

**COMMUNICATION FACTORS INFLUENCING ANTIRETROVIRAL THERAPY
NON-ADHERENCE AMONG TEST AND START CLIENTS IN ZOMBA DISTRICT,
MALAWI**

**MASTER OF ARTS IN HEALTH AND BEHAVIOUR CHANGE COMMUNICATION
(MHBCC) THESIS**

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UNIVERSITY OF MALAWI

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MALAWI**

**Master of Arts in Health and Behaviour Change Communication
(MHBCC) Thesis**

By

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**A Thesis Submitted to the Department of Language and Communication, Faculty of
Education and Media Studies, in Partial Fulfillment of the Requirements for a Master of
Arts Degree in Health and Behaviour Change Communication (MHBCC)**

University of Malawi

The Polytechnic

June 2021

DECLARATION

I, **Adson Victor Robert Nantchito**, declare that this thesis entitled “*Communication factors influencing antiretroviral therapy non-adherence among test and start clients in Zomba District, Malawi*” is my own work. It is submitted in partial fulfilment of the requirements for the Master of Arts in Health and Behaviour Change Communication at the University of Malawi. It has not been submitted for any degree or examination to any university or college.

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CERTIFICATE OF APPROVAL

We, the undersigned, certify that we have read and hereby recommend for acceptance by the University of Malawi, The Polytechnic, a thesis titled, “*Communication factors influencing antiretroviral therapy non-adherence among test and start clients in Zomba District, Malawi*”.

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Head of Department :

Signature :

Date :

DEDICATION

To my late father and mother who taught me never to give up even in situations that seem hopeless

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ABSTRACT

Malawi adopted test-and-start approach for initiating HIV diagnosed clients on antiretroviral therapy (ART) in HIV management in 2016. Despite notable improvements in ART coverage, adherence still remains suboptimal. A cross sectional convergent parallel mixed methods study was conducted amongst 325 test and start clients and 68 health workers and expert clients in Zomba District, to assess communication factors contributing to non-adherence. Quantitative data were collected using a structured questionnaire. Qualitative data was collected using topic guides for FGDs, KIIs and IDIs. Logistic regression was used in quantitative data analysis to test associations. Thematic analysis was used to analyse qualitative data. Despite lack of quantitative evidence that communication factors influence adherence, qualitative results showed that they in fact do. The following intra-personal factors had potential to influence nonadherence: lack of knowledge about test and start, hearing about test and start for first time at hospital, health feeling, denial and negative attitude towards test and start. Interpersonal communication factors such as disclosure, poor quality counselling, not freely talking about ART had potential to influence non-adherence. Only one factor, follow up calls by health worker, was significantly associated with adherence (OR=1.787, 95% C.I:1.410-2.513). Social cultural factors such as poverty and prolonged time spent at health facility potentially influence non-adherence. Long distance to health facility did not influence non-adherence but rather encouraged privacy of clients. Communication about test-and-start should begin at community level. For effective adherence, other media of communication such as radio, television and posters, should also be emphasized in communicating ART test and start messages. Health workers should ensure that clients are well educated on the importance of test and start prior to ART initiation. A system to follow up ART clients with missed scheduled appointments should be strengthened to enhance adherence.

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ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care
ART	Antiretroviral Therapy
CPMM	Convergent Parallel Mixed Methods
DHIS	District Health Information System
DHO	District Health Office
FGD	Focus Group Discussions
HBM	Health Belief Model
HF	Health Facility
HIV	Human Immunodeficiency Virus
KII	Key Informant Interviews
MPHIA	Malawi Population based HIV Impact Assessment
MoH	Ministry of Health
OPD	Outpatient Department
PEPFAR	President's Emergency Plan for AIDS Relief
PITC	Provider Initiated Testing and Counselling
PLHIV	People Living with HIV
PMTCT	Prevention of Mother to Child Transmission
RNA	Ribonucleic Acid
SCT	Social Cognitive Theory
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

1.1 Background

HIV remains a major global public health issue. By the end of year 2016, an estimated 36.7 million people were living with HIV, including 1.8 million children with a global HIV prevalence of 0.8% among adults (UNAIDS, 2017). Global trends in HIV infection show that there is an overall increase in HIV prevalence and considerable declines in AIDS related deaths largely attributable to the survival benefits of antiretroviral treatment (Kharsany et al., 2016). According to WHO(2011), the epidemic is more pronounced in low-income countries particularly in sub-Saharan Africa as it accounts for more than 70% of the global burden of the infection. Hence as Kharsany, et al (2016) rightly argue, success in HIV prevention in sub-Saharan Africa has the potential to impact on the global burden of HIV.

Antiretroviral therapy (ART) has significantly improved the morbidity and mortality of individuals infected with HIV (Sanjobo et al., 2008). Furthermore, adoption of test and start approach to ART initiation, a policy where individuals' diagnosed HIV positive are required to initiate ART within 1 to 7 days of HIV diagnosis (MoH, 2016), has significantly increased coverage of ART in Sub Saharan African countries (Forhan et al., 2017). However, lack of adherence to ART remains a key challenge to successful management of patients with HIV and AIDS. Hence as Nachega et al. (2010) argues, efforts to sustain adherence in Africa and elsewhere remain important goals to optimize outcomes for individuals and global HIV treatment.

Antiretroviral Therapy adherence reduces the viral copies in circulation to undetectable levels, thus viral suppression (Sanjobo et al., 2008). It is believed that ART clients who adhere to treatment regime achieve Low Detectable Levels (LDL) of HIV copies within six or twelve months of ART initiation (Chalker et al., 2008) Among other benefits, clients that have LDL HIV copies have reduced risk of sexual or mother-to-child transmission, thus may not transmit the HIV to others, are healthy, free from opportunistic infections and probably live longer. Sticker et al. (2014) argues that just like retention in care, adherence to antiretroviral treatment (ART) is a critical element of HIV care interventions and is closely associated with optimal individual and public health outcomes and cost effectiveness. On the contrary, clients that do not adhere to ART are a threat to the community because of increased treatment resistance (Heestermans et al., 2016), including continued transmission of the virus especially the resistant traits that are difficult to be managed. In addition, ART clients who discontinue treatment are at high risk of illness and death arising from AIDS-related conditions (Miller et al., 2010).

Hence an adherence to ART of 95% is required as an appropriate level to achieve maximal viral suppression (Bisson et al., 2008) and lower the rate of opportunistic infections (Paterson, 2000).

Malawi has one of the highest HIV prevalences in the world despite the impressive progress the country has made in controlling its HIV epidemic in recent years. The prevalence of HIV among adults' ages 15 to 64 years in Malawi is 10.6 % (MPHIA, 2016). In the year 2016, roughly 1.1 million people were living with HIV in Malawi, of whom 800,000 were adults aged 15–49 years, 200,000 were women and 100,000 children with an estimated 28,000 new cases of HIV annually (MPHIA 2016). According to UNAIDS (2016), a total of 725,000 are currently on treatment leaving 364,000 not on treatment. Furthermore, viral load suppression rate is low at 67.6% (MPHIA, 2016) and is suggestive of low adherence to medication.

1.1.1 History of ART provision in Malawi

ART was first introduced in Malawi in 2003 (Kumwenda, 2011). During that time, only 3,000 of the clinically eligible patients could access ART mainly because most people could not afford this treatment as the medication was not for free. By April 2003, Medicines Sans Frontiers (MSF) Luxembourg also started giving out ART in Thyolo (Kemp et al., 2003). With support from the Global Fund, the Government of Malawi introduced ART at no cost to all clinically eligible PLHIV in June 2004 (Libamba et al., 2006). Since then, the number of people accessing ART as well as the number of health facilities offering ART services started increasing.

