

**EFFECTIVENESS OF HEALTHCARE DELIVERY SYSTEM REFORM IN
OPTIMIZING CARE FOR PEOPLE LIVING WITH HIV DURING CORONAVIRUS
PANDEMIC ERA AT GATEWAY CLINIC, MALAWI**

**BY
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DECLARATION

This research project is my original work and has not been presented for award of a degree or for any similar purpose at any other institution.

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DEDICATION

I dedicate this work to God for He alone deserves all the honour and praise because from Him my strength springs. This also goes out to two less educated yet well informed people, Master and Estere Gent, my parents, who understand the importance of education. Their unquenchable thirst to see their children get well educated and concur the world keeps me and my siblings going. My wife Dr. Dingase Gent, kids Henry and Mutawe Gent and I continue to win through this paper.

ABSTRACT

Since the start of COVID-19 pandemic, delivery of healthcare has turned out to be more difficult because of health service delivery policy changes to accommodate COVID-19 prevention, pressure on already frail health systems and clients' fears of interacting with health facilities hence shunning health services. HIV health services are some of the crucial services that have been affected in Malawi and policy changes (from six monthly visits to two visits every three months in the first six months of treatment and suspension of some routine services) were effected to optimize care while preventing the spread of COVID. This facility-based cross-sectional study was conducted to evaluate the effectiveness of healthcare delivery system reform in optimizing care for persons with HIV infection in the coronavirus pandemic era, at Gateway clinic, Malawi. The specific objectives were to determine the reliability of healthcare service reform, assess patient satisfaction with healthcare service reform and assess the responsiveness of the healthcare providers with regards to healthcare reform in optimizing care for persons with HIV infection in the Coronavirus pandemic era at Gateway clinic in Malawi. Participants included randomly selected 93 people living with HIV accessing HIV care and 5 health care workers providing HIV care at Gateway clinic (purposely selected) and they provided information through interviews using questionnaires and key informant interview guide respectively. Quantitative data was analyzed using descriptive statistics, bivariate and multivariate logistic regression while qualitative analysis used thematic approach. Results showed that demographic characteristics did not have a significant association with effectiveness/optimization of healthcare but reliability, client satisfaction and responsiveness of healthcare workers did. Reliability of the healthcare system reduced during COVID-19 following the reforms by 5.4% compared to pre-COVID-19 pandemic period (95% CI: -0.4--0.1, $p=0.0004$) following a significant drop in capability of the facility, quality and effectiveness of care (at least 10% drop). A p-value of 0.0004 denotes a statistical significance of the difference in reliability. Similarly, there was an overall reduction in client satisfaction with healthcare during the Coronavirus pandemic (a 5% drop, 95% CI: -0.2--0.02, $p=0.0108$), largely because clinic operating hours became less convenient to the clients (2%). A p-value of 0.0108 denotes a statistical significance of the difference in client satisfaction over the two periods. Responsiveness of healthcare workers during COVID-19 pandemic reduced by 5.5% (95% CI: -0.9--0.6, $p<0.001$). Differences were statistically significant with a p-value of <0.001 . Overall, clients who perceived this reduction indicated that healthcare provided was less effective during COVID-19 pandemic. It is, therefore, important for policy makers and health system leadership to trade carefully when making policy reforms that influence changes to approaches for implementation of well-established programs and services (i.e. HIV care), especially during emergencies (i.e. pandemics). This in essence underscores the importance of wider consultations and considerations to safeguard the gains that have been realized over a long period of time in HIV program (progress towards the 95-95-95 UNAIDS targets). The following recommendations are therefore made; integration of telehealth into existing health system as an alternative to in-person engagement between clients and providers, implementation of client-centred approaches that deliberately target to meet clients' needs i.e. flex-clinic operating hours, and training for healthcare providers to improve responsiveness and efficiency in service delivery during emergencies.

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LIST OF ABBREVIATIONS AND ACRONYMS

ART	:	Antiretroviral therapy
COVID-19	:	Coronavirus disease
DHA	:	Department of HIV/AIDS
HCW	:	Healthcare worker
HIV	:	Human Immunodeficiency Virus
MPHIA	:	Malawi Population-based HIV Impact Assessment Survey
MoH	:	Ministry of Health
PLHIV	:	People Living with HIV
SPSS	:	Statistical Package for Social Sciences
TB	:	Tuberculosis
WHO	:	World Health Organization

OPERATIONAL DEFINITION OF TERMS

Healthcare Delivery System: all the organizations, institutions, resources, policies, and people whose primary purpose is to improve health.

Health reform: Policy changes regarding provision of health care (for example HIV care in the first 6 months of treatment)

Optimizing care: Making the most of health services to achieve specific program goals

Healthcare providers: Professional and lay cadres that are involved in provision of HIV care

Effectiveness: Ability of the health care system reform to enable clients to benefit more from the HIV care they receive at a health facility. In this study, it was used to mean the influence of health care reforms to enable clients to get the best HIV care (optimization)

Reliability: The quality of trustworthiness of a health system in terms of access to quality and effective health care

Client Satisfaction: Fulfilment of clients' needs and expectations in terms of convenience of clinic hours, quality of service, staff availability and their attention to clients' concerns

Responsiveness: The quality of reacting promptly and positively to a health system reform in terms of promptness in service provision according to the reform and dedication of adequate time and attention to clients.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Human Immunodeficiency Virus (HIV) is one of the pandemics that have kept the world on its toes for a long time. However, most countries are on track towards epidemic control, courtesy of anti-retroviral therapy (ART)(Balogun & Slev, 2023). HIV care and treatment is provided through a health care delivery system, otherwise known as a health system. Healthcare delivery system are activities whose primary purpose is to promote, restore or maintain health (WHO, 2000). It consists of all the organizations, institutions, resources, policies and people whose primary purpose is to improve health. Health service is a key component of a healthcare system, for example provision of HIV care. Health services go hand in hand with policies as the latter guides the former.

Healthcare sits at the core of health systems. It is an input for the health of individuals and the population. It includes services that are provided for prevention, diagnostic and treatment for health problems either to individuals or populations or communities(Reinhard Busse, Dimitra Panteli, 2017). Healthcare is provided through different methods and these methods are called healthcare delivery(Thomson et al., 2018). Healthcare delivery It is enabled via a healthcare system. A healthcare system is the organization of people, institutions, and resources that deliver health care services to meet the health needs of target populations(WHO, 2000). Compelled by prevailing situations, healthcare systems undergo reforms, either partially or wholly. These are adaptations to some parts of the system for it to be able to respond well to current needs of the consumers of health care (Marušič & Rupel, 2016).

Prevailing conditions, for example emergence of Coronavirus disease (COVID-19), demand re-organization of some routine services that are offered to specific groups of clients so as to enhance gains from service provision even under such difficult circumstances. The goal is to make the best out of the bare minimum input and this is called optimization of care (Boersma et al., 2018). HIV care has gone through this process since the pandemic. While aiming for this, reliability of the health system, patient or client satisfaction and responsiveness of those who are to implement the change matter. A health system that is not reliable might not effectively influence optimization of care. Health service providers need to respond by implementing the changes in policy for the effect of the health reform to be objectively evaluated. While care might be optimized, it does not matter anymore if the beneficiaries (clients/patients) are not satisfied with the services they receive.

COVID-19 is the most recently reported pandemic. It was first reported in China before quickly taking over the whole world (Aborode et al., 2021). The pandemic has put health systems in both developed and developing countries under ruthless test (Sun et al., 2020). Globally, there has been a significant shift in resource allocation towards the pandemic, suffocating some equally important services living a huge unmet health need (Tarricone & Rognoni, 2020).

In Africa, the effects of COVID-19 on health were no any less, complicated by unprepared health systems. Dependence on international aid also made response to the pandemic (testing, vaccination, etc.) to be delayed while pressure on the healthcare system mounted (Paintsil, 2020). Adverse outcomes became very apparent. Essential services like HIV care got affected too, with significant decrease noted in the uptake of HIV testing and treatment (Adugna et al., 2021). Similar observations were made in Malawi where HIV programs also got affected (Mbulaje et al., 2021).

1.2 Statement of the Problem

The Ministry of Health through the 2018 Integrated HIV/TB guidelines recommend that clients that are starting antiretroviral therapy newly be given monthly appointments in the first 6 months of receiving HIV care. The visits are expected to enhance client-provider engagement that is necessary for clients to receive adequate and quality psychosocial and clinical support which is crucial for desirable clinical outcomes (Malawi Ministry of Health, 2018). In the wake of COVID-19 pandemic, the Ministry of Health (MoH) in Malawi adapted the HIV care clinic appointments to once every three months with some routine services (e.g. routine viral load testing, group counselling) through a circular (Malawi Ministry of Health, 2020).

This policy change aimed at reducing the spread of the virus, the load on the health system and overall mortality from COVID-19. This is a deviation from the standard of care and could potentially cause less frequent clinic visits, less frequent client-provider engagement and reduced frequency of psychosocial and clinical support to clients, poor drug compliance, drug resistance, leading to high viral load and clinical deterioration. The reform also raises questions as to whether it affected availability of HIV care services, client satisfaction and responsiveness of health care providers. This study, therefore, aims to fill the knowledge gap that exists regarding healthcare policy reform for people living with HIV (PLHIV) in the first six months of ART and evaluate if the reform successfully optimizes treatment for the same population.

1.3 Significance of the Study

Findings from this study will constitute valuable reference to the scientific fraternity and body of knowledge in this subject area as most studies around similar reforms (reduction of clinic visits) focussed on stable clients who had been on treatment for at least one year. In addition, findings from this study will provide a critical basis for review of the 2018 integrated HIV/TB guidelines especially on the of frequency of routine scheduled clinic visits in the first 6 months of care which now are six and require improvement. Findings from this study will also help to objectively inform health program managers regarding whether efforts to manage COVID-19 pandemic by reducing clinic congestion through multi-month scripting to prevent the spread of the infection are creating other health problems (e.g. poor clients' perception of the health system, suboptimal availability and reliability of health care services, poor HIV clinical outcomes, etc.) or not. It will also inform adaptation of HIV programming beyond COVID-19 pandemic if multi-month scripting during the pandemic proves to be non-inferior to the standard of care. These prospective programmatic changes will lessen the burden for PLHIV that comes with frequent clinic visits in the first 6 months of ART.

1.4 Research Questions

1. What was the reliability of healthcare service reform in optimizing care for people living with HIV during Coronavirus pandemic Era at Gateway clinic, Malawi?
2. What was the perceived patient satisfaction with healthcare service reform in optimizing care for people living with HIV during Coronavirus pandemic Era at Gateway clinic, Malawi?
3. What was the level of responsiveness of the healthcare providers with regards to healthcare reform in optimizing care for people living with HIV during Coronavirus pandemic Era at Gateway clinic, Malawi?

1.5 Objectives

1.5.1 Broad Objective

To evaluate healthcare delivery system reform in optimizing care for people living with HIV during coronavirus pandemic era at Gateway clinic, Malawi.

1.5.2 Specific Objectives

1. To determine the reliability of healthcare service reform in optimizing care for people living with HIV during Coronavirus pandemic era at Gateway clinic, Malawi

2. To assess patient satisfaction with healthcare service reform in optimizing care for people living with HIV during Coronavirus pandemic era at Gateway clinic, Malawi
3. To assess the responsiveness of the healthcare providers with regards to healthcare reform in optimizing care for people living with HIV during Coronavirus pandemic era at Gateway clinic, Malawi

CHAPTER TWO

LITERATURE REVIEW

2.1 HIV Care Reform Package In Relation to COVID-19 Pandemic

Healthcare reform can be described as sustained, purposeful, and fundamental change made in a particular section of the health system (Marušič & Rupel, 2016). One common section where change happens is policy: involving introduction or just adaptation of existing policies.

