model also showed that good adherence to ART medication was likely to increase the quality of ART services by 2.68 times compared to poor adherence. See for det***Table 4:***

Table 5: Factors influencing quality of ART services among PLHIV

Variable	Crude Odds ratio OR (95% CI) p-value	Adjusted Odds Ratio OR (95% CI) p-value
Age(years)		
< 30 years		
30-39 years	1.15(0.82-1.61) 0.416	
40-49 years		
50-59 years		
60+ years		
Sex		
Male	1.00(0.43-2.30) 1.00	
Female		
Marital status		
Single		
Married		
Divorced	1.10(0.81-1.50) 0.524	
Separated		
Widowed		
Co-habiting		
Education		
None		
Primary	0.87(0.61-1.24) 0.438	

JHS		
SHS		
Tertiary		
Employment status		
Employed	1.23(0.75-2.00)0.409	
Unemployed		
Self-employed		
Satisfaction of quality of health care	1.55(1.05-2.29) 0.028	
Not satisfied		
Satisfied		
Very satisfied		
Extremely satisfied		
Travel time to ART facility		
< 1 hour	1.37(0.79-2.35) 0.258	Reference
1 hour		0.67(0.16-2.80) 0.581
> 1 hour		1.01(0.27-3.73) 0.992
Waiting time to see doctor		
≤ 1 hour	5.35(2.13-13.45)	Reference
> 1 hour	<0.001	4.64(1.70-12.62) 0.003
Cost of transportation to ART facility	1.19(0.60-2.36) 0.614	
< GHS 10		
GHS 10-20		
>GHS 20		
ART type		
First line	0.70(0.26-1.91)	
Second line		
Third line		
ART refill		
Monthly		
Two months	0.91(0.55-1.51) 0.717	
Three months		
Six months		
Adherence to ART medication		
Poor adherence	2.68(1.22-5.86) 0.014	Reference
Good adherence		2.34(1.03-5.28) 0.042

Table 6: Socio-demographic characteristics of clients and participants interviewed through IDI and KII

Method of data collection	Participants	
IDI	Male (2) Married (1) Single (1)	Female (3) Single (1) Married (1) Widowed (1)
Key informants	Pharmacist (2) Working experience (3 years)	Nurse (3) Working experience (1-5 years)

Table 6 shows the socio-demographic characteristics of participants interviewed through IDI and KII. In all, ten (10) clients and health care providers were interviewed. Five (5) clients, two (2) males, three (3) females were interviewed. Among the males, one (1) was married and one (1) was single. Among the females, one (1) each was single, married and widowed. Out of the five (5) health care providers two (2) were pharmacists, three (3) were nurses. Years of working experience for pharmacist was 3 years each whiles working experience for the nurses was between 1-5 years.

Facility assessment

The Ridge Hospital ART Unit was assessed for readiness for initiating antiretroviral therapy. This assessment was based on six domains. The scores of the assessment of each domain are summarized inFigure 1 below. The highest domain scores were recorded for the leadership and program model, management and evaluation and drug management and procurement models (5). This was followed by services and clinical care domain (4.75), staffing and experience (4.67) and laboratory capacity (3.5). The overall assessment score of the facility was 27.92. This total score implies the facility is at stage 5 of initiating ART. This means the facility is performing adequately, however it may require support in maintaining and expanding its current operations. It is also an implication that the facility can function as a training centre and provide technical support for other facilities at other stages of initiating ART.