Prior to the year 2016, individuals' diagnosed HIV positive were first enrolled in pre-ART and only initiated treatment when CD4 count reached minimum level or at WHO clinical stage 3, a symptomatic stage where client exhibited signs and symptoms of weight loss of greater than 10% of total body weight, prolonged diarrhea, Pulmonary Tuberculosis, and severe bacterial infections such as pneumonia and pyelonephritis. From the year 2016 when test and start was adopted until present, individuals' diagnosed HIV positive are required to initiate treatment within 1 to 7 days of HIV diagnosis. The Test and start approach has further expanded coverage of ART as well as sites providing ART services. Currently, there are about 207 ART sites countrywide (MOH, 2017). By the end of December 2017, a total of 53,000 PLHIV were reported alive on ART at 42 ART clinics in Zomba district (Dignitas, 2017).

1.1.2 Test and start approach to ART initiation in Malawi

Since an innovative study by Granich in 2009, it has been recommended to initiate ART as soon as an individual is diagnosed with an HIV infection (Kim et al., 2018). Since August 2016, Malawi adopted *test and start* approach for initiating HIV positive diagnosed clients on (ART

in HIV management in order to fast track ART coverage. The national HIV test and start initiative was launched to facilitate achievement of the 90-90-90 UNAIDS targets. The 90-90-90 initiative was first launched in the year 2014 at the World AIDS Conference, with an ambitious aim to end the HIV pandemic by 2030 (UNAIDS, 2014). This means that 90% of all people living with HIV should know their HIV positive status, 90% of all people diagnosed with HIV infection should receive antiretroviral treatment and 90% of those on ART should be retained in care and be virally suppressed. Currently, approximately all public health facilities in Malawi are delivering free ART to individuals diagnosed HIV positive regardless of their CD4 count. The test and start policy is primarily aimed at optimizing ART coverage with an aim to contribute to achieving the 90 -90- 90 UNAIDS targets (MoH, 2016). The test and start approach to ART initiation aims to benefit infected individuals through early HIV detection while decreasing their subsequent HIV transmission by lowering community levels of HIV Ribonucleic Acid (RNA) (Granich et al., 2008).

Test and start approach to ART is further motivated by the persistent evidence that HIV prevention efforts alone have not been able to control HIV transmission to date, with the view that combinations of interventions will be required to contain the epidemic (Hall, 2008 as cited in Walensky et al., 2010). According to MoH (2016), ART for all HIV infected people is currently being regarded the most effective prevention method available so far. It is believed that early ART initiation reduces risk of serious HIV related illnesses that can occur even in the early stages of HIV infection, resulting in slow progression to developing AIDS through viral suppression (Granich et al., 2008). In addition, early initiation to treatment is believed to greatly reduce the risk of onward HIV transmission to sexual partners and from mother to child. (MoH, 2016). Granich et al(2008), further argues that herd immunity can be achieved by enhancing universal testing and expanded ART among all those who are diagnosed. The policy assumes a prolonged high-level adherence maintenance and anticipates bringing HIV to epidemic control levels (Nah et al., 2017). In Malawi, the policy has seen rapid scale-up of antiretroviral treatment, with approximately 800, 000 PLHIV initiated on antiretroviral treatment (ART) at the end of 2016.

A review of Ministry of Health ART utilisation data for Zomba District Health Office (DHO) over a period of three years from the year 2016 to year 2018 indicates an upward trajectory in the number of ART defaulters since the introduction of test and start approach to ART. The data further indicates that 66.7% of the defaulters are test and start clients (MoH,2018) as shown in Figure 1.

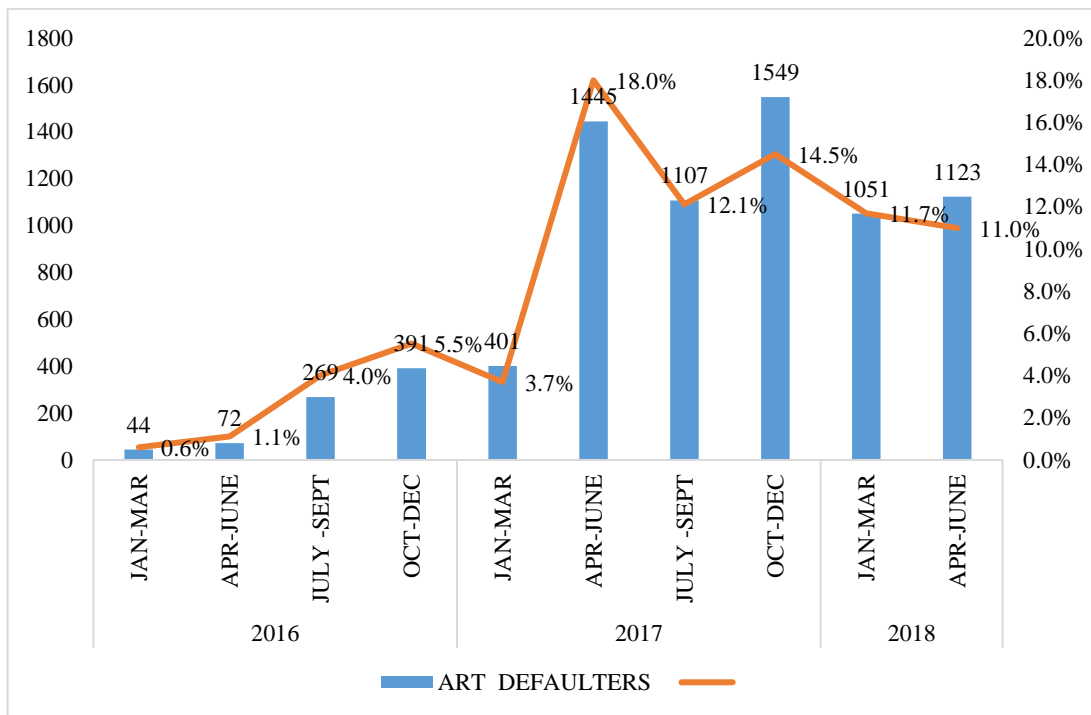


Figure 1: ART defaulter trends in Zomba District from 2016 to 2018

The present study aimed to assess potential communication factors that may be related to suboptimal adherence in Zomba District specifically in the context of test and start. Potential communication factors in the context of the study are defined as all elements or behaviour change variables that are communication related. They are deemed to influence behaviour at different levels such as intrapersonal, interpersonal and community or environment. Intrapersonal communication refers to all forms of communication occurring within an individual that may include self-talk and acts of imagination (McLean, 2005) and may influence decision making and personal choices. Interpersonal communication is a process by which people exchange information, feelings, and meanings through verbal and nonverbal messages (Gamble & Gamble, 2013). It occurs between one individual and another such as with peers, family members as well as between health workers and clients or an individual with a group. At environmental level, it is the forces of the environment that people interact with such as culture that may affect pattern of behaviour (McLean, 2005).

1.1.3 Behaviour Change Communication and Adherence to ART

The aim of behaviour change communication is ultimate change of behaviour among individuals. In this context, the desired behaviour is adherence to ART among test and start clients. This study used the model of ART adherence, which is the achievement of 95% or more drug adherence behaviors in individuals on ART (Sagarduy et al., 2017) to assess the

communication related factors that may influence ART non-adherence specifically in the context of test and start.

Communication is considered as a vehicle to bring about change of behaviour among individuals' or group behaviour. According to Corcoran (2007), strategic use of behaviour change communication (BCC) applies targeted messages and tailored approaches to promote healthy behaviours. Social and behaviour change communication encompasses health communication, social and community mobilization as well as Advocacy (Lozare et al., 2014). It consists of components such as intrapersonal communication that refers to communication occurring within an individual, interpersonal communication such as between health workers and clients and community at large as well as multi-level mass media campaigns. Furthermore, evidence-based, and theory-driven behaviour change communication interventions are an integral part of all types of health promotion, disease prevention as well as promoting adherence to medication for chronic disease conditions (Araujo-Soares et al ., 2018).