The state through different ministries including Ministry of Health released policy guidance to ensure prevention of spread of coronavirus. The guidelines included management of social services and interaction, management and organization of different health services during the pandemic, case management among others.

Malawi declared COVID-19 a formidable disease on 1 April, 2020. A lot of policy guidance and action happened around late March in the same year. In public health facilities, the workforce was also re-organized to fit into working from home while making sure that service provision was not disrupted (The Malawi Gazette, 2020). Additionally, for HIV care, the following policy changes were made (Malawi Ministry of Health, 2020):

- visits in the first six months of starting ART were reduced from six to two to ensure that hospitals were decongested and that clients were not exposed unnecessarily
 - Clients were given quarterly instead of monthly appointments
- Stopping of routine viral load monitoring to minimize time spent within the facility
- Stopping of group health education to ensure clients spent less time at the facility
- Working in shifts to ensure not all health service providers were at risk of exposure at the same time

2.2 Reliability of Healthcare Service Reform in Optimizing Care for People Living with HIV

Reliability is one of the attributes a healthcare system must possess. Reliability measures how consistent the quality and safety of health care systems or processes perform over a required period of time (Hendler et al., 2016). Among others, reliability is characterised by availability of healthcare assistance. This serves as a starting point for assessing higher levels of reliability (consistence in quality and safety) which can otherwise not be assessed if the service is not available at all (Kot & Syharuddin, 2020). Measuring reliability can improve the quality and value of health care systems.

Empirical literature has looked at availability of HIV care and services during COVID-19 pandemic. A study conducted in Ethiopia sought to establish the effect of COVID-19 on routine HIV Care Services from Health Facilities in Northwest Ethiopia(Adugna et al., 2021). An institution-based repeated cross-sectional/interrupted time series study was conducted with all clients who were on HIV care services follow-up between March 2019 and June 2021 included as participants. The choice of this method is appropriate with the reference to the objective of the study as observations were made over time. The study looked at aggregate monthly data for different services between 2019 and 2021 and assessed time trends between the two periods.

The study found that service delivery for key HIV services like testing and treatment significantly went down(Adugna et al., 2021). Other factors cited include government policies, shift in focus of healthcare providers to COVID-19 health services, broken supply chain system for HIV commodities. However, it is rather difficult to commit that the observed decrease in availability of health services is as a result of the exposure (COVID-19 and its related factors including healthcare system reforms) as internal validity threats (history, regression of mean, etc) could have confounded the findings. A more geographically broader yet somehow similar study was conducted in 10 countries to assess the resilience of health systems in these countries in relation to COVID-19 by assessing immediate effect of the pandemic on health services using interrupted time series (Arsenault et al., 2022). This study involved two low income, six middle income and two high income countries. Unlike the study by Adugna et al. reported above, this broadening of the research setting plays a crucial role in eliminating economic confounders that could potentially alter the interpretation of the findings of this study. It provides an opportunity for evaluation of different health systems with varying levels of capacity and resilience while surrounded by the same independent variable (COVID-19 pandemic). In all the economic groups above, significant health service disruptions of up to 40% were reported. Disruption of HIV related services was amongst the most common(Arsenault et al., 2022). Similarly, in Guatemala a substantial decrease in HIV testing services was noted(Medina et al., 2021). However, provision of antiretrovirals treatment for HIV was not affected.

In this study, routinely collected data on aggregate number of a particular service provided was used to look at the trends and compare the pre-COVID trends against the current trends(Arsenault et al., 2022). Differences in the trends have largely been attributed to suspension of some non-COVID health services (healthcare service reform), lockdowns.

Although this is the case, fear of becoming infected with COVID while accessing health care and just overall decline in the use of healthcare could have also caused this. Research methods that involve interviews with individual clients who access specific services for example members of HIV care clinic cohort would have provided valuable information as to why for example their uptake of HIV related services was interrupted. Absence of primary data collected directly from recipients of services makes it difficult for crucial conclusions to be made.

China, where COVID-19 was first discovered, was the most hit by the pandemic (Aborode et al., 2021). Most countries were able to ride on lessons from China to better tackle the pandemic on their soil. Picking up on the gaps in research methods used by the studies discussed in the preceding paragraphs, a study conducted in China titled “Challenges to HIV Care and Psychological Health During the COVID- 19 Pandemic Among People Living with HIV in China” presents a whole different approach to investigating the impact of COVID-19 on HIV services(Sun et al., 2020). A survey was conducted to 703 participants in 25 provinces in China to understand the challenges PLHIV faced since the pandemic(Sun et al., 2020). The methodology used here is very objective as it directly engages clients to collect primary data and allows for researchers to make crucial conclusions based on the experiences of the subjects. If this study used only secondary data, it would only make speculations that a decline in service uptake meant that PLHIV were having challenges in accessing care. The study found that about 23% of the participants reported that their medication uptake had been disrupted(Sun et al., 2020). The common reasons included the health system’s focus had turned to dealing with COVID-19, healthcare reforms that prevented HIV care clinics from taken on new clients, repurposing existing infrastructure to provide COVID related services and lockdowns (clients not being able to move out of their homes, barriers to transportation system, etc)(Aborode et al., 2021).

The disruption of HIV care services increases the risk of adverse outcomes for PLHIV(Nachega et al., 2021). A modelling study done on Potential impact of the COVID-19 pandemic on HIV, tuberculosis, and malaria in low-income and middle-income countries found that in high burden settings like Malawi, deaths due to HIV could increase by up to 10% over 5 years(Hogan et al., 2020). Most (67.5%) clients expressed worry and uncertainty over the future of their access to HIV care(Sun et al., 2020). The study clearly demonstrates that the pandemic and healthcare reforms that came along with it made the health system unreliable to make HIV care services available. Although most studies have reported

significant reduction in uptake of HIV services, a study done in South Africa concurs with Arsenault et al. in its findings. Conducted in KwaZulu-Natal, an Interrupted Time Series analysis of programmatic data from primary care clinics found that HIV testing and ART initiations had been negatively affected as a decreasing trend was noted (Dorward et al., 2021). However, continuation of HIV care for clients who were already enrolled on treatment was not affected.

In conclusion, COVID-19 and its related interventions caused massive disruption in availability and access to healthcare services including HIV care services as it knocked down already frail health systems. This poses a threat to gains that have been realized in the fight against HIV and epidemic control efforts.

2.3 Patient Satisfaction with Healthcare Service

Service provision involves providers and customers/consumers. In healthcare system, patients or clients are the customers. Healthcare systems aim to take care of the needs of patients through quality service provision. Patient satisfaction is an important and commonly used indicator for measuring the quality in health care (Prakash, 2010). Patient satisfaction is an important measure of healthcare quality as it offers information on the system or provider's success at meeting clients' expectations and is a key determinant of patients' perspective behavioural intention (Xesfingi & Vozikis, 2016). With all the reforms involving HIV care that have taken place in healthcare system since the pandemic, it is important to examine patients' satisfaction with the services.

A study in Ethiopia assessed patients' satisfaction and associated factors during COVID-19 pandemic triggered by the understanding that COVID-19 induced uncertainty and shortage of medical supplies, for this would affect health service availability and reliability (Deriba et al., 2020). The study used an institutional-based cross-sectional approach with a structured interviewer administered questionnaire as a data collection tool. Results showed that patient satisfaction was less than 45%. This could have sprouted from unmet health care needs leading to lack confidence in the health care system. During the time of the pandemic, many health systems instituted reforms. Therefore, the dissatisfaction could in a way reflect patient's level of satisfaction with a health system that is shaped by the reforms.

Even in HIV care, satisfaction matters. In a facility-based cross-sectional study in Southwest Ethiopia, 383 participants who were selected systematically were interviewed using a questionnaire to gauge their satisfaction with HIV related services (Gezahegn Snr et al.,

2021). The methodology used in this study identifies with the one used by Deriba et al. Random sampling method which was used enhances the generalizability of the results. Structured researcher administered questionnaires allow for active collection of feedback as the researcher and the participant engage in real-time(Christopher & Joseph, 2021). The active feedback approach tends to be more objective, enhances participants' understanding of the questions and therefore findings indeed represent the views of the participants(Christopher & Joseph, 2021). The results of the study showed rather high satisfaction precipitated by availability of ARVs among other factors. Relating the results of this study to the situation in Malawi where stock levels of HIV commodities have been erratic since the start of COVID-19 pandemic, it is compelling to speculate that levels of satisfaction with HIV care in Malawi would be low.

While institutional-based cross-sectional studies are commonly used to evaluate patients' satisfaction with healthcare (Mukamba et al., 2020), a study conducted to assess perceived satisfaction with HIV care and its association with adherence to antiretroviral therapy and viral suppression used an African Cohort Study approach(Somi et al., 2021). It was a prospective observational study where participants were assessed using socio-behavioural questionnaire at enrolment and twice yearly. However prospective observational studies require more time and resources as they start from present time moving into the future and this particular type involves more than one encounters of data collection. Even though this is the case, they allow for monitoring and comparison of levels of satisfaction as the health system implements efforts to improve quality of services.

With the trend of results seen above coupled with being in touch with reality, one would expect for studies done in a healthcare system from the same region to almost show mirrored findings. Even more so considering that healthcare systems in low-income countries fall short in many ways. However, a study done in Dar es Salaam, Tanzania showed parallel results. A cross sectional study done at Muhimbili National Hospital and Amana Hospital where 375 participants were interviewed using questionnaire showed 96% and 100% satisfaction levels at both these hospitals respectively (Kagashe & Rwebangila, 2011). These are unusually high satisfaction levels considering that HIV care in Africa, even more so in Tanzania is provided in a rather weak health system. For this kind of findings, questions target the methodology used however, we see that cross-sectional method was used. Perhaps this could have originated from sampling methods and/or the content of the questionnaire that was used.

For questionnaires that are used to assess satisfaction, there are different rating scales that are used. Others use 5-point Likert scale with 1 as very poor and 5 as excellent(Christopher & Joseph, 2021) while others use 6-point Likert scale with 1 as extremely/very dissatisfied and 6 as extremely/very satisfied. When these are used, respondents indicate the degree of agreement or disagreement with a variety of statements in the questionnaire (Taherdoost, 2019). Review of the Likert Scale indicates that when the scale is widened beyond 6 points, respondents tend to stick around agree or disagree responses so as to please the researcher, get persuaded by social desirability bias and lose honesty.

2.4 Responsiveness of the Healthcare Providers with Regards to Healthcare Reform in Optimizing Care for People Living with HIV

In contemporary world, responsiveness has been tackled heavily as an important concept. Many definitions by different scholars seem to converge around “reaction” and “adjustment”. Responsiveness is an attribute of being able to react promptly to something(Adler, 2010). It is the ability to adjust to changes or external influencers. These two definitions are the basis of variety of definitions that different disciplines use in the application of this concept. In healthcare systems, patients and clients are constantly in need of health services under different circumstances and they tend to have expectations. These expectations and needs are addressed by the health system through healthcare providers (human resources for health). Human resources for health responsiveness is therefore the social actions by which healthcare providers meet the legitimate expectations and health needs of patients(Joarder et al., 2017). It is important because it induces patients’ satisfaction and promotes early healthcare seeking behaviour. On a bigger platform it culminates into healthcare system responsiveness. A health system responsiveness therefore entails the measures of the non-health aspect of care relating to the environment and the way healthcare services are provided to patients to meet their legitimate expectations (Kapologwe et al., 2020).