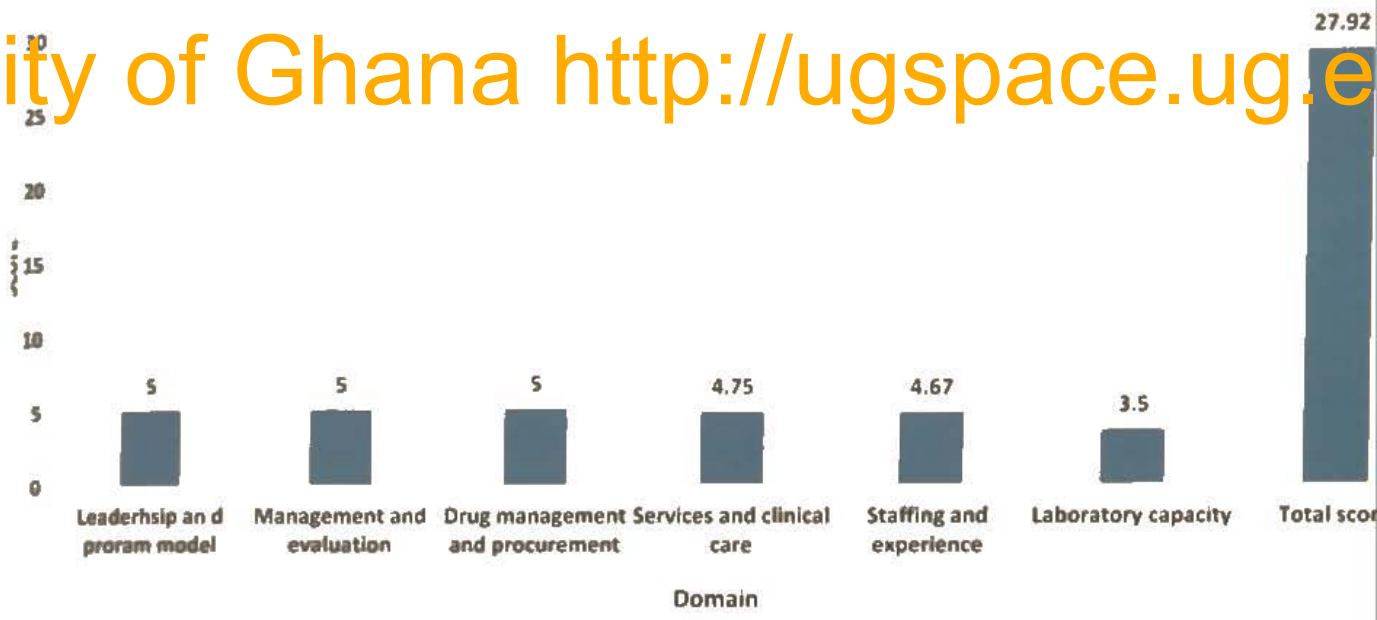

Figure 1: Facility Assessment

CHAPTER FIVE
DISCUSSION

5.1 Introduction

The current study assessed the quality of ART services offered to people living with HIV (PLHIV) at the Greater Accra Regional Hospital in Accra. Generally, the study found good quality in ART services offered to PLHIV at the Hospital.

5.2 Perceptions on quality of ART services

Service provider's perception on quality of ART service were measured through in-depth interviews. Indeed, their understanding of quality service is fundamental in providing quality service to their clients. From the perspective of health workers in this study, there was a fairly positive perception on quality ART services. Service providers interviewed do not have adequate understanding of quality of ART services, which was contrary to what was reported by Ndou and colleagues (Ndou et al,. 2016). According to them, ART service is a comprehensive package that spans from administration of drugs (ART), adequate counselling, proper management of opportunistic infections and comorbidities, prophylaxis and nutritional support (Ndou et al,. 2016) . These components are essential in understanding the experiences and perceptions of patients seeking care in order to satisfy their needs. It is also a way of achieving the Sustainable Development Goals, particularly goal three which seeks to ensure healthy lives and well-being for all (UNCG, 2017). Unfortunately, service providers in this study mentioned that quality of ART services only focuses on how satisfied clients are with the services and addressing the needs of clients.

Quality of ART services from the client's perspective

Client satisfaction is a key component in evaluating quality of healthcare services. However, this component alone does not explicitly define quality of ART services. The facility

capacity to address the needs of PLHIV is also an essential component of ART service quality. As far as this study is concerned, quality of ART was assessed by looking at the following domains: health personnel practice and conduct, adequacy of resources and services, smooth healthcare delivery and accessibility of care. Mosadeghrad (2014) identified that infrastructure and resources influence the quality of healthcare services. He further iterated that working with less quality material has the tendency of decreasing productivity and then vice versa. Likewise, Awuah Peprah (2001) opined that the ability of a health facility to provide services they promised patients is likely to influence quality of service provided in that facility. As part of assessing quality services, a facility assessment was conducted to determine how ready and equipped designated ART service facilities are to deliver effective services to its patients. Facilities in this study generally had high assessment score for leadership, management and evaluation and drug management and procurement, whilst services, clinical care, as well as experienced staff did not show a moderate assessment score. The laboratory in general was not adequately equipped to provide ART services.