At the time when test and start was being implemented, there was a temporary and adhoc communication strategy that was put in place to guide the communication process regarding the concept. According to an interview with Joel Suzi, C4D expert for USAID in 2018, initial guidelines were developed just to sensitize people on the change of protocol. The key focus was awareness, that people who test positive would immediately be put on treatment regardless of their CD4 count. Messages were developed and communicated through Billboards, poster, and radio as well as television. However, they were not guided by a clear communication strategy. This was an adhoc strategy as the MoH in collaboration with other health actors were to develop a comprehensive communication strategy later. Now, the strategy is in draft form awaiting governments approval and yet to be rolled out. Therefore, if people are not adhering to ART despite current communication efforts, it can be argued that the current communication strategies are not effective to contribute to adherence behaviour among ART clients test and starttest and starttest and starttest and starttest and start

1.2 Problem Statement

The introduction of ART and its scale up has led to the improvement of quality of life of people living with HIV (Forhan et al., 2017). Additionally, the adoption of test and start approach to ART initiation in the year 2016, led to a rapid increase in number of people accessing antiretroviral therapy whilst HIV-related deaths have decreased (UNAIDS, 2017). However, a review of MoH ART utilisation data from 2016 to 2018 indicates that despite rapid increase in number of people initiating ART, there are high rates of non-adherence to ART among test and start clients in Zomba (MoH, 2018). Of over 80, 000 clients ever registered on ART in Zomba District 24.9% were reported to have defaulted on ART as of July 2018 leaving 75.1% as current on ART (MoH, 2018). Based on earlier studies on adherence, a level of 95% or more is said to be required to prevent the development of resistant viruses (Low-Beer et al., 2002; Vervourt et al., 2007).

The roll out of the test and start intervention largely depends on effective communication approaches delivered through multiple channels for specific priority populations to facilitate not only demand and access to ART, but also adherence behaviour and retention in care. There is limited documentation so far on the effectiveness of communication on test and start and people's behavior response and acceptance to the concept translating into high defaulter rates among test and start clients. The high defaulter rate in Zomba District is suggestive of suboptimal adherence behavior to ART since defaulting on ART is a key indicator of non-adherencetest and start.

1.3 Aim of Study

The main aim of the study was to assess communication related factors that influence non-adherence to antiretroviral therapy among test and start clients at selected health facilities in Zomba District, Southern Malawi as of April 2019.

1.3.1 Specific objectives

- i. To assess intrapersonal/patient communication factors that influence non-adherence to ART as at April 2019.
- ii. To determine interpersonal communication factors that influence non-adherence to ART as at April 2019.
- iii. To analyse social cultural and environmental communication factors that influence non-adherence to ART as at April 2019.

1.4 Research Questions

- i. How do intrapersonal communication factors influence non-adherence to ART?
- ii. How do interpersonal communication factors influence non-adherence to ART?
- iii. What are social cultural and environment communication factors that influence non-adherence to ART?

1.5 Justification

Since the introduction of test and start approach to ART, there is limited documentation and little research that has been conducted so far to assess the influence of communication related factors on adherence to ART focussing on the test and start regime of ART initiation and its impact on adherence that might manifest in high defaulter rates.

The aim of study therefore was to assess the communication factors that may contribute to non-adherence among clients who started ART within the test and start context in Zomba district. Zomba was purposely chosen for its high HIV prevalence in the South Eastern Region at 15.6%, third from Blantyre City with prevalence 18.2% (MPHIA, 2016). In addition, 24.9% of ART clients were reported to have defaulted on ART in Zomba alone in December 2017 as compared to an average of 8.5% in the previous quarters particularly before test and start (Dignitas, 2017). It was therefore important to investigate the factors that may affect adherence in the event of test and start approach to ART initiation.

The study was a departure from studying non-adherence in general to the context of test and start. The study is therefore important as it evaluated the underlying communication related barriers or behavior determinants associated with test and start with specific focus to ART medication adherence as a behavior. The findings of the study provide recommendations to help modify key behaviour change messages and communication approaches for promoting and ensuring optimal adherence to ART especially among clients currently being initiated on ART through test and start approach. A better understanding of the level of non-adherence and the communication factors associated with it, are important clinical and public health goals

Additionally, many studies have used qualitative approach when conducting research on medication adherence issues, while only a few have used quantitative approach. This study combined both qualitative and quantitative methods to have a comprehensive understanding of the results.

1.6 Structure of the Thesis

1.6.1 Chapter 1: Introduction

This chapter focusses on the background of HIV/AIDS concept in general, the provision of ART to people living with HIV and the history of ART provision in Malawi. The chapter provides the context or setting for this study which is assessment of communication factors and ART adherence among test and start clients. It highlights the problem statement which this study attempted to address and outlines the specific objectives of the study as well as research questions which the study attempted to answer. Key issue in this chapter which is also the research gap is that there is little documentation/research on communication factors that may influence non-adherence to ART among test and start clients.

1.6.2 Chapter 2: Literature review

This chapter mainly focuses on the literature review highlighting factors that influence non-adherence to ART that other researchers have found. It first defines adherence as a concept. It gives a brief account of factors influencing adherence to medication for chronic (long term) disease conditions in general. It then seeks to highlight the key factors influencing non-adherence in the general ART provision in the previous approach before test and start. The factors have been divided into themes according to the objectives of this study. These include intrapersonal communication factors, interpersonal communication factors as well as socio cultural factors. However, the literature does not show the factors as relating to test and start approach to ART provision as there is limited research to that effect. The chapter attempts to fill the literature gap by discussing the factors from a communication perspective as well as focusing on the test and start clients. It also describes the theoretical framework that underpin the study.

1.6.3 Chapter 3: Methodology

This chapter describes the methodology that was used in this study which is the Convergent Parallel Mixed Methods design (CPMM). It gives an outline of the study design, study setting which in this context is Zomba district, study population being test and start ART clients, sampling procedure and sample size, description of study participants, data collection and data analysis plan. It also explains on ethical considerations. It also highlights measures that were taken to improve the quality and relevance of this study.

1.6.4 Chapter 4: Results and Discussion

This chapter focusses on the presentation of the results from quantitative and qualitative data analysis. The chapter highlights demographic information of sample, gender distribution, age, marital status, education, and occupation. Chi-square tests results of association between the demographic variables and adherence are presented. Further, logistic regression analysis results are presented in themes based on the objectives that include intrapersonal, interpersonal, and socio-cultural communication factors that may influence adherence among test and start ART clients. Results are complimented by qualitative findings. In addition, the chapter presents a detailed discussion of the findings.

1.6.5 Chapter 5: Conclusions and Recommendations

This is the final chapter, which concludes the study report presented under the theme of each of the objectives mentioned. It further puts forward what is thought to be effective solutions towards addressing challenges identified as factors that potentially influence non-adherence among test and start ART clients. In addition, strengths and limitations of the study have been presented.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter provides extensive literature and research related to ART adherence. It first defines adherence as a concept then gives a brief account of factors influencing adherence to medication for chronic disease conditions in general. It then highlights the key factors influencing non-adherence in the general ART provision in the previous approach before test and start. The literature therefore summarises diverse spectrum of views about ART adherence factors. The factors have been divided into themes according to the objectives of this study. These include intrapersonal, interpersonal communication factors as well as socio cultural factors. The chapter ends by presenting the knowledge gap that the study seeks to fill.