As much as many believe that for clients to appreciate responsiveness of healthcare worker providers, competence should come first; it is rather not the case. Clients prefer to look at the social interaction between providers and themselves. It is more about providers’ friendliness, respect for clients(Arsenault et al., 2020), being able to reliably inform and guide, gain trust and acting in the interest of the patient to maximize patients’ gains (Joarder et al., 2017). This explains why there has been a surge in interest regarding behaviour change targeting healthcare professionals(Colquhoun et al., 2017).

Characteristics of a responsive health system revolve around the same domains discussed above, in addition to geographical position of health institutions in relation to the community they serve, availability of care, etc(Mirzoev & Kane, 2017). A study in Tanzania assessed the responsiveness of a fraction of the country's health system in 42 health facilities that provided primary health care(Kapologwe *et al.*, 2020). Using a cross-sectional study design, 384 participants were interviewed using structured questionnaire. Findings indicated that facilities were rated high on respect to confidentiality and respect to dignity domains (86.6% and 81.4% respectively). Even though this was the case, the study approach missed an opportunity to get valuable insights also from health care providers themselves as they perspective would have supported validation of information provided by clients.

Assessment of responsiveness of a health system is grounded on eight frameworks with the one proposed by World Health Organization (WHO) in the early 2000s as the most widely used (Mirzoev & Kane, 2017). There are seven elements that model this framework and these include dignity, autonomy, confidentiality, prompt attention, quality of amenities and access to social support networks(Mirzoev & Kane, 2017). Most studies use cross-sectional design and immensely use structured questionnaires to collect data. Depending on objectives, others only engage users of a health system as participants while others include both users and providers to broaden the understanding of the responsiveness of the system.

2.5 Summary of Literature Review

There is rich theoretical and empirical literature on healthcare, how it is delivered and the system through which healthcare is delivered. Extensive empirical work and review of health systems has been done since the emergence of COVID-19 pandemic as it challenged healthcare systems beyond expectation. What is clear this far is that the pandemic has incapacitated most health systems around the globe and that provision of essential healthcare services like HIV care has been grossly affected.

While health systems focussed on provision of COVID-19 related health service (prevention as well as treatment of COVID-19), availability of HIV related health decreased significantly(Dorward *et al.*, 2021). However, in some few countries, HIV service availability was not affected. Client satisfaction was low in most studies because of unmet needs in HIV care and uncertainty regarding the future of access to treatment (Deriba *et al.*, 2020). In addition, social interaction between clients and service providers reduced and this affected clients' satisfaction and their perception of provider responsiveness(Arsenault *et al.*, 2020).

All these justify the need for reforms and adaptations to optimize and maximize gains from the little the health system can offer in affected programs (i.e. HIV program).

2.6 Conceptual Framework

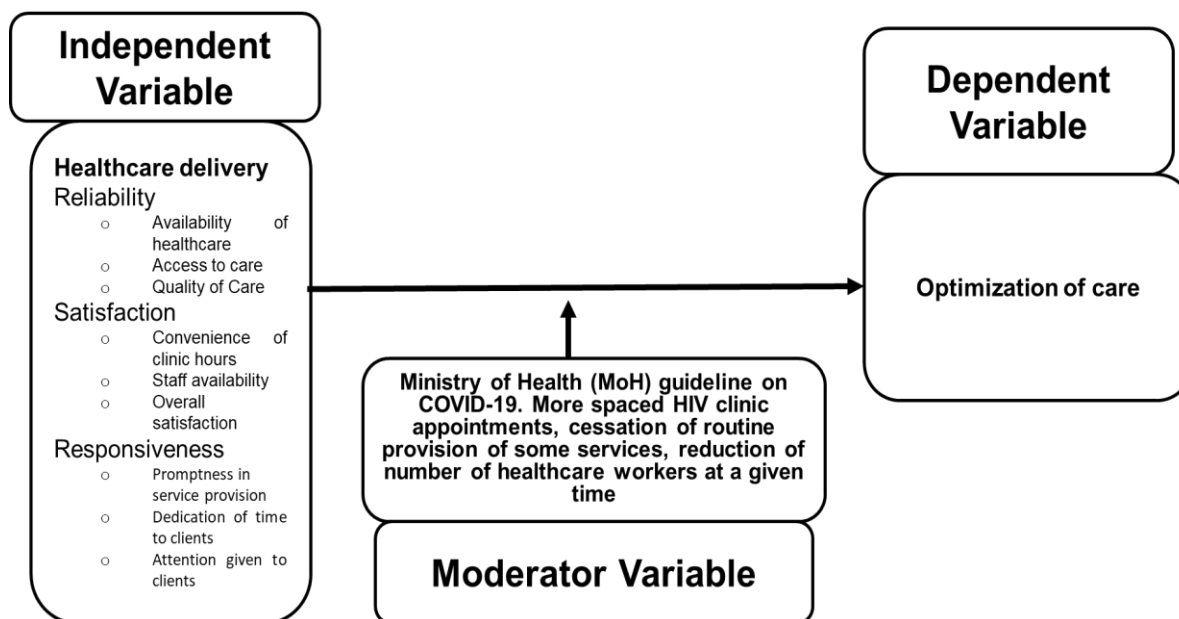


Figure 0:1: Conceptual framework (Source: adopted from literature review, 2022)

Several variables are at play in this study with optimization of care as the dependent variable (DV). An independent variable (IV) being evaluated here is the healthcare delivery system. While the relationship between these two is investigated, a circular by Ministry of Health-Malawi providing guidance on provision of HIV related services during COVID-19 pandemic may have an influence on the relationship/association between the IV and DV as it dictates frequency of visits, what services should be put on hold, client-provider interaction among others. This is a mediator variable. The perceived reliability, client satisfaction and responsiveness of health delivery system will in turn determine whether optimization of care is effective or not. At such a time when COVID-19 is in our midst and efforts to prevent further spread of the virus are at the heart of every nation's health system, prevention of congestion in health systems remains key. In such a context, provision of HIV care and treatment demands innovation to ensure that PLHIV are still able to access quality care that responds to both clients' and the health system's needs. Reducing the frequency of clinic visits for medication pickup and prioritization of services to be offered to clients may indeed help to decongest clinics and prevent further spread of the virus.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section discusses research design, study location, population and sampling, data collection procedure, quality control, data analysis and ethical consideration.

3.2 Study Area

This study was conducted at Gateway Clinic, a public health facility under the Ministry of Health. The facility is located in the South West Zone, Blantyre urban, Malawi at - 15.80317980,35.02076120 (Ministry of Health Malawi, n.d.). It is about 6.8km from the Central Business District. According to the National Statistical Office, the population of Blantyre was 451, 220 as of 2018(National-Statistical-Office, 2018). Gateway clinic serves an urban catchment area with a population of 50, 971. The district has an HIV prevalence of 18.2 as of 2016 (Ministry of Health, 2018). The ART Cumulative cohort for the facility is 2121, with 103 alive on treatment at the end of December 2021. The facility is considered as the centre of excellency for Blantyre District Health Office hence its hierarchical relevance influenced its choice as a study site.

3.3 Study Design

This was a facility-based cross-sectional study conducted at Gateway Clinic in Blantyre to evaluate healthcare delivery system reform in optimizing care for persons with HIV infection in the coronavirus pandemic era, Malawi. This study design allowed the study to establish reliability, client satisfaction and analysed at the same time.

3.4 Target Population

The target population comprised of PLHIV accessing HIV care at Gateway clinic and health care workers providing HIV care at the same facility. The facility offers HIV and Tuberculosis (TB) services to a population of about 2121, of whom 103 were still care at the end of Quarter 4, 2022 according to anecdotal data from Department of HIV/AIDS (DHA) quarterly reports.

3.5 Study Population

The study population comprised of 103 PLHIV accessing care and treatment at Gateway clinic (regardless of when they started treatment) and 5healthcare providers working in the HIV care clinic who were key informants for the study.

3.5.1 Inclusion Criteria

1. Enrolled PLHIV before and during COVID-19 pandemic
2. At least 18 years old
3. Consent to participate

3.5.2 Exclusion Criteria

1. PLHIV too ill to provide responses
2. PLHIV who are mentally challenged

3.6 Sampling Design

3.6.1 Sample Size Determination

Sample size for PLHIV was determined using Taro Yamane (1967) method for sample size calculation under the following conditions. Maximum variability $P=0.5$, Confidence interval level= 95%, Precision= $\pm 5\%$.

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

where “n” is sample size, “N” is the study population, “e” is the desired level of precision

$N = 103$ (103 PLHIV at Gateway clinic)

$$n = \frac{103}{1 + 103(0.05)^2} = 103 / 1.2575$$

$$n = 85$$

With inclusion of 10% non-response rate, $n=85+9$

$$n = 94$$

3.6.2 Sampling Techniques

Gateway clinic was selected using purposive sampling technique. This is because the facility is hub and considered as the centre of excellency for Blantyre District Health Office. Simple random sampling was used to select ART clients as participants for the study with reference to the inclusion and exclusion criteria. During ART clinics, research assistant and the researcher assigned numbers to clients and randomly selected clients using a table of random numbers until the target for the day was reached. These were screened for eligibility by asking questions. Eligible clients were then asked to provide informed consent. For healthcare workers, purposive sampling was used. The researcher targeted healthcare workers in various key roles along the client flow to ensure key information gathered reflected perceptions in relation to various stages of client care (clerical, nursing, clinical and client support services). Sample size for key informant interviews was determined by purposively

selecting one member from each cadre that provides services in the ART clinic: 5 health workers and these included a nurse, clinician, adherence support officer, expert client and a data clerk. For those on duty in the ART clinic, the researcher engaged them one by one, screening them for eligibility by asking questions. Once one was eligible, the researcher sought informed consent. The process ended once one HCW in a cadre consented to participate.

3.7 Pretesting Data Collection Tool

Data collection tools were pretested at Ndirande Health Centre. The pretesting involved 10 interviews with 10 PLHIV.

3.8 Data Collection Instruments

A questionnaire was used to collect data from ART clients as participants (refer to appendix 4). The questionnaire was developed based on the key objectives of the study while being mindful of the fact that client's demographics are crucial for disaggregated analytics. Key sections of the tool include participant demographics and questions on reliability, client satisfaction and responsiveness of healthcare providers.

A key informant interview guide was used to conduct KIIs to healthcare providers (refer to appendix 6) to complement information gathered through structured interviews with clients by highlighting provider perspectives. Main sections of the tool include demographics, cadre/profession, exposure to healthcare during COVID-19 and guiding questions ascertaining providers' knowledge of the reforms, their effect on the system and their willingness to implement the reforms.

3.9 Data Collection Procedure

3.9.1 Use of Structured Questionnaire

Clients meeting the inclusion criteria were identified through screening and fully informed and asked to participate in the study. Those that granted consent were asked questions using a structured questionnaire to gather information on client demographics, reliability of healthcare, client satisfaction and responsiveness of providers before and during COVID-19. A trained research assistant was involved to assist with the interviews. Each interview was allocated utmost 20 minutes. Each interview was allocated its own questionnaire and interview duration was documented. Completed questionnaires were reviewed and filed by the researcher

3.9.2 Use of Key Informant Interview Guide

Health care providers included a clinician, nurse, adherence support officer, ART clerk and an expert client (one from each cadre). Those that granted consent we reengaged in key informant interviews using a Key Informant Interview Guide. The guide touched on demographics, understanding of the policy changes, change workload and opinion on effectiveness of the policy change. The interviews were conducted by the researcher. Each interview was allocated utmost 30 minutes. A recording device was used to record the interviews for transcription.