Quality is a major indicator influencing sustainability and compliance to ART services among HIV patients. Undoubtedly, quality of ART services which subsequently influences adherence among patients is influenced by wide range of factors. Evidence indicates that these factors can be captured as client related factors, structural factors and process factors. Some of these factors are interrelated; hence, to improve quality in ART services, there is the need for articulation of all these factors by appropriate authorities to maintain quality.

In this study, waiting time which others classified under process factors, was found to influence quality of ART services greatly. The odds ratio revealed that quality of ART was 4.64 times much better in patients with waiting time of less than an hour compared to those with waiting time of more than an hour. Waiting time to see a doctor or other heath personnel

in most hospitals in Africa is unbearable. In Botswana for instance, clients spent averagely four hours to receive care from some health personnel (WHO, 2006). Similarly, clients spent an average of six hours in accessing ART services from most Tanzania hospitals (WHO, 2006). Seemingly, the situation of long waiting time might not be different in Ghana as demonstrated in this study. Likewise, a cross section study done in Kumasi Metropolis of Ghana on care of patients on ART therapy found that majority of HIV clients waited for more than 3 hours at the clinic before being attended to (Ohene & Forson, 2009). In fact, Demoulin, 2014 reported in his study that waiting time is a problem that negatively affects the quality of health services. Patients turn to be less interested in visiting health facilities because of this issue. Time is an important resource valued by many people including patients. Subsequently, the situation where patients must wait for long periods before being attended to by health personnel is likely to reduce the chances of the patient re-visiting the hospital. A cross sectional study done in Nigeria on patients satisfaction with quality of ART services found that patients spent significantly less time visiting public health facilities compared to private health facility for ART services because median time spent waiting to see a doctor in public health facility was half of the time spent in private health facility (Osungbade et al,. 2013).

5.3 Factors influencing quality of ART services

An estimated 66% of the participants adhered to their ART treatment regimen. The logistic regression analysis found waiting time and adherence to ART medication as major factors influencing quality of ART services among PLHIV. Another contributory factor to quality of ART services as determined by this study is adherence to ART drugs. The odds ratio from the logistic regression indicates that patients with good adherence to ART services are likely to improve the quality of ART services. This finding concurs with that of Mosadeghrad (2014) where it was found that client's cooperation and adherence influence

quality of ART services. This study found good adherence to ART among PLHIV to be 65.9%. This suggests that majority of the respondents adhered to prescriptions given to them. Adherence however, is influenced by multiple factors. Studies by Potchoo et al. (2010) and Morowatisharifabad et al (2019) identified knowledge as a factor influencing adherence.

In addition, forgetfulness to take ART drugs is another factor influencing non-adherence to ART drug among some PLHIV (Potchoo et al., 2010). In this study however, majority of the respondents reported that they hardly forgot to take their ART drugs. This could contribute to the high quality of ART services identified in this study. However, the study found no significant association between cost of transportation to ART clinic and quality of ART. In the same way, no association was found between employment status and quality of ART services. There might be the need to replicate the study in other hospitals among PLHIV to ascertain if association would be found between these factors that showed no association with quality of ART in this study. Similar pattern was observed in Botswana, Tanzania and Uganda where mean cost of transport to ART facilities was not significant with service adherence to ART service quality (Wahed, Hassan, & Eldessouki, 2017). Contrary to what was reported by Yakob & Ncama (2015). They identified perceived increased transportation cost to be associated with good quality HIV care (Yakob & Ncama, 2015). Employment status was not significantly associated with ART quality. A similar finding was reported by the International Labor Office where no evidence of employment status was identified or associated with ART quality of optimal ART adherence (ILO, 2018)

5.4 Clients' expectations on improving quality of ART services

Although, health workers do not comprehensively understand quality of ART services, this study reported high quality (88.9%) of ART services by PLHIV. The reasons for this observation and trend could serve as an indication that, the patients similarly do not have comprehensive understanding of quality ART services which make them completely satisfied with only treatment been offered. This perception affects the scope of suggestions on how to improve on quality ART services. Suggestions from the views of service providers were limited to only provision of logistics, which only forms a portion of ART services (Ndou et al., 2016). However, the clients made suggestions which focused on providing adequate staff and equipment. In the absence of these, they suggested it could possibility of negatively affecting the quality of service offered and poor adherence to ART as observed in the current study. The Guidelines for Antiretroviral Therapy in Ghana ensures that clients have access to ART drugs at no cost. This ease of accessibility to ART drugs could be another factor, which might increase client perception of quality of the services and reduce morbidity and mortality associated with HIV.