2.2 Concept of ART adherence

Adherence to medication is defined as the extent to which a person's behaviour of taking medication, following a diet or executing lifestyle changes correspond with the recommendations from the health provider (WHO, 2003). According to MoH (2016), ART adherence is measured by ART providers based on pill count upon the client's visit to the clinic. This constitute taking at least 95% of drugs issued by the time of next visit. Studies have indicated that a life near-perfect pill taking in ART is required to achieve viral suppression, avoid emergence of viral resistance, and prevent recurrence of opportunistic infections (Veenstra et al., 2010; Nakiyemba et al., 2006). The time of day when drugs are taken by an individual also determines adherence as it needs to be consistent. Nachega et al (2010) confirms that patients who do not take ART drugs at the right time and in required quantities are classified as poor or non-adherent to medication. Adherence is also measured through viral load monitoring. An individual is considered adherent if their viral load is less than (1000 copies)/ $[\text{ml}]^{-3}$, above which they are assumed to be non-adherent.

In this study, adherence to ART is being extended to mean client's ability to attend all clinic visits as prescribed by the health workers. That is defaulting on ART is being considered as a measure of non-adherence to ART. Adherence to ART medication is a complex behavior that is influenced by a wide range of factors, A few studies have found that there exist communication related factors that influence non-adherence to ART and can be divided into various categories. These communication factors can be at intrapersonal, interpersonal as well social cultural and environment level.

2.3 Intrapersonal/Patient Factors

2.3.1 Knowledge/Awareness of Test and start

Knowledge about a particular subject has been viewed by many researchers as key to behaviour response and change. Previous studies have assessed knowledge on and benefits of ART as to whether it can increase adherence or not. For instance, in a descriptive cross-sectional mixed methods study, Boateng et al. (2013) assessed knowledge about ART and found that over 90% had knowledge about ART and that it had positive influence on adherence in that those that had knowledge about ART had increased adherence. According to another study by Cane et al. (2017), having knowledge about concepts of health, disease and HIV was seen both as a facilitator of ART adherence by ART clients as it allowed a better understanding of benefits of HIV treatment and consequences of non-compliance. In another mixed methods study, Wast et al. (2012) found that lack of knowledge about ART medications significantly affected non-adherence. In this context therefore, knowledge about test and start concept of ART may also have an influence on adherence behaviour which the study attempted to assess.

Even though the population may be aware of the benefits of ART in general, knowledge and awareness about test and start has not been explored to find out if it affects adherence especially in the context of test and start. However, it is a possible factor that needs to be assessed since awareness of the concept may perhaps affect people's preparedness to ART as they access HIV testing services. This study was an attempt to address this gap in literature.

2.3.2 Perceived health

Perceived health in the context of this study is defined as a person's belief and feeling that they are enjoying good health and they are physically and mentally fit. Golub et al (2006) propose reframing the traditional view of adherence/non-adherence from a treatment problem to an illness problem. In their study of 42 HIV-positive men and women, the authors identified factors as affecting adherence; among them included an individual's feeling of being healthy. With respect to test and start approach, the perception of being health may be important to investigate further since most people diagnosed HIV positive are required to start ART immediately even in the absence of symptoms or any form of illness. In another qualitative study on ART adherence, Mukumbang et al. (2017) found that clients stopped taking ART when they felt that they had gained weight because of taking the ARVs and felt that there was no need to continue taking them. In test and start context, the same factor may influence clients not to even start ART as early as possible.

2.3.3 Personal beliefs

Personal beliefs is part of intrapersonal communication and has been shown to affect behaviour exhibited by individuals. In a qualitative study on barriers and facilitators to patients adherence to ART medication in Zambia by Sanjobo et al(2008), it was found that beliefs about ART and side-effects were mentioned as barriers to adherence. Study revealed that certain beliefs about ART could act as barriers to adherence. Kumarasamy et al (2005) study of the barriers and facilitators of ART adherence among men and women in Chennai, India revealed that facilitators of adherence include perceived benefits of ART, perceptions about the consequences of non-adherence and social support if available. Some factors agree to some elements of the Health Belief model hence the need to investigate them in Malawi context.

2.3.4 Self-efficacy

Self-efficacy refers to the belief or beliefs a person holds in terms of their own ability to successfully perform the behavior required to produce certain outcomes (Bandura, 1999; Martos-Mendez, 2015). In relation to this study, ART client that feels able to successfully fulfill medical recommendations regarding medication, is deemed to be more likely to successfully perform appropriate health behaviors. Many studies have shown that self-efficacy is positively associated with treatment adherence behavior (Chen et al., 2013) and has received considerable attention as a predictor of treatment failure (Martos-Mendez, 2015).

Other studies have revealed that personal motivation and self-efficacy contribute to program retention and are affected by other individual-level experiences such as perceived health benefits or disease severity (Roura, et al., 2009). Wenger et al. (1999) identified some of the individual factors affecting adherence as patients' beliefs and perceptions about treatment, side effects to medication, depression, and stress. However, by now many people are supposedly aware of the effectiveness of ART. Many people are also aware that poor adherence may result in viral resistance and treatment failure. This study sought to understand self-efficacy in the context of test and start as well as subsequent adherence to ART.

Furthermore, self-discrimination may remain a problem for many hence the need to investigate the factor further. Self-stigma has been shown by other researchers as one of the reasons why some patients discontinued ARV treatment. According to Mukumbang,et al(2017), patients do not want to disclose their HIV status to either their marital partners or other members of their social network for fear of domestic violence, partner abandonment, or rejection by the community.

2.4 Interpersonal Communication Factors

2.4.1 Disclosure of HIV positive Status

Disclosure of HIV status is an example of interpersonal communication and has been seen to have a positive correlation with adherence (Annie, 2015) and as reported by the World Health Organization (WHO), on guidelines on HIV disclosure counseling for children up to 12 years of age in HIV/AIDS programme (WHO, 2011). The authors observed that disclosure is of great importance and that had implications on long term ART adherence. In a qualitative study on conceptualizing the factors affecting retention in care of patients on antiretroviral treatment in Kabwe District, Zambia, Using the Ecological Framework by Mukumbang et al. (2017) revealed that patients do not want to disclose their HIV status to either their marital partners or other members of their social network for fear of domestic violence, partner abandonment, or rejection by the community (Mukumbang et al., 2017). Fear of disclosure of HIV/AIDS status or being seen taking medication was also identified as a barrier to adherence in previous studies (Mills et al., 2006; Nachega et al., 2006). Similarly, other people's positive perception about ART and in particular the opinions of those already on therapy, influenced individuals' decisions to test and stay on treatment. (Roura et al., 2009). The study therefore sought to better understand issues surrounding disclosure in the context of test and start ART clients and adherence to ART.

2.4.2 Provider and Client Interaction

Interaction between healthcare provider and patient is believed to affect adherence to ART. This can range from attitudes to the actual face to face interaction. A study that was conducted in Namibia on factors associated with ART adherence found that ART patients who experienced negative attitudes from health workers were reluctant to return for follow-up appointments (Tobias, 2008). In another study, Sanjobo et al. (2008) found out that lack of counselling skills and patient follow up influenced non-adherence. Kumwenda (2011) also observed that the kind of counseling support clients received from the clinic has an influence on adherence. This relationship however needs to be assessed further in the context of test and start.

Additionally, a qualitative study on ART adherence by Kumwenda (2011) found that patients complained that some nurses were not approachable resulting in patients not being able to tell health workers their problems. This is an example of health workers' negative attitude. In another study, Reda et al. (2009), observed that the ability to ask questions and the belief that

their concerns were heard improved women's ability to take ART. Poor relationships such as beliefs that the staff were uncaring or unsympathetic hindered taking ART. Similarly, when Young(2000) interviewed incarcerated women about general health care, she reported that the most positive experiences were related to being treated as an individual with caring and compassionate attention from the health care providers (Reda et al, 2009).