3.10 Validity and Reliability of the Data Collection Tools

3.10.1 Validity of Instruments

Data collection tools were subjected to review by peers and local HIV programming experts to ensure face and content validity. Opinions and input from supervisors were incorporated in the study tools

3.10.2 Reliability of Instruments

The Cronbach's Alpha scale statistics was used to test the reliability of the questionnaire and as a rule of thumb a score above 0.70 is considered acceptable. A pre-test of 10 questionnaires produced a Cronbach's Alpha coefficient of 0.73. Data collection forms were carefully crafted to enhance precision and accuracy. Deliberate efforts were made to ensure that there was no ambiguity in any section of the tool as regards to the phrasing and substance of the tool.

3.11 Measurement of Study Variables

Reliability of health care was measured through assessment of access to, quality and effectiveness of healthcare. To measure client satisfaction, we asked clients about convenience of clinic operating hours, staff availability and overall satisfaction. Lastly, responsiveness of providers was measured by asking about promptness in service provision, dedication of time to clients and attention given to clients. In all the three key areas (objectives) above, service providers' insights gathered through key informant interviews provided valuable additional information.

3.12 Data Analysis

Descriptive information on age, sex and level of education was systematically described. Frequencies, means, modes, ranges, standard deviations as descriptive statistics were

calculated. The data collected was recorded in an excel sheet entered to the Statistical Package for Social Sciences (SPSS) version 25 for analysis.

Secondly, inferential statistics were used to answer specific objectives as follows;

1. Bivariate binary logistic regression analysis to determine the reliability of healthcare service reform in optimizing care for persons with HIV infection during Coronavirus pandemic Era, Malawi
2. Bivariate binary logistic regression analysis to assess patient satisfaction with healthcare service reform in optimizing care for person with HIV infection during Coronavirus pandemic Era, Malawi
3. Bivariate binary logistic regression analysis to assess the responsiveness of the healthcare providers with regards to healthcare reform in optimizing care for person with HIV infection during Coronavirus pandemic Era, Malawi
4. Multiple logistic regression analysis to determine the moderating effect of COVID-19 guideline by MoH on the association between healthcare service delivery and optimization of care
5. Paired t-test to establish if there was any significant difference in the healthcare delivery system in optimizing HIV care before and during Coronavirus pandemic at Gateway clinic in Malawi.

Thematic analysis was employed to digest and make sense of qualitative data that was collected through key informant interviews.

3.13 Ethical Considerations

Approval to conduct the study was sought from Maseno School of Graduate Studies (refer to appendix 8 Maseno University research approval). The researcher also obtained institutional permission to conduct this research at Gateway Clinic from Blantyre District Health Offices (refer to appendix 9 Blantyre DHO Institutional permission). Ethical approval was sought from Malawi National Health Research Committee (refer to appendix 10 Malawi National Health Science Research Committee approval). Study participants were given adequate and appropriate information to support them grant informed consent. The researcher signed a commitment to confidentiality and ensured that records were kept safe during the process to ensure maximum confidentiality. Data was kept in password protected computer to ensure that clients' information is kept secure

CHAPTER FOUR

RESULTS

4.1 Response Rate

The response rate for the study was 99%.

4.2 Socio- Demographic Characteristics of the Study Respondents

The majority were female (59, 63.4%). Most respondents were in the 25-44 age category (88, 73.1%) with the least being under the age of 24 years (4.3%). The mean age for the entire sample was 38.2 years (Interquartile Range [IQR]: 32-44)(Table 4.1). Females had a lower mean age (35.6 years, IQR: 30-41) compared to males (42.7 years, IQR: 37-50). Nearly half of the participants (44, 47.3%) had a secondary level of education. A lower proportion had primary education (28 participants, 30.1%), while 21 participants (22.6%) had a tertiary level of education (Table 4.1).

Table 0:1: Sociodemographic characteristics of respondents

Socio- demographic characteristics	n=93	
	n	%
Gender		
Male	34	36.6
Female	59	63.4
Age group		
18-24 years	4	4.3
25-34 years	35	37.6
35-44 years	33	35.5
45 and above	21	22.6
Mean age (IQR)		
Mean(IQR)- Male	42.7(37-50)	
Mean(IQR)- Female	35.6(30-41)	
Mean(IQR)- Total	38.2(32-44)	
Highest level of education		
Primary	28	30.1
Secondary	44	47.3
Tertiary	21	22.6

4.3 Reliability of Healthcare Service Reform In Optimizing Care for People Living with HIV during Coronavirus Pandemic Era

All clients (93) had accessed HIV care both before and during COVID-19 pandemic. Table 4.2 below summarises a picture of indicators of reliability both before and after COVID-19 pandemic

Table 0:2 Indicators of reliability before and during COVID-19, *n*=93

Objective/Variable	Reliability before COVID	Reliability during COVID
Capability	89(96%)	69(74%)
Access to care	91(98%)	91(98%)
Quality of care	89(96%)	80(86%)

Almost all parameters for reliability dropped during the COVID-19mpandemic

Table 0:3: Reliability of healthcare service reform, *n*=93

	Yes n(%)	No n(%)	P-value
Sex			
Male	32(94.1)	2(5.9)	0.6
Female	57(96.6)	3(3.4)	
Age group			
<=30 years	20(100)	0	0.2
31-45 years	50(92.6)	4(7.4)	
>45 years	19(100)	0	
Level of education			
Primary	28(100)	0	0.3
Secondary	42(95.5)	2(4.6)	
Tertiary	19(90.5)	2(9.5)	
Reliability			
Yes	82(97.6)	2(2.4)	0.005
No	7(77.8)	2(22.2)	

Bivariate binary logistic regression analysis was performed to determine the reliability of healthcare service reform in optimizing care for persons with HIV infection during Coronavirus pandemic Era, Malawi with reliability as an outcome variable (measured by facility's capability, accessibility and quality of services).Table 4.3 above indicates no statistically significant association was found between gender and perceived reliability ($p = 0.6$). Males reported a high level of reliability (94.1%, $n = 32$) with the reform, and females followed a similar trend (96.6%, $n = 57$).Age Group: Although all participants aged 31 and above reported experiencing reliable service reform, there was no statistically significant association between age group and perceived reliability ($p = 0.2$). Participants under 30 years old also reported a high level of perceived reliability (100%, $n = 20$). Similar to other demographic factors, level of education did not present a statistically significant association with perceived reliability ($p = 0.3$). High reliability scores were observed across all education levels: primary (100%, $n = 28$), secondary (95.5%, $n = 42$), and tertiary (90.5%, $n = 19$).

A statistically significant association however, emerged when analysing the overall perception of reliability (Yes/No) ($p = 0.005$). The vast majority of participants (82, 97.6%)

perceived the healthcare service as reliable and effective (Table 4.3). In contrast, a small proportion (7, 7.5%) reported experiencing unreliable service and eventual reduced effectiveness.

Table 0:4: Multivariate analysis showing the relationship between effectiveness of healthcare reform and reliability and sociodemographic characteristics, $n=93$

Sex		Coefficient	95% conf. interval		P-Value
Sex	Male	ref			
	Female	-0.0347171	-0.1060505	0.0366162	0.336
Age group	<=24 years	ref			
	25-35 years	0.0235938	-0.1300331	0.1772208	0.761
	35-44 years	0.0515678	-0.1009294	0.204065	0.503
	>=45 years	0.030624	-0.1254713	0.1867192	0.697
Level of education	Primary	ref			
	Secondary	-0.0453432	-0.11709	0.0264036	0.212
	Tertiary	-0.0139375	-0.0999939	0.0721189	0.748
Reliability	Yes	ref			
	No	-0.2013021	-0.3062373	-0.0963668	<0.001*

The multivariate analysis identified significant associations between perceived effectiveness of healthcare and key service attributes i.e. reliability. Participants who perceived the reform as unreliable reported a significantly lower effectiveness score (coefficient = -0.2013, $p < 0.001$) compared to those who viewed it as reliable (Table 4.4).

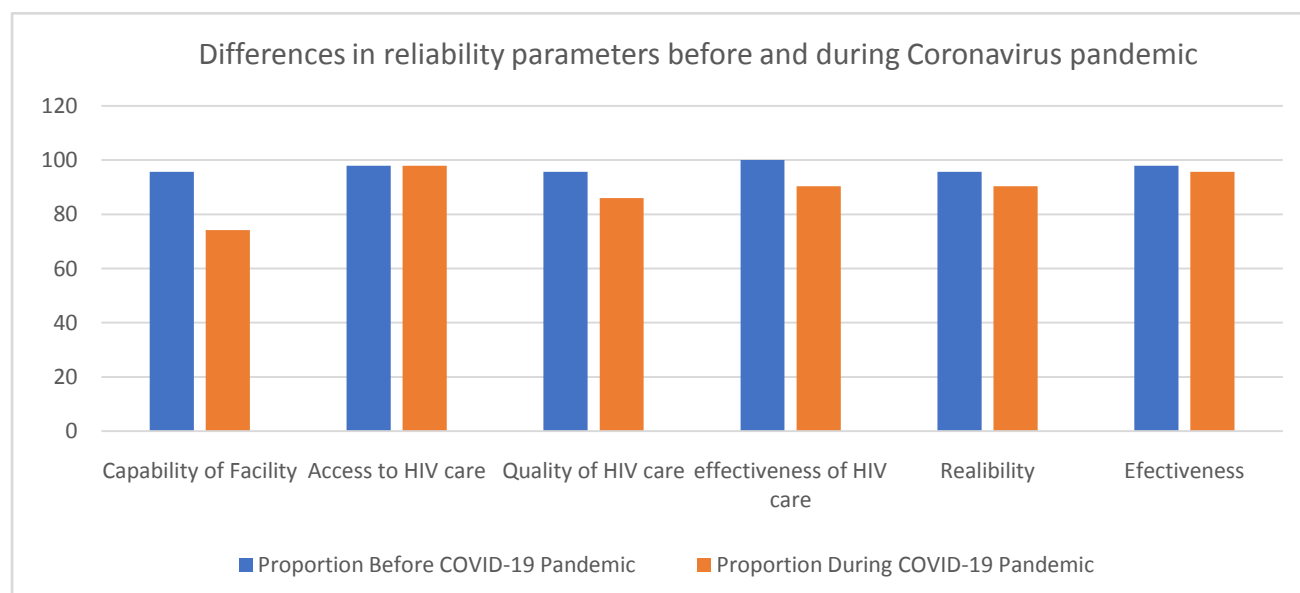


Figure:0:2 Comparison of indices of reliability of healthcare delivery system before and during COVID-19 pandemic

In the paired t-test analysis, reliability of the healthcare delivery system dropped by about 5% during the Coronavirus pandemic, following a significant drop in capability of the facility, quality and effectiveness of care (at least 10% drop) (figure 4.1). A p-value of 0.0004 denotes a statistical significance of the difference in reliability. However, care remained accessible (97.9) over both pre- and intra-pandemic periods (regardless of the healthcare delivery system reform).

Key informants on this theme had varying insights with 2/5 (40%) indicating that clients could not make the most out of the services provided during COVID-19. While this was the case, all 5 (100%) informants agreed that the quality of services had reduced.

“This is because the system could not allow us to provide all routine services even though the need and demand was there. We could not provide group education as we focused on ensuring that few clients met at the clinic. Even individual client counselling was compromised”, Adherence Support Officer...KII2. Adding on the same, service providers also reported that reliability of health services had reduced as the system could not provide for making the most out of fewer visits and limited services. Commenting on reliability, a nurse mentioned...