CHAPTER SIX
CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Although there are intensified educational avenues on increasing awareness and knowledge on ART service quality, service providers at the Ridge Hospital in Accra have fairly positive perception on quality service which has affected their ability to envisage suggestive ideas on how to improve service. Despite service providers perception on ART service quality was fairly positive, clients' seeking ART services at the hospital perceive services offered to be of good quality. Major predictors of service quality identified in this study were waiting time and adherence to ART. According to clients', improving ART services should span from provision of adequate staff to equipment.

6.2 Recommendations

1. Service providers at the hospital should reduce waiting time by providing adequate staff to reduce workload in order to reduce waiting time of clients'.
2. Administration of the Accra Ridge Hospital should provide relevant equipment at ART unit in order to improve service quality.
3. Periodic onsite coaching of health personnel at ART clinic on proper counselling techniques emphasizing the essence of strict adherence to ART drugs among clients. This is likely to encourage clients to patronize ART services leading to an increase in adherence.
4. Health personnel should remind clients each time they visit ART clinics on adherence to their drug prescriptions. This is likely to reduce forgetfulness associated with drug intake.

5. A key recommendation is the implementation of differentiated service delivery e.g. Multimonth scripting i.e. giving 6 months drug supply. Triaging of patients so that stable patients who require medicines go straight to the pharmacy and not wait for the doctors. Sick and unstable patients are identified and they see the doctor. Reduces waiting time and improves efficiency.

6.3 Limitations of the study

The study population was small due to the use of one facility for this study therefore the interpretation of these findings must be done with caution.

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Appendix 1: Participants Information Sheet

Title of Study: ASSESSING THE QUALITY OF ART SERVICES FOR PEOPLE LIVING WITH HIV AT THE GREATER ACCRA REGIONAL HOSPITAL IN ACCRA, GHANA

Introduction: My name is Esther Kawiah Allan, an MPH student with School of Public Health- University of Ghana.

Contact details

Mobile number: 0245948585 / 0208981482 Email: kawiahallan@yahoo.co.uk

Background and Purpose of research: This research forms part of academic requirements for the principal investigator who is pursuing a masters degree in Public Health at the University of Ghana School of Public Health, Legon. The research is aimed at assessing the quality of ART services for people living with HIV at the Greater Accra Regional Hospital in Accra, Ghana.

Nature of research: I will indulge your participation for this study by interviewing you individually to get your views on the quality of ART services provided at this facility. I'm expecting to interview 261 clients and some selected number of health workers all from the ART centre. In some instances your voices will be recorded. This is to help me assess the quality of ART services provided here at the Greater Accra Regional Hospital and our findings will help inform policy and improve on ART services.

Participant's involvement:

Duration /what is involved: the interview will last between 15-20minuts. I will ask some questions and you provide the answers. Where applicable I will record your voice but only if you agree to

Potential Risks: There is no harm or risk associated with this interview. All I need is your time to participate. The interview will be done in this facility, which will be agreed with you, will be safe and confidential. It is possible that you may feel stressed from the time and sitting requirements for the interview.

Benefits: There will be no direct benefits to your person for participating in this research. It is anticipated that information you share voluntarily may contribute to knowledge that may help improve on the ART service quality in Ghana.

Costs: There will be no cost to you.

Compensation: there is no compensation for your participation in this study.

Confidentiality: Any and all information you provide will be used for the purpose of this research and any report emanating from it only. No personal identifying information will be collected from you. All information given will remain confidential and stored in a box and locked with a key with access restricted to only the principal investigator and the academic supervisor. The data will be permanently discarded after a period of one year.

Voluntary participation/withdrawal: Participation in this research is voluntary. You may refuse to answer certain questions or decide to opt out of the research at any time without giving any reasons; and without you being victimized in any way.

Outcome and Feedback: Information collected will be used solely for the purposes of this research and any report emanating from it. The facility will be provided with the information and recommendation at the end.

Appropriate alternative Procedures and Treatment: This research shall not involve any medical procedures or treatment.

Feedback to participant: the feedback from this study will be shared with the head of the facility.

Funding information: This research will be self-sponsored by the principal investigator.

Sharing of participants Information/Data: All voice recordings and data gathered from participants in this research will remain in the ownership of the principal investigator until destroyed after one year, and will be shared with no other individual or organization during this time. A report of the research will however be presented to the head of the facility and the National AIDS Control Programme

Storage of samples: Not Applicable

Provision of Information and Consent for participants: You will be given copies of the information sheet and consent forms after it has been signed or thumb printed to keep.