2.4.3 Stigma and discrimination

Stigma and discrimination are also known to be associated with increasing poor adherence to ART (WHO, 2006; Zuurmond, 2008). Stigma is understood as the feelings of disapproval people have towards PLHIV (UNAIDS, 2005). Discrimination is defined as the unfair and unjust treatment of an individual based on his/her perceived or real HIV status (UNAIDS, 2003). According to Rao et al (2007) the most common stigmatizing and discrimination attitudes and actions include avoidance, ridicule, and harassment. In the early 2000s, stigma and discrimination were known to cause some PLHIV to hide their HIV status for fear of consequences like losing their jobs and marriages (WHO, 2006). For instance, a study in Botswana found that PLHIVs felt that they could not disclose their positive sero status for fear of losing jobs (Ehlers & Tshisuyi, 2015) . However recently, with increased awareness on stigma and introduction of HIV workplace policies, managers have accepted the issue of HIV/AIDS hence fears of losing jobs are history.

2.5 Social-cultural and Environment factors

2.5.1 Transport cost

Several studies in ART adherence have reported cost of transport to health facility as one factor that influence non-adherence. Common reasons reported for missed doses include financial trouble that prevent caregivers of children or adult patients from collecting medication on time, distance barrier or lack of transportation facilities to the ART clinic (Reda et al., 2011) travel distance and additional costs incurred traveling to ART centres may contribute to non-retention in the care of patients on ART programme more so for patients who cannot afford it. While some participants reported travel distance to ART centres as a barrier to accessing treatment, others also mentioned lack of money to pay for transport (Mukumbang et al., 2017). Studies in Uganda and Tanzania reported that transportation costs are considered serious obstacles to taking ART (Sanjoboet et al., 2008; Reda et al., 2011).

2.5.2 Distance to health Facility

Distance is a communication related factor in the sense that it can affect how easy or difficult people can access information. Several studies have investigated the relationship between

distance to health facility and ART adherence. A study in Zambia by Mukumbang et al. (2017) found long distance to ART centres as a barrier to adherence. Paterson (2010) found that short distance to a health facility influences positive adherence. In another study in Nepal, Wasti et al. (2012) found that long travelling distance to and from ART sites impacted negatively on adherence. Another study however found different results about distance and adherence. Bezabhe et al. (2014) in a qualitative study of barriers and facilitators to ART drug therapy and retention in care among adult HIV positive patients in Ethiopia found that ART clients preferred to receive treatment in clinics far away from home to avoid disclosure of their HIV status to their community members.

2.5.3 Privacy

Privacy in the context of the present study refer to right of physical privacy and information about the client. Apart from being beneficial to the client, privacy can also promote effective communication between physician and patient thereby facilitate positive adherence outcomes. Sanjobo et al. (2008) found out that lack of infrastructure to conduct counselling as an issue related to privacy, was reported as a barrier to adherence. Similarly, Wast et al. (2012) found that not wanting others to notice that they are on ART influenced non-adherence to ART. This has a communication effect to ART clients as assurance of privacy may influence client to show up at the health facility on next visit. There is limited data on the aspects of health facility setting in relation to privacy and adherence of which the present study assessed.

2.5.4 Religion or Faith healing and Adherence

Mckiney et al. (2014) found out that religion also contributes to lower or non-adherence among patients because patients are either encouraged to stop taking ART after being prayed for. Their study further revealed that most women's perception was that if they pray harder, they could eventually be healed and not keep taking medications. However, this may not apply to women only. Mukumbang et al. (2017) studied factors affecting retention among men and women and found out that trust in faith healing and the use of other herbal remedies influences retention in care which is related to adherence. With test and start people might also rely on religion as opposed to medication leading to non-adherence.

2.5.5 Availability of staff

Staff shortage has been identified as a factor influencing retention in care of patients on ART. This is because staff shortages lead to long queues at the clinic waiting area and consequently, long waiting times. Because of this, patients get frustrated and tired of waiting to be seen (Mukumbang et al., 2017).

As discussed above, previous studies have explored the factors that affect adherence on ART in general. There is limited or no research however to explore adherence in the context of tTest and start and with specific focus on communication related factors. The study will focus on test and start concept of ART with respect to no-adherence based on the understanding that previous research has not studied non-adherence in this contexttest and start.

2.6 Conceptual Framework

The study was guided by deductive research approach. This is because the study used an existing model of behavior change to understand the specifics underlying ART adherence. The study therefore was guided by the Socio Ecological Model (SEM). The SEM is a theory-based framework for understanding the multifaceted and interactive effects of personal and environmental factors that determine behaviours and for identifying behavioural and organizational leverage points and intermediaries for health promotion within organizations. (McLaren et al., 2005; Bronfenbrenner, 1979). The model attempts to expound knowledge, attitudes, practices (KAP), skills, belief systems, religious systems, economic systems, self efficacy, collective efficacy, cultural values, and norms that influence behaviour at different levels. SEM underscores the need for a holistic and comprehensive social and behaviour change communication (SBCC) interventions, targeting individuals, their families, communities as well as societal structures, instruments, and policies (McLeroy et al., 1988) that can either promote or frustrate the adoption of health seeking behaviours. There are five nested, hierarchical levels of the SEM: Individual, interpersonal, community, organizational, and policy/enabling environment as shown in figure 2. Table 1 briefly describes each of the SEM levels.

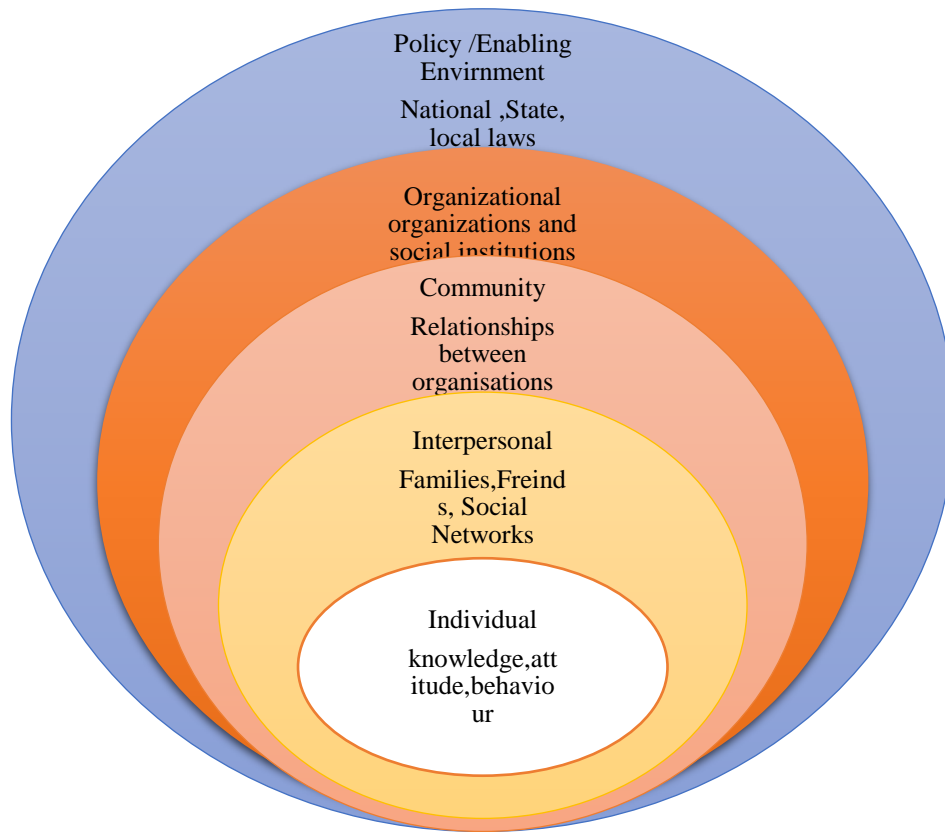


Figure 2: The Socio Ecological Model

Table 1: Summary description of the SEM levels

SEM Level	Description
Individual	<ul style="list-style-type: none"> Characteristics of an individual that influence behaviour change, including knowledge, attitudes, behaviour, self-efficacy, developmental history, gender, age, religious identity, racial/ethnic/caste identity, sexual orientation, socio-economic status, financial resources, values, goals, expectations, and others.
Interpersonal	<ul style="list-style-type: none"> Formal (and informal) social networks and social support systems that can influence individual behaviours, including family, friends, peers, co-workers, religious networks, customs or traditions.
Community	<ul style="list-style-type: none"> Relationships among organizations, institutions, and informational networks within defined boundaries, including the built environment (e.g., parks), village associations, community leaders, businesses, and transportation.
Organizational	<ul style="list-style-type: none"> Organizations or social institutions with rules and regulations for operations that affect how, or how well, services are provided to an individual or group.
Policy/Enabling Environment	<ul style="list-style-type: none"> Local, state, national and global laws and policies, including policies regarding the allocation of resources for access to healthcare services and restrictive policies (e.g, high fees or taxes for health services)