“the services we provided during COVID-19 were not reliable because clients could not access some crucial routine services, for example viral load monitoring”, Clinician ...KII5

4.4 Client Satisfaction with Healthcare Service Reform in Optimizing Care for People Living with HIV during Corona Virus Pandemic Era

Table 0:5: Client satisfaction with healthcare service reform, $n=93$

	Yes n(%)	No n(%)	P-value
Sex			
Male	32(94.1)	2(5.9)	0.6
Female	57(96.6)	3(3.4)	
Age group			
<=30 years	20(100)	0	0.2
31-45 years	50(92.6)	4(7.4)	
>45 years	19(100)	0	
Level of education			
Primary	28(100)	0	0.3
Secondary	42(95.5)	2(4.6)	
Tertiary	19(90.5)	2(9.5)	
Satisfaction			
Yes	87(97.8)	2(2.2)	<0.001
No	2(50)	2(50)	

Bivariate binary logistic regression analysis was performed to assess the client satisfaction with healthcare service reform in optimizing care for persons with HIV infection during Coronavirus pandemic Era, Malawi with satisfaction as an outcome variable (measured by service convenience, staff availability and overall quality of services). Data in table 4.5 showed no statistically significant association was found between gender and patient satisfaction ($p = 0.6$). A high level of satisfaction was reported by both males (94.1%, $n = 32$) and females (96.6%, $n = 57$). Similarly, gender did not present a statistically significant association with satisfaction ($p = 0.2$). All participants under 30 years old expressed high satisfaction (100%, $n = 20$), and those aged 31 and above also reported high satisfaction with the reform (96.3%, $n=69$). Level of education did not significantly influence satisfaction ($p = 0.3$). High satisfaction scores were observed across all education levels: primary (100%, $n = 28$), secondary (95.5%, $n = 42$), and tertiary (90.5%, $n = 19$).

While this was the case, a statistically significant association was observed in the overall perception of satisfaction and effectiveness (Yes/No) ($p < 0.001$). The overwhelming majority of participants (87, 97.8%) reported satisfaction with the healthcare service and its related effectiveness. Only a very small proportion (2, 2.2%) indicated dissatisfaction and this also was in tandem with the perception of effectiveness of healthcare.

Table 0:6: Multivariate analysis showing the relationship between effectiveness of healthcare reform and client satisfaction and sociodemographic characteristics, $n=93$

		Coefficient	95% conf. interval		P-Value
Sex	Male	ref			
	Female	-0.0347171	-0.1060505	0.0366162	0.336
Age group	<=24 years	ref			
	25-35 years	0.0235938	-0.1300331	0.1772208	0.761
	35-44 years	0.0515678	-0.1009294	0.204065	0.503
	>=45 years	0.030624	-0.1254713	0.1867192	0.697
Level of education	Primary	ref			
	Secondary	-0.0453432	-0.11709	0.0264036	0.212
	Tertiary	-0.0139375	-0.0999939	0.0721189	0.748
Satisfaction	Yes	ref			
	No	-0.3078537	-0.4759925	-0.1397149	<0.001*

The multivariate analysis identified significant associations between perceived effectiveness of healthcare and key service attributes i.e. satisfaction (table 4.6). Similarly, dissatisfied participants reported a significantly lower effectiveness score

(coefficient = -0.3079, p < 0.001) compared to satisfied participants.

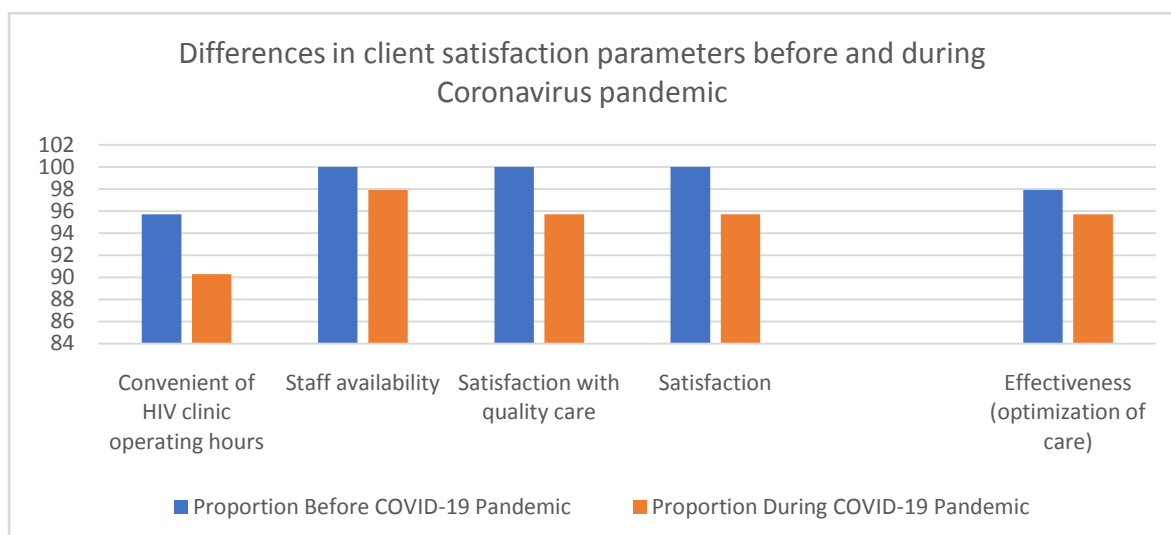


Figure 0:3: Comparison of indices of client satisfaction with healthcare before and during COVID-19 pandemic

Satisfaction with healthcare dropped by about 5% during the Coronavirus pandemic, largely because clinic operating hours became less convenient to the clients, and staff became less available to provide necessary support to clients (2% and 4% drop respectively). A p-value of 0.0108 denotes a statistical significance of the difference in client satisfaction over the two periods (figure 4.2).

However, sentiments from key informants indicated that most of them (4/5, 80%) perceived that generally clients were satisfied services they provided during COVID-19.

... “yes, clients were satisfied with our services at the end of the visit because they would not need to come back again soon and that we did everything possible to indicate that preventing spread COVID_19 and ensuring their safety was also a priority for us”, expert client...KII1

Contrary to the rest, an ART clerk indicated that clients were not satisfied.

“No, quality was reduced hence satisfaction was also reduced. For a client who is used to getting comprehensive education and counselling and then suddenly, all that cannot be provided any more, surely, they would not be satisfied with the service”, ART clerk...KII4

4.5 Responsiveness of the healthcare providers with regards to Healthcare Reform in Optimizing Care for People Living with HIV during Coronavirus Pandemic Era

Table 0:7 Responsiveness of the healthcare providers, $n=93$

	Yes n(%)	No n(%)	P-value
Sex			
Male	32(94.1)	2(5.9)	0.6
Female	57(96.6)	3(3.4)	
Age group			
<=30 years	20(100)	0	0.2
31-45 years	50(92.6)	4(7.4)	
>45 years	19(100)	0	
Level of education			
Primary	28(100)	0	0.3
Secondary	42(95.5)	2(4.6)	
Tertiary	19(90.5)	2(9.5)	
Responsiveness			
Yes	83(100)	0	<0.001
No	6(60)	4(40)	

Regarding responsiveness of healthcare providers, table 4.7 shows that no statistically significant association was found between gender and perceived responsiveness ($p = 0.6$). Both males (94.1%, $n = 32$) and females (96.6%, $n = 57$) reported high levels of responsiveness from healthcare providers. The same was the case with gender and education ($p = 0.6$) and ($p = 0.3$) with high levels of responsiveness reported across all age groups and education levels respectively. However, a statistically significant association surfaced when analysing the overall perception of responsiveness (Yes/No) ($p < 0.001$) and effectiveness (table 4.7). The vast majority of participants (83, 100%) who perceived the healthcare providers as responsive also considered healthcare system as effective. In contrast, a very small proportion (6, 6.5%) reported experiencing unresponsive providers.

Table 0:8 Multivariate analysis showing the relationship between effectiveness of healthcare reform and responsiveness of providers and sociodemographic characteristics, $n=93$

		Coefficient ref	95% conf. interval		P-Value
Sex	Male	ref			
	Female	-0.0347171	-0.1060505	0.0366162	0.336
Age group	<=24 years	ref			
	25-35 years	0.0235938	-0.1300331	0.1772208	0.761
	35-44 years	0.0515678	-0.1009294	0.204065	0.503
	>=45 years	0.030624	-0.1254713	0.1867192	0.697
Level of education	Primary	ref			
	Secondary	-0.0453432	-0.11709	0.0264036	0.212
	Tertiary	-0.0139375	-0.0999939	0.0721189	0.748
Responsiveness	Yes	ref			
	No	-0.3514199	-0.4667105	-0.2361294	<0.001*

The multivariate analysis identified significant associations between perceived effectiveness of healthcare and key service attributes i.e. responsiveness. **Unresponsive** healthcare providers were also associated with a significantly lower effectiveness score (coefficient = - 0.3514, $p < 0.001$) compared to responsive providers (table 4.8). Those who experienced responsive healthcare system during the reform were significantly more likely to perceive it as effective.

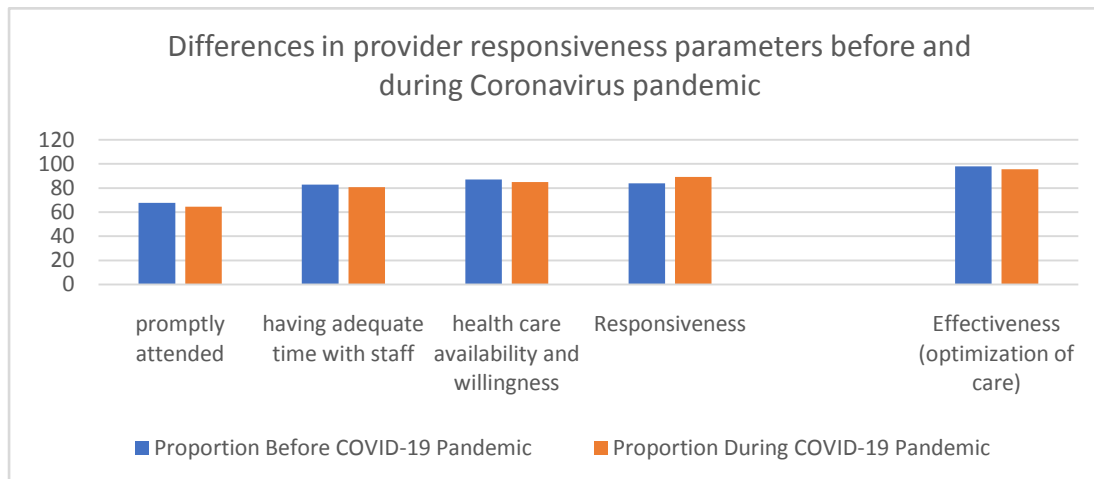


Figure:0:4 Comparison of indices of responsiveness of healthcare providers before and during COVID-19 pandemic

Even though there was a drop in many health system parameters, most participants perceived the responsiveness of healthcare providers to have improved during the pandemic compared to the period before (89.3% and 83.8% respectively). However, all responsiveness indicators dropped by around 3% (with a p-value of <0.001 denoting statistical significance of the difference in responsiveness over the two periods) indicating lack of objectiveness (figure 4.3).

Overall, results indicate an overall drop in the effectiveness of the healthcare delivery system in optimizing care for people living with HIV during Coronavirus Pandemic era, contrary to healthcare providers' opinion.

CHAPTER FIVE

DISCUSSION

5.1 Reliability of Healthcare Service Reform in Optimizing Care for People Living with HIV during Coronavirus Pandemic Era

This institution-based cross-sectional study comparing the two HIV care before and during COVID-19 pandemic showed that HIV care was significantly less reliable during the COVID-19 era largely due to significant drop in perceived capability of the facility, quality and effectiveness of care. This could be because health systems across the world were overwhelmed with the demand for services during COVID-19 waves and could therefore not cope. This could further be explained by the long waiting time, unavailability of some routine services, reduced provider-client engagement during ART clinic appointments. In this study, those who believed that healthcare was reliable were more likely to perceive healthcare reforms as effective. While the attention of most health systems was on COVID-19, a blind eye turned to other equally crucial services could mean that deteriorating quality of health services could have gone unnoticed by the system until clients took note.