Who to Contact for Further Clarification/Questions:

1. Esther Kawiah Allan: 0245948585 / 0208981482. Email: kawiahallan@yahoo.co.uk
2. Prof. Kwasi Torpey (Academic Supervisor,)
3. Madam Hannah Frimpong (Administrative Secretary, Ghana Health Service Ethics Review Committee; 0507041223)

Study Title: Assessing the quality of art services for people living with HIV at the greater Accra Regional Hospital in Accra, Ghana

PARTICIPANTS' STATEMENT

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

I voluntarily agree to be part of this research.

I agree for my voice to be recorded (please circle response) YES NO

Name or Initials of Participant……ID Code ……

Participants' Signature ……OR Thumb Print…… OR Mark (Please specify)……

Date:……

INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the Participants' Information Sheet to the afore named participant to the best of my ability in the (English…… Ga….. Twi……) language to his proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to his/her satisfaction.

Name of Interpreter……

Signature of Interpreter…… Date:……

Contact Details

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language he/she understood (English Ga.....Twi .....)

I confirm that he/she was given the opportunity to ask questions/seek clarifications and same were duly answered to his/her satisfaction before voluntarily agreeing to be part of the research.

Name:.....

Signature..... OR Thumb Print ..... OR Mark (please specify).....

Date:.....

INVESTIGATOR STATEMENT AND SIGNATURE

Example: 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.....

THANK YOU

Appendix 3: Key Informant Interview Guide for Service Providers

Objective: To assess the service providers perceptions on quality of ART services

ID:	
Profession:	
Rank:	
Unit of work:	
Years of work in ART services	

1. Please state your role and responsibilities at the ART clinic?
2. Please explain your understanding of quality ART services?
3. How will you describe the quality of ART services provided in this facility?
4. What are the challenges you face in providing ART services to clients?
5. Please describe any way by which you think quality of ART services can be improved.
6. What suggestions do you have on improving ART services to clients?

Thank you for your participation

Appendix 4: Socio Demographic Characteristics of Clients

1. Age in complete years: .....

2. Sex of respondent.

Male [1] Female [2]

3. Marital Status:

Single [1] Married [2] Divorced [3]

Separated [4] Widowed [5] Cohabiting [6]

4. Highest level of education:

None [1] Primary [2] JHS [3] SHS [4]

Tertiary [5] other [6] specify.....

5. Employment Status:

Employed [1] Unemployed [2] Self-employed [3]

6. Overall, how would you rate your quality of health during the past 4 weeks?

Not Satisfied [1] Satisfied [2] Very satisfied [3] Extremely satisfied [4]

7. How long does it take you to travel to the ART facility on a normal day?

.....

8. How long do you normally wait to see a doctor at the ART facility on a regular day?

.....

9. How much did it cost you to get here?

.....

10. Which ART are you taking?

First line [1] Second line [2] Third line [3].

11. How often do you get your ART refill?

Monthly [1] Two months [2] Three months [3] Six months [4]

Adherence measuring scale	Yes	No
12. Do you sometimes forget to take your [health concern] pills?		
13. People sometimes miss taking their medications for reasons other than forgetting. Thinking over the past two weeks, were there any days when you did not take your [health concern] medicine?		
14. Have you ever cut back or stopped taking your medication without telling your doctor, because you felt worse when you took it?		
15. When you travel or leave home, do you sometimes forget to bring along your [health concern] medication?		
16. Did you take your [health concern] medicine yesterday?		
17. When you feel like your [health concern] is under control, do you sometimes stop taking your medicine? Taking medication everyday is a real inconvenience for some people.		
18. Do you ever feel hassled about sticking to your [health concern] treatment plan?		
19. How often do you have difficulty remembering to take all your medications? Never..... Once in a while..... Sometimes..... Usually..... All the time.....		