Despite the SEM limitations that changing lifestyles is extremely difficult and that the model does not give insight into how much an effect has over another, making it difficult for influencers to uncover which aspect of the model they can focus more on to make a change in

their environment or personal actions, SEM is still useful in understanding reasons for certain behaviours and provides entry points for dealing with the behaviours.

2.7 Social Cognitive Theory

Social cognitive theory (SCT) is built on the notion that human behavior is not an innate behaviour (Harinie et al., 2017). Social cognitive theory defines learning as an internal mental process that may or may not be reflected in immediate behavioral change (Bandura, 1986). Psychologists argue that human behavior is formed because of the interaction of environmental factors, both external and internal environment. According to Bandura, there are five basic principles of the SCT, namely; people learn by observing others; learning is internal; learning is goal-directed behavior, there are three types of reinforcers of behaviors and reciprocal determinism.

This study will dwell on the reciprocal causation or determination of human behaviour. The principle alludes that learning involves the interaction of several factors, such as behavior, environment, storing information in memory and personal factors (i.e., beliefs & expectations: e.g., relevant to ability). Such interactive effects are considered "mutually influencing" -- usually referred to as reciprocity. The internal Principle of SCLT is that people are only partial products of their environments. Our choices are influenced by our beliefs as well as our capabilities (Bandura, 1997). Some scholars in SCT like Betz et al. (2007) and Green & Peil, (2009) supported Bandura's view of reciprocal determinism and define human behaviour as a triadic, dynamic, and reciprocal interaction of personal factors, behaviour, and the environment. On a closer observation, these three fundamentals work in a reciprocal nature. Figure 3 shows these principles more clearly.

The theory therefore emphasises that seeking to understand and influence behaviour by addressing personal factors alone, for example, is unlikely to work, because it fails to take into account the complex and interrelated nature of the factors that influence what we do, that is to say, we do not act in isolation, and most people are influenced to a very greater extent by the people around them and the environment in which they live. (Behaviourworks, 2015).

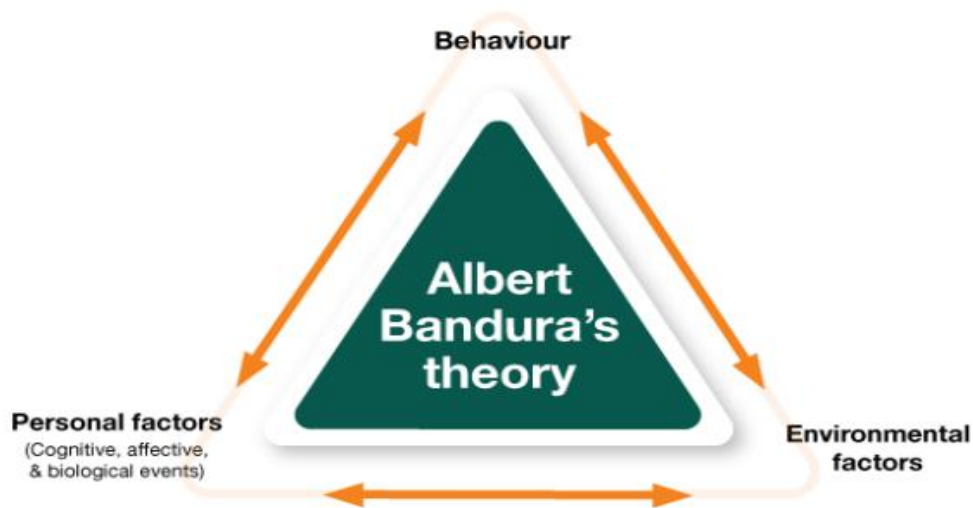


Figure 3: Social Cognitive Theory adapted from BehaviourWorks, 2015

Based on Bandura's Social Cognitive theory, the study assessed the personal, interpersonal and sociocultural factors that may influence non-adherence to ART in the context of test and start approach.

In this study therefore, using the SEM and SCT frameworks combined, and their associated levels of behaviours change influences, possible factors that other researchers have previously found to influence non-adherence have been listed. The possible factors were used to formulate another conceptual framework as shown in figure 4.