In tandem with this finding, a study in Northwest Ethiopia on Effect of COVID-19 on Routine HIV Care Services from Health Facilities (Adugna et al., 2021) found that HIV related services (HIV testing, HIV treatment and TB Preventive Therapy) were heavily affected with fewer clients taking up the services. In addition, in Malawi, (Mbulaje et al., 2021) reported similar findings on the Effects of COVID-19 on HIV Services. Key findings included reduction of uptake of HIV testing services. In both studies, among the reasons, was reduced access to services because of lean staffing and restrictions placed on some routine services, a reason that was also observed in this study. This affected clients' access to services, a key component of reliability of health services. These findings are also in agreement with study conducted in China (Shi et al., 2021)

5.2 Client Satisfaction with Healthcare Service Reform in Optimizing Care for People Living with HIV during Coronavirus Pandemic Era

A statistically significant association between satisfaction with healthcare service and the perception of effectiveness of healthcare reform was also noted. Clients who reported to be satisfied with healthcare services they received during the COVID-19 era were more likely to perceive the reforms that came during the period as effective. Client satisfaction is very powerful when it comes to monitoring and evaluation of the success of a health system because it indicates how well the health system responds to the needs and meets the

expectations clients place on the system. It also serves as an indicator for healthcare service improvement.

Comparing the two periods, the study found that clients were significantly less satisfied with HIV care during the COVID-19 era. Largely, this could be due to inconvenient clinic operating hours and unavailability of clinic staff to provide support. This agrees with the thought that health systems' attention across the globe, even more so in sub-Saharan Africa shifted more towards COVID-19 leaving other services less manned. Again, unmet needs due to restrictions placed on some routine services affected clients' satisfaction. This is in agreement with (Deriba et al., 2020) where only 44.6% of study participants indicated to have been satisfied with healthcare services received (care for HIV, TB, etc.). This was largely due to unavailability of some of the services clients would routinely receive previously. Although some of these restrictions significantly reduced transmission of COVID-19 among patients and healthcare workers, clients could not access some much-needed services and this affected client satisfaction. Consequently, respondents who were satisfied with healthcare services were more likely to perceive the reform as effective.

On the contrary, (Ahmad et al., 2023) on HIV Patients' Satisfaction with Pharmaceutical Care at a Nigerian Tertiary Healthcare Facility During the Covid-19 Pandemic found that clients accessing pharmaceutical care for chronic illnesses including HIV reported good satisfaction. The majority of clients based their perceptions on short waiting time. However, while our study also noted that service provision was not delayed (provision of only select services), the difference with this study is probably based on the fact that in pharmaceutical care, clients' expectations in terms of attention and time from providers are less hence this seemingly rushed care (mostly fast-track) tends to already appear appealing to the general public. In clinical and nursing consultations, clients expect more attention and more time with service providers.

5.3 Responsiveness of the Healthcare Providers with Regards to Healthcare Reform in Optimizing Care for People Living with HIV during Coronavirus Pandemic Era

On responsiveness of healthcare providers, the study identified a statistically significant association between responsiveness of healthcare providers and the perception of effectiveness of healthcare reform. Participants who perceived that providers were responsive to their needs were more likely to perceive healthcare service reform as effective. Comparing the two periods, the study found that healthcare providers were significantly less prompt, barely spent adequate time with clients and able and willing to respond to emerging HIV care

needs during the COVID-19 era. This could be because fewer providers were on shifts at a time during COVID-19 pandemic (staff split into units doing shifts to reduce provider fatigue, COVID-19 infections among providers, etc.). While previously, for instance 20 providers could be on duty on a regular day, this number went down by half during COVID-19. Some providers were also required to respond to COVID-19 but at the same time continue providing HIV care.

In Zambia (Mukamba et al., 2022), the experience was rather different as clients felt the providers were more responsive. However, this is because more provider-client engagements were conducted through phone calls. This bridged the gap clients would have felt during face to face encounters at facility level.

Overall, results indicated a drop in the effectiveness of the healthcare delivery system in optimizing care for people living with HIV during Coronavirus Pandemic era. This finding, of course, could stem from reduced reliability of the health system, client satisfaction and responsiveness of healthcare providers. This suggests that respondents who did not believe in the reliability of or satisfied with healthcare service reform or did not perceive healthcare providers to be responsive were less likely to perceive healthcare delivery system reform as effective compared to those who perceived otherwise. Addressing these key themes will invariably address ultimate effectiveness of a health system.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

1. There was generally a decrease in the reliability of HIV healthcare services during COVID-19 influenced by reduced access, quality and effectiveness of healthcare. This comparative decrease influenced client's overall perception of effectiveness of HIV care during COVID-19 that it also decreased with a statistically significant association observed.
2. Overall patient satisfaction with HIV healthcare services dropped during COVID-19 marked by lack of convenience in clinic operating hours and unavailability of healthcare providers. Consequently, most clients who indicated to be less satisfied also commented that the system as a whole was less effective with a statistically significant association observed.
3. Responsiveness of the healthcare providers in HIV care clinic reduced during COVID-19 stemming from less prompt service provision, time and attention dedicated to clients. This influenced clients' overall perception of effectiveness of HIV care during COVID-19 highlighting that care was less effective statistically significant association observed. Even though this was the case, service providers generally indicated that they were equally responsive during COVID-19 pandemic.

6.2 Recommendations

While policy changes are invariably needed in delicate times like pandemics, it is important for policy makers to analyse various dimensions that could potentially be negatively affected in pursuit of a different common good and plan in advance to mitigate the same.

1. Alternatives for in-person engagement between clients and providers have the potential to fill gaps that clients would otherwise notice when physical clinic visits are disrupted. This could work well to deliver counselling and addressing clients' various needs thereby improving clients' access to healthcare
2. To enhance client satisfaction, implement client centered approaches that deliberately target to meet clients' needs i.e. flex-clinic operating hours. Additionally, develop and deploy mechanism for client feedback i.e. surveys and suggestion boxes to understand and address client concerns regarding service delivery
3. Provide training for healthcare providers to improve responsiveness and efficiency in service delivery during emergencies. This could include time management strategies and communication skills for concise consultations and service delivery

Implementation of these recommendations may power health systems to improve reliability, quality, and responsiveness leading to optimization and overall effectiveness of care during both stable and turbulent times.

6.3 Suggestions for Future Research

A further study should be conducted on the impact of COVID-19 HIV care policy reforms on viral suppression during COVID-19 pandemic.

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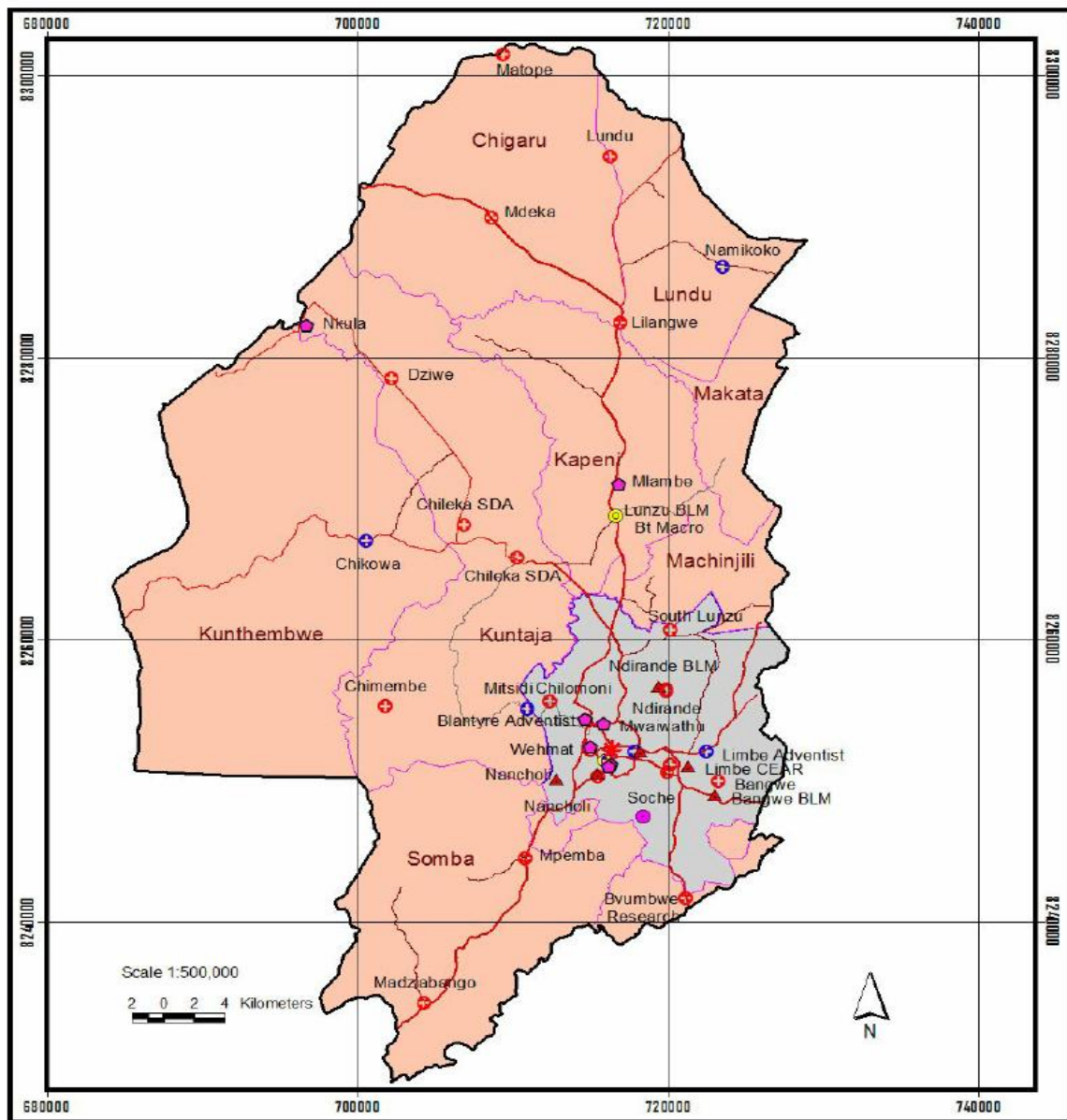
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APPENDICES

APPENDIX 1: MAP OF THE STUDY AREA



Date: 13 November 2013/ Source: Arc View 3.3, Arc GIS 8.1 / Scale: 1:500,000 / Projection: UTM Zone 36 / Prepared by: Cooby Chanza - +265888202336

APPENDIX 2: INFORMED CONSENT (ENGLISH)

Introduction and objective of the study

This an academic research being carried out to evaluate healthcare delivery system reform in optimizing care for persons with HIV infection during coronavirus pandemic era, Malawi. Specifically, this questionnaire intends to collect information that will help the researcher understand your perception of reliability of HIV services and your own satisfaction with the HIV care you receive from this facility

Procedures to be followed

You will be asked a few questions, once, on the subject highlighted in the introduction above. No tests or physical examinations or physical activities will be conducted in this process

Discomforts and risks

There are no known risks associated with this study. Your decision does not affect the quality or quantity of care you will receive today (for patients) or your employment at this facility (for providers)

Benefits and Rewards

Participating in the study has the potential to help you understand changes in HIV care that have happened since COVID-19. There are no financial or material rewards for participants of this study

Confidentiality

Your identity will not be collected in this study and no part of this study will be able to link you to your identity. Information collected will safely be stored under lock and key

Participation and withdrawal of authorization

Your participation is entirely voluntary. Please note that you can withdraw at any point in time should you decide to, without any consequences.