Questions	Very Bad	Bad	Moderate	Good	Very Good
Health personnel practice and conduct					
20. In the past three months how will you rate the support and compassion you received in the course of your ART from the health providers?					
21. How much will you rate the respect and dignity health care providers treat you with in the course of your ART services in this facility?					
22. When you arrived, how would you rate the courtesy of the staff?					
23. How well have the health professional been honest with you in the course of your treatment?					
24. How will you rate the level of privacy you are normally given at the ART clinic?					
25. How well were you normally involved in the decisions regarding decisions about the best medicine for you as much as you wanted to be in?					
26. How well do you think you were physically examined by your physician and nurses during your visit?					
Adequacy of resources and services					
27. How do think the ART clinic performs in terms of having enough medical equipment?					
28. How will you rate the ART supplies within the facility					
29. How well spaciousness is the waiting area and examination room					
30. How well is the sanitation at the ART facility maintained?					
Healthcare delivery					
31. How will you consider the diagnosis services provided at the facility?					
32. How well do you think the ART giving at the facility is of good quality?					
33. How well do you think the ART giving at the facility is helping to restore your health?					
34. How will you consider the diagnosis services provided at the facility?					
Accessibility of care					
35. How well does the operational hours of the facility suites you?					

36. How much ease is it for you to normally get your ART supplies					
37. How will you rate how far the distance is from your home to the ART facility					
38. How do you consider the waiting time to see a doctor at the ART centre					
39. How do you consider the cost involved in ART					

Thank you for your participation.

Appendix 5: Facility Assessment Tool for Assessment of ART Sites

(Adopted From John Snow, Inc Tool to Assess Site Program Readiness for Initiating Antiretroviral Therapy).

Name of facility	**Date**
Time started	**Time finished**
Researchers name	
Staff interviewed:	

Domain 1: Leadership and Program Model

Area					
	1	2	3	4	5
Leadership	Has no identified leadership or commitment at site or in community.	Has some leadership for program at some level at site or in community.	Has leader with vision and some experience managing health care related programs, but needs assistance with designing and setting up program and protocols.	Has leader with vision and experience managing HIV related health care programs, and is engaged in establishing an ART program	Has strong leader who is spearheading ARV program, and has experience or training in managing ARV programs
	1	2	3	4	5
Model of Care	Has not identified any potential models of care for the ART program.	Has identified some potential models of care that could be adapted to ART but needs assistance	Has chosen or adapted model of care but lacks details	A detailed model exists, and operating procedures are drafted or being created.	Detailed model of care and operating procedures both formalized and approved
	1	2	3	4	5
ART Protocols	May have experience with non-HIV medical care protocols, but no knowledge of or access to draft or national HIV protocols	Has experience with some HIV-related care protocols but no experience with ARV protocols	Has access to national protocols but have not been adapted to the site or have not been approved by site management.	Has only working draft guidelines (not yet approved /finalized for site) but lacks site specific policies and procedures in some areas.	Has approved protocols for ARV eligibility, screening criteria, regimens, initiation, clinical and lab monitoring and follow-up, adherence, management of side effects, treatment interruption, and failure

Total Leadership Score: _____

Leadership Domain Score (Total Leadership Score/3): _____

Domain 2: Services and Clinical Care					
Area					
	1	2	3	4	5
ART	Has few if any staff with outpatient HIV care experience; no ART experience or training.	Has outpatient HIV care experience but no ART training or experience.	Has some training with ART at certain levels of staff but still inadequate at some levels.	Has some training with ART but limited experience and may require additional training of staff.	Has appropriate training and experience in ART in all key areas and most supportive positions.
	1	2	3	4	5
Comprehensive Services	Has very limited HIV primary care or other important services either on-site or through linkages.	Has access to VCT on-site or by referral; provides HIV primary care or other outpatient HIV medical services on-site; inadequate capacity to expand services without TA.	Has some outpatient HIV medical services on-site or linkages to these services; provides STI treatment and VCT onsite.	Has PMTCT including VCT; has more extensive HIV outpatient care services provided on-site or by coordinated established linkages including OI and TB treatment. Has either gaps in some support services or linkages to these services or inadequate capacity in areas.	Has on-site essential services for ART program including adherence, counselling, patient education, monitoring and management of toxicities, and treatment failures. Has full scope of other services on-site or has coordinated linkages to these services (VCT, HIV primary care, OI prevention and treatment, STI, management, PMTCT, TB management, counselling, nutritional counselling, linkage with inpatient care, access to assistance with concrete support (food, housing), home-based care, family planning, and positive/secondary prevention).