CONCEPTUAL FRAMEWORK

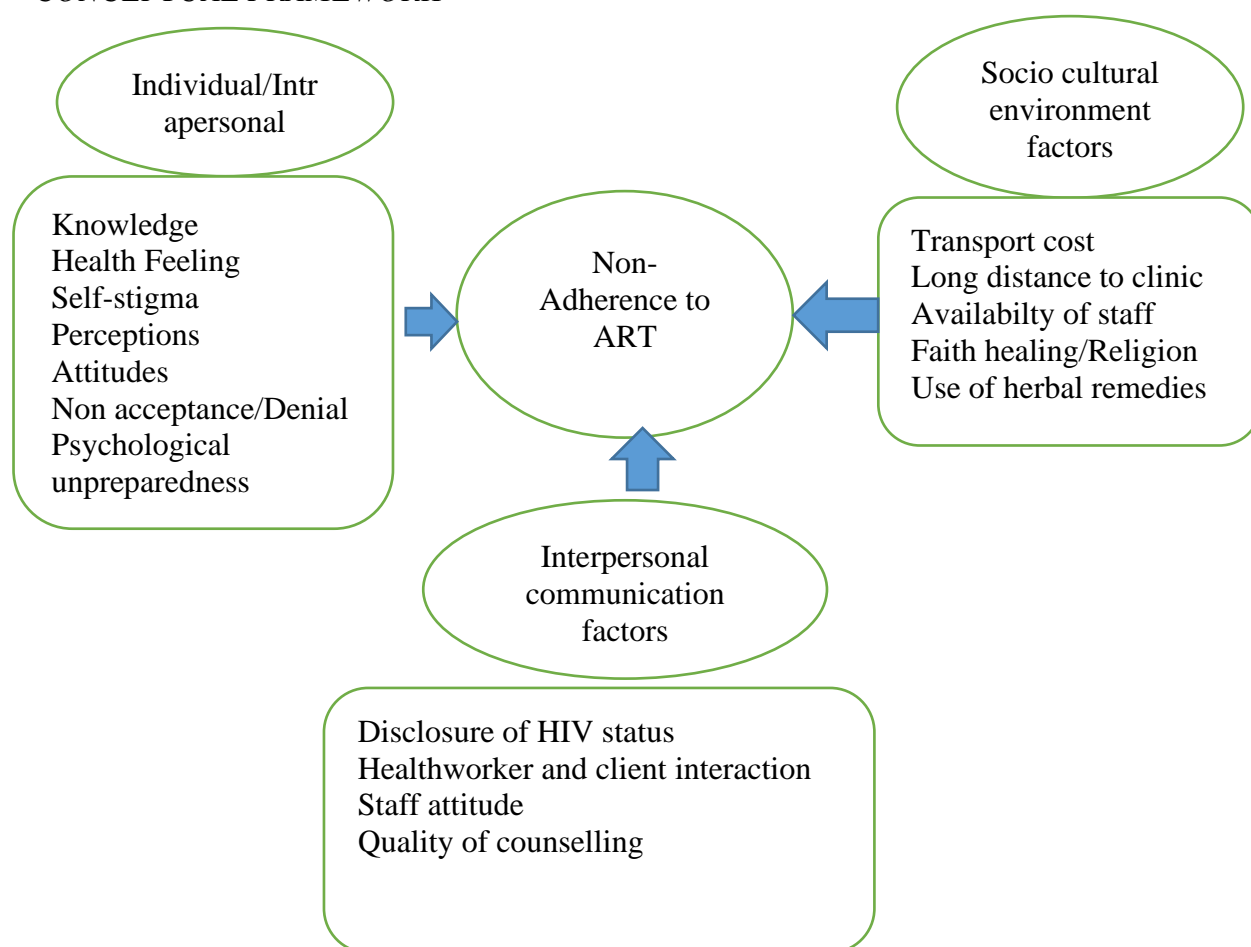


Figure 4: Conceptual framework of all possible factors that influence adherence to ART

2.8 Chapter Summary and Research Gaps

HIV remains a major global public health issue. The global HIV prevalence is estimated at 0.8% meaning that 36.7 million people were living with HIV by end of the year 2017 (UNAIDS, 2017). Adoption of Test and start approach to ART initiation has significantly increased coverage of ART in Sub-Saharan Africa (Forhan et al., 2017). Malawi has one of the highest HIV prevalence in the world, 10.6 % (MPHIA, 2016) despite the impressive progress the country has made in controlling its HIV epidemic in recent years. By the end of the year 2016, there were 1.1m PLHIV in Malawi and an estimated 28,000 new cases of HIV annually (MPHIA, 2016). The Malawi government adopted an HIV/ART Test and start strategy in August 2016. The policy has led to substantial increases in number of people started on ART. However, successful implementation of the policy largely depends on optimal adherence to the lifelong ART.

From the literature presented in this chapter, it shows that many studies have found that there are complex factors that influence adherence to medication in general as well as to ART

specifically. However, the factors discussed relate to the previous approach of ART imitation and not test and start. Currently, there is little documentation on whether the same factors do influence adherence or non-adherence with the recently adopted approach of test and start.

The study used the SEM to guide the research. The SEM is based on the notion that there exist multiple levels of influence to behaviour change namely personal, interpersonal, community, organizational as well as policy and that these levels are interactive and reinforcing. In addition, SCT was mainly used to explain results. The construct's reciprocal determinism is used. This construct is based on the notion that behaviour is a product of several factors such as personal and environment factors that interact with each other.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter outlines the processes that were followed and methods that were used in conducting this research. It gives detailed explanations of the study design, study setting, study population, sampling procedure and sample size, description of study participants, data collection and data analysis plan. It also explains on ethical issues that were taken into consideration in the study. Finally, the chapter highlights measures that were taken to improve the quality and relevance of this study.

3.2 Study Design

The study used cross-sectional mixed methods study design. Specifically, the study used the Convergent Parallel Mixed Methods (CPMM) design. Creswell (2014) indicates that in this method, the researcher collects both quantitative and qualitative data concurrently, analyse it separately and compare the results to confirm if findings agree with each other. It is pragmatic (Feilzer, 2010) and provides a stronger understanding of the problem or question than either method by itself (Creswell, 2014). Menon and Cowger (2010) also outline three advantages of integrating qualitative and quantitative methods in social work research including that it “(a) offers increased validity due to the triangulation of methods, (b) provides an opportunity to take advantage of the strengths of each approach, and (c) allows congruence with the principles of social work to study things holistically . . .” (p. 612). The present study followed the sequence of “explaining quantitative results with qualitative follow-up” (Creswell, 2014, p: 267). Concurrent triangulation design was applied to use both qualitative and quantitative data to define relationships more accurately among variables of interest. Equal priority (50:50) was given to the quantitative and qualitative components of the study (Creswell, 2009). This design allowed the researcher to obtain different, but complementary data on non-adherence among test and start ART in Zomba district. Hence the mixed method design was chosen to better understand the extent as well as reasons for adherence or non-adherence to ART among test and start clients in Zomba district. In this study therefore, both quantitative and qualitative data was collected, analysed separately and then results were brought together and interpreted. Figure 5 shows summary of the present study’s design.

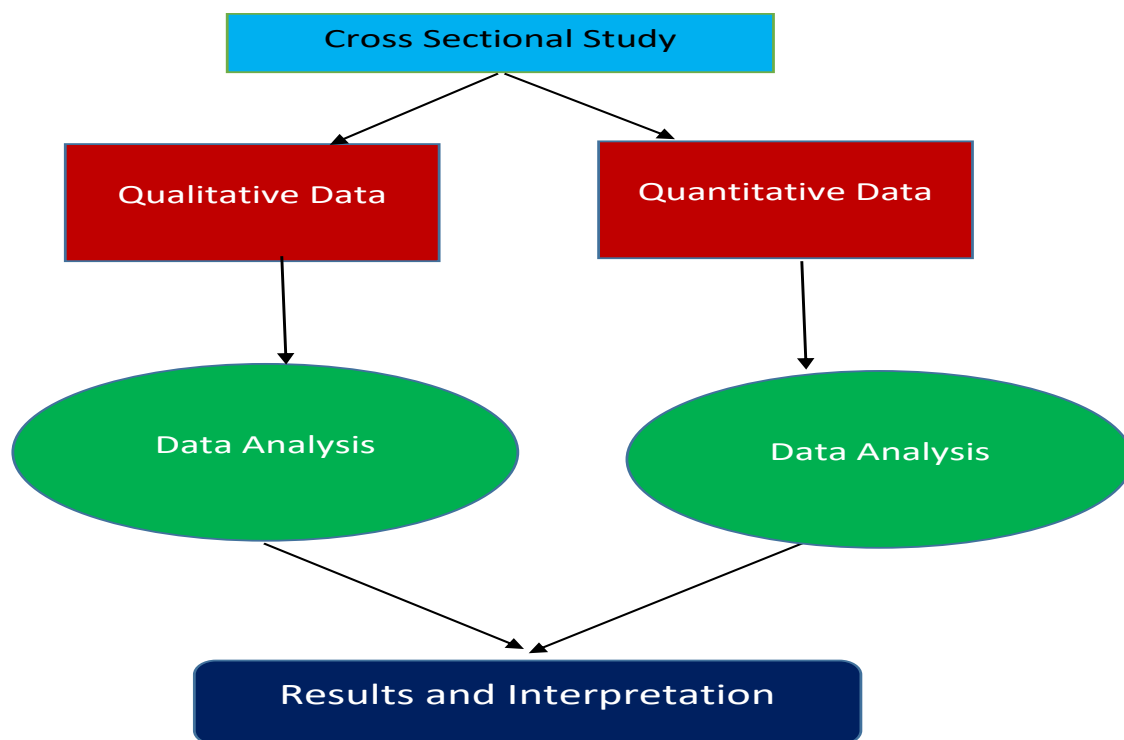


Figure 5: CPMM Design

3.2.1 Area of Study

The study was conducted at selected health facilities in Zomba district which is located in the south eastern region of Malawi. The district was purposely chosen because it was among the districts with high HIV prevalence in Malawi as well as high documented defaulter rates as explained in Chapter 1 (*1.1.2 Test and start approach to ART initiation in Malawi; Figure 1: ART defaulter trends in Zomba District from 2016 to 2018*).