Contact Information

Should you wish to contact the study team, please call or message Felix Gent, the principal investigator on (+265) 8888 52 888

Participant's signature/fingerprint:Date.....

APPENDIX 3: INFORMED CONSENT (CHICHEWA)

Ganizo lotsogolera ndi zolinga za kafukufuku

Uyu ndi kafukufuku wa maphunziro omwe akuchitika kuti awunike kusintha kwa kasamalidwe ka chithandizo chamankhwala pakuwongolera chisamaliro cha anthu omwe ali ndi kachilombo ka HIV nthawi ya mliri wa coronavirus, Malawi. Makamaka, mafunsowa akufuna kusonkhanitsa zambiri zomwe zingathandize wofufuzayo kumvetsetsa malingaliro anu pa kudalirika kwa chithandizo cha HIV komanso kukhutitsidwa kwanu ndi chisamaliro chokhudza HIV chomwe mumalandira kuchokera ku chipatala chino.

Ndondomeko

Mudzafunsidwa mafunso angapo, kamodzi, pa nkhani yosonyezedwa m'mawu oyamba pamwambapa. Palibe kuyezetsa kapena kuyezetsa thupi kapena zochitika zolimbitsa thupi zomwe zidzachitike panthawiyi

Zoopsa za kafukufuku

Palibe zoopsa zomwe zimadziwikiratu zokhudzana ndi kafukufukuyu. Chisankho chanu sichikhudza mtundu kapena kuchuluka kwa chisamaliro chomwe mudzalandira lero (kwa odwala) kapena ntchito yanu pamalo ano (kwa opereka chithandizo).

Ubwino ndi mphotho

Kutenga nawo mbali mu kafukufukuyu kuli ndi kuthekera kokuthandizani kumvetsetsa zakusintha kwa chisamaliro cha HIV komwe kwachitika kuyambireni COVID-19. Palibe phindu lazachuma kapena zakuthupi kwa omwe atenga nawo gawo mu kafukufukuyu.

Kusunga chiansinsi

Dzina lanu silidzatengedwa mu kafukufukuyu ndipo palibe gawo lililonse la kafukufukuyu lomwe lingathe kukulumikizani ndi dzina lanu. Zomwe zasonkhanitsidwa zidasungidwa mosamalitsa

Kutenga nawo mbali ndi kuchotsa chilorezo

Kutenga nawo mbali kwanu ndi mwakufuna kwanu. Dziwani kuti mutha kusiya nthawi iliyonse ngati mwasankha, popanda zotsatira zilizonse.

Zambiri za malumikizandwe

Ngati mungafune kulumikizana ndi gulu la kafukufukuyu, chonde imbani kapena tumizani uthenga kwa Felix Gent, mkulu wa kafukufuku yu pa(+265) 8888 52 888

Kusaina kwa otenga mbali:Tsiku.....

APPENDIX4: QUESTIONNAIRE(ENGLISH)

SECTION A: RESEARCHER'S INFORMATION

Student's Name: Felix Gent

Questionnaire No.:

Institution: Maseno University

Course: Master of Public Health (*Management of Health Systems and Services*)

SEXCTION B: DATA COLLECTION

Preliminary questions

1. Participant's sex: a) Male. b) Female
2. Participant's Age(years):
3. Highest level of education:
a) Primary b) Secondary c) Tertiary
4. Have you accessed HIV care from this facility since COVID-19 pandemic?
a) Yes b) No

If **no**, end the interview and If **yes**, proceed to the next applicable questions

i. Questions for answering reliability of healthcare service reform in optimizing care for persons with HIV infection in the Coronavirus pandemic Era, Malawi

1. How would rate the capability of this facility to provide HIV care before COVID-19 pandemic?

Good
Fair
Poor

2. How would you rate the capability of this facility to provide HIV care during COVID-19 pandemic?

Good
Fair
Poor

3. Were you able to access HIV care at this facility anytime there was need without being restricted by the system before COVID-19 pandemic?

Yes
Not sure
No

4. Are you able to access HIV care at this facility anytime need arises without being restricted by the system during COVID-19 pandemic?

Yes
Not sure
No

5. How would you rate the quality of HIV care you have been receiving at this facility before COVID-19 pandemic?

Good
Fair
Poor

6. How would you rate the quality of HIV care you have been receiving at this facility during COVID-19 pandemic?

Good
Fair
Poor

7. How would you rate the effectiveness of HIV care you have been receiving at this facility before COVID-19 pandemic?

Good
Fair
Poor

8. How would you rate the effectiveness of HIV care you have been receiving at this facility during COVID-19 pandemic?

Good
Fair
Poor

ii. Questions for answering patient satisfaction with healthcare service reform in optimizing care for person with HIV infection in the Coronavirus pandemic Era, Malawi

1. How convenient were HIV clinic operating hours for you before COVID-19 pandemic?

very convenient
somewhat convenient
not convenient

2. How convenient are HIV clinic operating hours for you during COVID-19 pandemic?

very convenient
somewhat convenient
not convenient

3. Were staff in the HIV clinic adequately available for your questions and concerns before COVID-19 pandemic?

Conveniently available
Somewhat available
Not available

4. Are staff in the HIV clinic adequately available for your questions and concerns during COVID-19 pandemic?

Conveniently available
Somewhat available
Not available

5. How often were you satisfied with the overall quality of HIV care you received at this facility before COVID-19 pandemic?

Most of the time
Sometimes
Never

6. How often are you satisfied with the overall quality of HIV care you receive at this facility during COVID-19 pandemic?

Most of the time
Sometimes
Never

iii a) Questions for answering responsiveness of the healthcare providers with regards to healthcare reform in optimizing care for person with HIV infection in the Coronavirus pandemic Era, Malawi

1. Were you usually attended to in a prompt manner when you came to access HIV care at this facility before COVID-19 pandemic?

Yes

Sometimes

No

2. Are you usually attended to in a prompt manner when you come to access HIV care at this facility during COVID-19 pandemic?

Yes

Sometimes

No

3. Did healthcare workers spend adequate amount of time with you when you came to access HIV care at this facility before COVID-19 pandemic?

Yes

Sometimes

No

4. Do healthcare workers spend adequate amount of time with you when you come to access HIV care at this facility during COVID-19 pandemic?

Yes

Sometimes

No

5. How would you rate healthcare workers' ability and willingness to respond to your questions and concerns in the HIV care clinic before COVID-19 pandemic?

Good

Fair

Poor

6. How would you rate healthcare workers' ability and willingness to respond to your questions and concerns in the HIV care clinic during COVID-19 pandemic?

Good

Fair

Poor

APPENDIX 5: QUESTIONNAIRE(CHICHEWA)

GAWO A: ZAMBIRI ZA OTSOGOLERA KAFUKUFUKU

Dzina la ophunzira: Felix Gent

Nambala

ya

kafukufuku:

Sukulu ya ophunzira: Maseno University

Maphunziro: Master of Public Health (*Management of Health Systems and Services*)

GAWO D: KUTOLERA KAPENA KULEMBERA ZAMBIRI

Mbali iyi ndi ya okhawo omwe amalandira chithandizo

Mafunso oyamba

1. Otenga nawo mbali: a) Mwachitanga b) Mwachitanga c) Mwachitanga
2. Zaka za otenga nawo mbali (zaka):
3. Maphunziro apamwamba kwambiri:
a) Pulayimale b) Sekondale c) Kachenjede
4. Kodi mudalandirapo chithandizo cha HIV pa chipatala pano chiyambireni mliri wa COVID-19??
a) Inde b) Ayi

Ngati **ayi**, thetsani kuyankhulana ndipo ngati **inde**, pitani ku mafunso otsatirawa

iii. Mafunso oyankha kudalirika kwa kusintha kwa thandizo la za umoyo pakuwongolera chisamaliro cha anthu omwe ali ndi kachilombo ka HIV munyengo ya Coronavirus, Malawi

1. Mukuona kwanu, kodi kuthekera kwa chipatala chino popereka chisamaliro cha HIV mliri wa COVID-19 usanachitike nkotani?

Kwambiri

Kuyesera

Pang'ono

2. Mukuona kwanu, kodi kuthekera kwa chipatala chino popereka chisamaliro cha HIV mu nyengo ya mliri wa COVID-19 nkotani?

Kwambiri

Kuyesera

Pang'ono

3. Kodi mumatha kupeza chithandizo cha HIV pachipatala chino nthawi ina iliyonse yomwe mwayenera kutero popanda kuletsedwa ndi dongosolo la magwilidwe a ntchito mliri wa COVID-19 usanachitike?

Inde

Kaya

Ayi

4. Kodi mumatha kupeza chithandizo cha kachirombo ka HIV pamalo ano pakafunika kutero popanda kuletsedwa ndi dongosolo la kagwilidwe ntchito mu nthawi ya mliri wa COVID-19?

Inde

Kaya

Ayi

5. Mukuona kwanu, kodi mungaike muyeso otani pa mmene chipatala chino chinkaperekera chisamaliro cha HIV mliri wa COVID-19 usanayambe?

Bwino

Kuyesera

Osakhala bwino

6. Mukuona kwanu, kodi mungaike muyeso otani pa mmene chipatala chino chimaperekera chisamaliro cha HIV mliri wa COVID-19 usanayamba kale?

Bwino

Kuyesera

Osakhala bwino

7. Mukuona kwanu, kodi mungaike muyeso otani pa kagwilidwe bwino ntchito ka chithandizo cha HIV chimene mwakhala mukulandira pa chipatala chino mliri wa COVID-19 usanayambe?

Bwino

Kuyesera

Osakhala bwino

8. 7. Mukuona kwanu, kodi mungaike muyeso otani pa kagwilidwe bwino ntchito ka chithandizo cha HIV chimene mwakhala mukulandira pa chipatala chino mu nyengo ya mliri wa COVID-19 ?

Bwino

Kuyesera

Osakhala bwino

- iv. Mafunso oyankha kukhutira kwa odwala ndi kusintha kwa kapelekedwe ka thandizo la HIV munyengo ya mlili wa Coronavirus, Malawi**

1. Kodi maola opelekera thandizo la HIV anali osavuta bwanji kwa inu mliri wa COVID-19 usanayambe?

Abwino kwambiri

Abwinoko

Osakhala bwino

2. Kodi maola opelekera thandizo la HIV ndi osavuta bwanji kwa inu mu mliri wa COVID-19?

Abwino kwambiri

Abwinoko

Osakhala bwino

3. Kodi ogwira ntchito pachipatala pano ankapezeka mokwanira mukakhala ndi mafunso komanso nkhwana mliri wa COVID-19 usanayambe?

Ankapezeka mosavuta

Ankapezekabe koma osati kwambiri

Sankapezeka

4. Kodi ogwira ntchito pachipatala pano amapezeka mokwanira mukakhala ndi mafunso komanso nkhwana mu nyengo ya mliri wa COVID-19?

Amapezeka mosavuta

Amapezeka koma osati kwambiri

Samapezeka

5. Kodi ndi nthawi zochuluka bwanji munakhutira ndi thandizo la HIV lomwe munalandira ku chipatala chino mliri wa COVID-19 usanayambe?

Nthawi zambiri

Nthawi zina

Sindinakhutilepo

6. Kodi ndi nthawi zochuluka bwanji mwakhala mukukhutira ndi thandizo la HIV lomwe mumalandira ku chipatala chino mu nyengo ya mliri wa COVID-19?