	1	2	3	4	5
Physical Space	Has no space for ART, no confidential space, and no plan for location or expansion.	Extremely limited space overall, no confidential space, and limited plan for expansion.	Has no designated space yet for ART but has a plan.	Has some space for ART and confidential space but overall space is limited.	Has defined and adequate clinic space for ART program including access to confidential space.
	1	2	3	4	5
Community involvement	No community network, involvement, or support established or initiated.	Community interest generated through community mobilization for support. Networking initiated including plans to involve PLWHAs.	Community meetings underway; community leaders contacted; linkages being established; needs assessment underway; formal or informal input from PLWHAs.	Community networking established between stakeholders in areas of health admin., govt. community activists, faith-based organizations, etc. Community needs assessment complete; active involvement of PLWHA groups.	Networking has developed into formal referral or community collaboration; has full buy-in of stakeholders including PLWHAs, traditional healers, govt. admin., other service organizations, and community leaders.

Total Services Score:_____

Services Domain Score (Total Services Score/4):_____

Domain 3 Management and Evaluation					
Area	1	2	3	4	5
Health Management Information Systems (MIS)	Has no HMIS to track patients; no or very basic medical record system.	Has basic HMIS to track patients but no specific HIV treatment information included. Some elements of medical record system.	Has some elements of HMIS but limited capacity for expansion to meet ARV program needs; require improvement in medical record capacity or management.	Has system to follow patients, but may have gaps in tracking patients and medical charting capacity.	Has system in place for tracking patients, medical records, and charting for clinical care and labs including specific forms/flow sheets or other processes for ART.
	1	**2**	**3**	**4**	**5**
Program Monitoring, and Evaluation	Has no procedures or plans for program level M&E for any programs.	May have some procedures /plans for program level M&E for other programs but inadequate for immediate addition of ART to site.	Has HIV-related M&E, some training, or access to other M&E resources, but no specific procedures for M&E of ART or quality improvement plan in place.	Has some procedures or plans for program level M&E and quality improvement for ART program but plans need improvement.	Program level M&E includes process and outcome measures of HIV care program including ART; results are routinely used for program decision making through quality improvement processes.

Total Protocols/Management and Evaluation Score:_____

(Total Protocols/Management Score /2):_____

Domain 1: Staffing and Experience					
Area					
	1	2	3	4	5
Staffing	Has multiple vacancies, including key positions, and no clear capacity to fill.	Has core clinical staff but inadequate capacity to initiate program or to fill additional vacancies.	Has core clinical staff and some support staff, some vacancies. Has clearly outlined needs and plan or proposals to fill them.	Lacking in some staffing positions, but able to cover all critical areas of ART program.	Fully staffed according to model of care and capacity to sustain and increase ART program.
	1	2	3	4	5
Experience	Existing staff may have limited outpatient HIV care but no ART experience or training; inadequate human resources for immediate addition of ART to site; no plans for staff expansion or training.	Existing staff has HIV care experience, but no or limited ART experience, and inadequate resources for immediate addition of ART to site, but some plans to expand/train.	Has existing staff with outpatient HIV care experience, but limited training in ART to date.	Staff has received some training in and may have limited experience with ARVs in treatment. Minimum key staff have been fully trained in prescribing, follow-up, and adherence.	Has adequately trained staff in all positions with experience in HIV primary care and ART including prescribing, follow-up, adherence support, and counselling.
	1	2	3	4	5
Management, Training and Retention	Has no plan for program staffing needs or management; will require extensive staff training and development.	Developing staffing plan but need additional expansion of plan for hiring, on-going training, and management.	Has staffing plan but with informal plan for hiring process, staff responsibilities, training, and/or management system.	Has most of staffing plan in place and operational; may require additional hiring or training.	Has adequate staffing plan, including identified staffing responsibilities, on-going training and retention plan, knowledge of staffing needs, and plan to fill gaps in staffing needs.

Total Staff Score:_____

Staff Domain Score (Total Staff Score/3):_____

Domain 5: Lab Capacity Area					
	1	2	3	4	5
Testing Capability	Has limited or no access to required labs as defined in minimum WHO/national protocols; no quality assurance mechanism.	Has access to required labs as defined in WHO/national protocols but is not reliable.	Has access to required labs for screening and monitoring as defined in WHO/national protocols.	Has more extensive lab capability, such as liver function test; access to required labs for screening and monitoring excluding CD4s and viral load count; able to do total lymphocyte count.	Has full spectrum of tests as required by si ARV protocol including CD4 count; high-quality lab and consistent availability of reagents and laboratory supplies.
	1	2	3	4	5
Quality Standards	Has no quality of standards; no program or budget for equipment maintenance; limited availability of lab supplies.	Has poor quality of lab standards; unreliable equipment maintenance program and QA process in place.	Has somewhat reliable equipment with some functioning maintenance program and lab supply availability. Lab has some quality standards but compliance is irregular.	Has relatively reliable equipment with back-up plan and equipment maintenance program in place. Lab does some internal and external QA. May have occasional breaks in service.	Has internal and external quality assurance program, reliable equipment maintenance program, and continuous availability of reagents and other lab supplies.