Nthawi zambiri

Nthawi zina

Sindimakhutira

iii a) Mafunso oyankha kukangalikakwa opeleka thandizo la zaumoyo malingana ndi kusintha kwa kapelekedwe ka thandizo la HIV munyengo ya mlili wa Coronavirus, Malawi

1. Kodi mumathandizidwa mwachangu mukabwera kudzalandila thandizo la HIV pa chipatala pano mliri wa COVID-19 usanayambe?

Inde

Nthawi zina

Ayi

2. Kodi mumathandizidwa mwachangu mukabwera kudzalandila thandizo la HIV pa chipatala pano mu nyengo ya mliri wa COVID-19?

Inde

Nthawi zina

Ayi

3. Kodi ogwira ntchito zachipatala ankakhala nanu nthawi yokwanira mukabwera kudzalandira thandizo la HIV pachipatala pano mliri wa COVID-19 usanayambe?

Inde

Nthawi zina

Ayi

4. Kodi ogwira ntchito zachipatala amakakhala nanu nthawi yokwanira mukabwera kudzalandira thandizo la HIV pachipatala pano mu nyengo ya mliri wa COVID-19?

Eya

Nthawi zina

Ayi

5. Kodi mungayese bwanji za kuthekera komanso kufunitsitsa kwa ogwira ntchito yazaumoyo kuyankha mafunso ndi kumvetsera nkawa zanu ku chipatala kuno mliri wa COVID-19 usanayambe?

Bwino

Bwino pang'ono

Pang'ono

6. Kodi mungayese bwanji za kuthekera komanso kufunitsitsa kwa ogwira ntchito yazaumoyo kuyankha mafunso ndi kumvetsera nkawa zanu ku chipatala kuno mu nyengo ya mliri wa COVID-19?

Bwino

Bwino pang'ono

Pang'ono

APPENDIX 6: KEY INFORMANT INTERVIEW GUIDE-ENGLISH

1. Introduction

This interview aims to identify and understand your experience with provision of HIV care in the periods before and during COVID-19. It will focus on themes around major HIV care policy changes, impact of the changes on reliability of your services, client satisfaction and how providers responded to the changes. The interview will also cover a discussion on challenges experienced during the implementation of the changes.

READ THE INFORMED CONSENT FORM TO THE RESPONDENT(S) AND ASK THEM TO SIGN IT.

2. Preliminary questions

1. Participant's sex: a) Male. b) Female
2. Cadre of healthcare workers: a) Medical doctor b) Clinical officer c) Nurse
d) Laboratorians e) Other healthcare carders
3. Have you worked in HIV care clinic at this facility before COVID-19 pandemic?
a) Yes b) No

if **No**, end the interview

if **Yes**, proceed to the next applicable questions

3. Key Informant Interview Guide

1. Since the start of COVID-19 pandemic in Malawi in 2020, there has been a lot of changes that have happened in the HIV programming to ensure that care is delivered while minimizing the spread of COVID-19 at facility level. What major policy changes to do with organization and delivery of HIV care at facility do you remember?
2. Most of the time, change in how things are done also results in changes in some aspects of the same. How has the change in approach to HIV care affected your work in the following areas?
 - The volume of clients you see each day
 - The amount of time you spend with each client
 - The quality of service you provide
 - Overall workload
3. How would you describe your willingness to implement the HIV care policy change?
 - What are the factors that have influenced your willingness to implement the change?
4. As you do your work, what challenges are you experiencing with implementation of the policy change?
5. What is your opinion on the effectiveness of the current HIV care policy in terms of ...
 - Making the most out of little (i.e. fewer visits)
 - Sustaining or even improving the quality of care
 - Client satisfaction with HIV care

APPENDIX 7: KEY INFORMANT INTERVIEW GUIDE-CHICHEWA

1. Ganizo lotsogolera

Kuyankhulana uku kukufuna kuzindikira ndikumvetsetsa zomwe mwakumana nazo popereka chisamaliro cha HIV m'nthawi ya COVID-19 isanachitike komanso nthawi yake. Kukambirana kwathu kukhudza mitu yokhudzana ndi kusintha kwakukulu kwa mfundo za kapelekedwe ka thandizo la HIV, zotsatira za kusintha kwa kudalirika kwa ntchito zanu, kukhutira kwa kasitomala komanso momwe opereker chithandizo adayankhira pa kusintha uku. Tikhudzanso za zovuta zomwe zakhala zikuchitika panthawi yomwe kusinthaku kudachitika.

WELENGANI FOMU LOPEMPHA CHILOLEZO KWA OTENGA NAWO MBALI
NDIPO ASAINIRE PAKUVOMELEZA KUTENGA NAWO MBALI

2. Mafunso oyamba

1. Otenga nawo mbali: a) Mwamuna. b) Mkazi
2. Udindo wawo: a) Dotolo b) Othandizira adotolo c) Namwino d) Ogwira mbali ya zopimapima e) adindo ena ogwira ntchito za umoyo
3. Kodi mudagwirapo ntchito pa chipatala chino mbali yopeleka thandizo la HIV mliri wa COVID-19 usanayambe?
a) Eya b) Ayi

Ngati **ayi**, thetsani kuyankhulana ndipo ngati **inde**, pitani ku mafunso otsatirawa

3. Ndomoko ya mafunso ofunika kwambiri

1. Chiyambireni mliri wa COVID-19 ku Malawi mchaka cha 2020, pakhala zosintha zambiri zomwe zachitika pamapulogalamu a kachilombo ka HIV pofuna kuwonetsetsa kuti chisamaliro chikuperekedwa ndikuchepetsa kufalikira kwa COVID-19 pazipatala. Ndi kusintha kwakukulu kotani kokhudza ndondomeko za kapelekedwe ka thandizo la HIV komwe mukukumbukira?
2. Nthawi zambiri, kusintha m'mene zinthu zimachitikira kumabweretsanso kusintha m'mbali zina. Kodi kusintha kwa kasamalidwe ka HIV kwakhudza bwanji ntchito yanu m'mbali zotsatirazi?
 - Kuchuluka kwa odwala omwe mumaona tsiku ndi tsiku
 - Kuchuluka kwa nthawi yomwe mumakhala ndi odwala aliyense
 - Kulongosoka kwa thandizo lomwe mumapeleka
 - Kuchuluka kwa ntchito
3. Mungafotokoze bwanji za kufunitsitsa kwanu kutsatira ndondomeka za kusintha kwa kapelekedwe ka thandizo la HIV?
 - Ndi zinthu ziti zomwe zakhudza kufunitsitsa kwanu kukwaniritsa kusinthaku?
4. Pamene mukugwira ntchito yanu, ndi zovuta ziti zomwe mukukumana nazo pakukwaniritsa kusintha kwa ndondomeko zopelekera thandizo la HIV?
5. Maganizo anu ndi otani pakuchita bwino kwa ndondomeko ya kapelekedwe ka thandizo la HIV pakali pano? ...
 - Kupindula ndi zochepe (ie maulendo ochepa obwera ku chipatala)
 - Kulimbikitsa kapena kupititsa patsogolo thandizo la za umoyo
 - Kukhutira kwanu ndi thandizo la HIV

APPENDIX 8: MASENO UNIVERSITY RESEARCH APPROVAL



**MASENO UNIVERSITY
SCHOOL OF GRADUATE STUDIES**

Office of the Dean

Our Ref: EL/ESM/07078/2019

Private Bag, MASENO, KENYA
Tel:(057)351 22/351008/351011
FAX: 254-057-351153/351221
Email: sgs@maseno.ac.ke

Date: 25th May, 2023

TO WHOM IT MAY CONCERN

RE: PROPOSAL APPROVAL FOR FELIX GENT— EL/ESM/07078/2019

The above named is registered in the Master of Public Health Programme of the School of Public Health and Community Development, Maseno University. This is to confirm that his research proposal titled "*Effectiveness of Healthcare Delivery System Reform in Optimizing Care for People Living with HIV during Corona Virus Pandemic Era, Gateway Clinic, Malawi*" has been approved for conduct of research subject to obtaining all other permissions/clearances that may be required beforehand.



DEAN, SCHOOL OF GRADUATE STUDIES

Maseno University

ISO 9001:2008 Certified



APPENDIX 9: BLANTYRE DHO INSTITUTIONAL PERMISSION

Telephone: Blantyre 01875332 / 01 877 401
Fax: 01 875 430 / 01 872 551
Communication should be addressed to:
Blantyre District Council
Director of Health and Social Services
0882002533; gkawalazira@yahoo.co.uk

In reply please quote No.

DISTRICT HEALTH OFFICE
P/BAG 66
BLANTYRE
MALAWI

15th June 2023

TO WHOM IT MAY CONCERN


Dear Sir/Madam

INSTITUTIONAL PERMISSION FOR THE STUDY TITLED "EFFECTIVENESS OF HEALTHCARE DELIVERY SYSTEM REFORM IN OPTIMIZING CARE FOR PEOPLE LIVING WITH HIV DURING CORONAVIRUS PANDEMIC ERA, GATEWAY CLINIC, MALAWI"

I write to confirm that Blantyre District Health office has granted permission Mr Felix Gent to conduct the study identified above at Gateway Clinic in our district. The study will provide the district with insight into HIV care during COVID-19 pandemic.

If you may require any further, please do not hesitate to contact the undersigned

Yours Faithfully,

PP 
Dr. Gift Kawalazira
DIRECTOR OF HEALTH AND SOCIAL SERVICES

Blantyre District Council
Director of Health & Social Services
15 JUN 2023
Private Bag 66
Blantyre

APPENDIX 10: MALAWI NATIONAL HEALTH SCIENCE RESEARCH COMMITTEE APPROVAL

Telephone: + 265 1 789 400
Facsimile: + 265 1 789 431
E-mail:
research@health.gov.mw
All Communications should be addressed to: The Secretary for Health



In reply please quote No. MED/4/36c
Ministry of Health
P.O. Box 30377
Lilongwe 3
Malawi

21st July 2023

Felix Gent

Maseno University School Of Public Health

Dear Sir/Madam

Protocol #23/07/4149: Effectiveness of Healthcare Delivery System Reform In Optimizing Care For People Living With Hiv During Coronavirus Pandemic Era, Gateway Clinic, Malawi"

Thank you for the above titled proposal that researcher submitted to the National Health Sciences Research Committee (NHSRC) for review. Please be advised that the NHSRC has **reviewed** and **approved** the above named study.

- **APPROVAL NUMBER** :4149
- The above details should be used on all correspondences, consent forms and documents as appropriate.
- **APPROVAL DATE** :21/07/2023
- **EXPIRATION DATE** :20/07/2024
This approval expires on 20/07/2024. After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the NHSRC Secretariat should be submitted one month before the expiration date for continuing review.
- **SERIOUS ADVERSE EVENT REPORTING:** All serious problems having to do with subject safety must be reported to the NHSRC within 10 working days using standard forms obtainable from the NHSRC Secretariat.
- **MODIFICATIONS:** Prior NHSRC approval using forms obtainable from the NHSRC Secretariat is required before implementing any changes in the protocol (including changes in the consent documents). You may not use any other consent documents besides those approved by the NHSRC.
- **TERMINATION OF STUDY:** On termination of a study, a report has to be submitted to the NHSRC using standard forms obtainable from the NHSRC Secretariat.
- **QUESTIONS:** Please contact the NHSRC on phone number +265 999397913 or by email on mohdocentre@gmail.com.
- **OTHER:** Please be reminded to send in copies of your final research results for our records (Health Research Database).

Kind regards from the NHSRC Secretariat.

CHAIRPERSON, NATIONAL HEALTH SCIENCES RESEARCH COMMITTEE
Promoting Ethical Conduct of Research¹



1

Executive Committee: Dr M. Joshua (Chairperson), Dr F. Sinyiza (Vice-Chairperson)
Registered with the USA Office for Human Research Protections (OHRP) as an International IRBIRB Number IRB00003905 FWA00005976