Total Lab Score:_____

Lab Domain Score (Total Lab Score/2):_____

Domain 6 Drug Management and Procurement Area					
	1	2	3	4	5
Supply chain	Has extremely limited supply chain in place; needs improvement in multiple areas including procurement and management of ARVs and creating a QA process2 for product availability.	Has somewhat reliable supply chain in place but needs improvement in one or more areas and needs adaptation to accommodate specific requirements of ARVs; very limited QA process for product availability.	Has supply chain in place but may need improvement in one or more areas and may need adaptation to accommodate specific requirements of ARVs; has unreliable QA process for product availability.	Has secure supply chain but may need TA in inventory management procedures for ARVs; has limited QA process for product availability.	Has secure sup chain3 from supplier to ser site including appropriate an secure local st and dispensing QA system for monitoring pro availability to prevent stock o of ARVs at site
	1	2	3	4	5
Pharmacy Management	Has no established procedures for ARVs. Does not follow inventory management procedures for other essential drugs.	Has no inventory management procedures for ARVs and limited, unreliable inventory management procedures for other essential drugs.	Has no inventory management procedures for ARVs but has established inventory management procedures for other essential drugs that are clearly implemented.	Is developing inventory management procedures for ARVs but incomplete. Has established inventory management procedures for other essential drugs.	Has established ARV inventory management to and procedures including forecasting/calcu ng resupply orde routine stock sta reporting, dispensing, and ordering emerge supplies. Has sa for other essenti drugs.
	1	2	3	4	5
Financial Resources for ARV and Other Drug Procurement	Has not taken steps toward identifying sources of ARVs. Very limited resources for procurement of drugs for management of HIV related complications, ARV-related side effects, and other essential drugs.	Has taken steps toward identifying sources of ARVs; limited resources for procurement of drugs for management of HIV related complications, ARV-related side effects, and other essential drugs.	Has identified potential funding sources for short-term ARV procurement but commitment is not finalized. Need additional funding sources to improve availability of other medications for management of HIV related complications, ARV-related side effects, and other essential drugs.	Has short-term source of funding for initial ARV procurement but resources for future funding are insecure. Has adequate supplies of medications for management of HIV related complications, ARV-related side effects, and other essential drugs.	Has secured source(s) of fund for ARVs requir for current and planned patient l for at least the n year and has a commitment and plans for follow funding. Has adequate supplie of medications f management of HIV-related complications, ARV related sid effects, and othe essential drugs

Total Drug Management Score:_____ Drug Management Domain Score (Total Drug Management Score/3):_____

Appendix 5: Interview Guide for In-Depth Interview with Clients

Objective: To explore clients expectations on improving quality of ART services

ID:	
Age:	
Sex:	
Marital status:	
Occupation:	
Interviewer:	
Translation used	**Yes :** **No:** **If yes** **Translation from.....(Language)** **To.....(Language)**

1. Can you tell me what quality of ART services is?
2. What are some of the challenges you face in seeking ART services?
3. How satisfied are you with the services provided at this facility?
4. What suggestions can you give on improving the quality of ART services?
5. Tell me what your expectations are concerning improving ART services.

Thank you for your participation.

Appendix 7: Ethical Clearance

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

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

My Ref. GHS/RDD/ERC/Admin/App 19/271
Your Ref. No.

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
GPS Address: GA-050-3303
Tel: +233-302-681109
Fax + 233-302-685424
Email: ghserc@gmail.com
8th July, 2019

Esther Kawiah Allan
University of Ghana
School of Public Health
Legon

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

GHS-ERC Number	GHS-ERC 053/05/19
Project Title	Assessing the Quality of ART Services for People Living with HIV at the Greater Accra Regional Hospital in Accra, Ghana
Approval Date	8th July, 2019
Expiry Date	7th July, 2020
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.
- 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...................................
Dr. Cynthia Bannerman
(GHS-ERC CHAIRPERSON)

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