3.2.2 Study Population

A study population is the total collection of elements about which a researcher wishes to make inferences (Sekaran & Bougie, 2010). In this study, population was all PLHIV that started ART on test and start approach between August 2016 and March 2019, both currently on ART including those that defaulted. In addition, ART expert clients and health workers that included nurses and clinicians were part of the study population and participated in Focus Group Discussions (FGDs). Further, health workers specifically clinic in charges and ART coordinators constituted sample frame for Key Informant Interviews (KIIs).

3.3 Sampling Design and Sampling Technique

3.3.1 Sampling Design

Random sampling was used to select 8 health facilities out of a total of 42 ART clinics in the district. The reason for 8 facilities was to have a better understanding of the dynamics by different health facilities and locations in the district. Respondents were sampled using ART registers to collect quantitative data. To obtain a qualitative sample, convenience sampling was employed to recruit participants for FGDs (n=60) and purposive sampling to conduct IDIs (n=15) and KIIs (n=8) for qualitative data.

3.3.2 Sampling Techniques

Using the total number of clients on ART in all the 42 health facilities and the total clients on ART in each facility, the sample size for each facility was calculated by utilizing Slovincs formula to come up with a quantitative sample.

Therefore, using Slovincs Formula: $n = \frac{N}{1+Ne^2}$

- Where n = the sample size
- N = is the ART population size in Zomba district (50,353)
- e = is the chosen level of precision (0.05)

Using the formula, sample is calculated as follows

$$n = \frac{50,353}{1 + 50,353(0.05)^2} \approx 296.847$$

Using 10% nonresponse rate cover based on studies of similar nature (Bartlett, Kotrlik, & Higgins, 2001) as used in Wasti, Simkhada, Freeman, & Teijlingen(2012), the final quantitative sample was 345.

Qualitative sample was obtained using convenience sampling to recruit participants for FGDs (n=60) and purposive sampling to conduct IDIs (n=15) and KIIs (n=8) for qualitative data.

3.3.3 Quantitative Data collection

A structured questionnaire (Appendix 1: Quantitative Questionnaire in English) was used to collect quantitative data from a total of 325 randomly selected test and start ART clients. Using ART registers, ART registration numbers and contact details of sampled clients were obtained. Some clients had an appointed clinic visit on the interview date while those who had no clinic visit on the day of interview were called to come to clinic with the help of ART providers to be

interviewed. Data was collected from ART clients in 8 randomly selected health facilities that offer ART services for a period of two weeks from 25th March to 6th April 2019. A structured questionnaire in hardcopy paper-based format was administered orally to each participant selected in the sample on a one-to-one basis in Chichewa, a common local language. This was done by visiting and meeting clients at their ART service facility (*Appendix 2: Quantitative Questionnaire in Chichewa*). The questionnaire focussed on assessing client knowledge of test and start prior to their HIV testing, media through which they accessed information about test and start., Self-reported adherence , HIV status disclosure(partner and relation) , Quality of counseling, Freely talking about ART to peers, Frequency of talking about ART to peers, Time spent at clinic (measured in hours), Distance to clinic(measured in Km), Reasons for missing pills and Reasons for missing scheduled clinic appointment . The study questionnaire adapted some of the questions from WHO standardized tools for assessing alcoholism and tools for assessing recommended distance to health facility in developing countries. Research assistants who administered the questionnaire were trained on how to effectively implement the study protocol during data collection phase to avoid information bias. Pre- test of the questionnaire was conducted at Cobbe Barracks Hospital in Zomba as part of research assistants training.

Data was collected from a total of 329 ART clients who consented and responded to the main questionnaire out of the targeted sample of 345. A total of 17 clients could not be interviewed because some had obtained transfers to health facilities outside Zomba District within the period of survey while some could not be reached through phones. Only 3 did not consent after being approached to be interviewed. After data entry, 4 had incomplete responses hence were cleaned from data set. The final sample for analysis was therefore 325 representing 94.2% response rate. Figure 6 is a summary showing how the final quantitative sample was obtained.

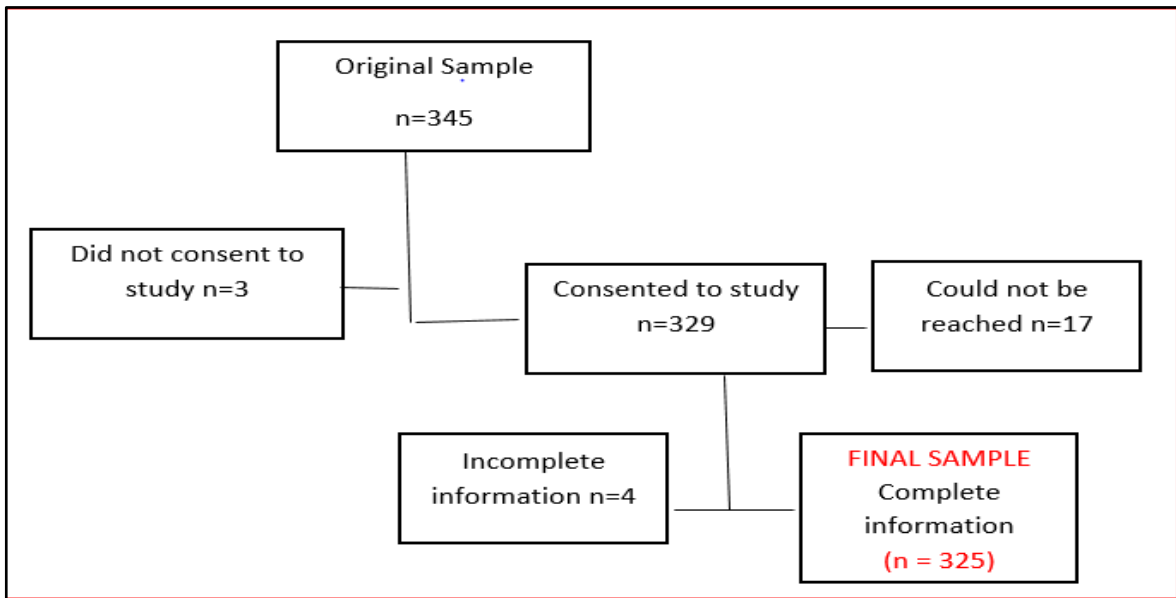


Figure 6: Sampling Matrix and final sample

3.3.4 Qualitative Data Collection

Qualitative data was collected through in-depth interviews (IDIs) from 15 ART clients using paper-based interview guides (

Appendix 3: In-depth Interview Guide for ART clients). IDIs main themes of focus included client's knowledge about test and start, communication mode of acquiring information about test and start, self reported adherence, reasons for non-adherence and suggestions to improve behaviour change communication on adherence. Additionally, Focus Group Discussions were conducted with a total of 8 participants of which 5 were health workers and 3 were expert clients¹ using paper-based topic guides (Appendix 4: Topic Guide: Focus Group Discussion (FGD)). Key Informant Interviews were conducted with health workers that offer ART services using paper-based interview guides

¹ *Expert Clients are individuals that have been proved to be more adherent to ART and are more open to share their experiences to peers and other ART clients on adherence issues including skills of how to live positively so that they emulate their example.*

Appendix 5: Interview Guide: Key Informant Interviews (KII). These were interviewed in order to provide insights on how they viewed their test and start clients in relation to adherence, based on their experience and interaction with the test and start clients. Expert clients were interviewed to obtain information on their experiences as ART clients, challenges they face how they manage to overcome them and how other ART clients can learn from them and emulate their adherent behaviour. The main themes of focus on FGDs and KIIs were healthworkers perception of ART clients' adherence, assessment of knowledge about test and start among their clients, mode of communication about test and start, perception about their clients' adherence to ART, reasons for non-adherence, perception about current modes of communication, ways to improve behaviour change communication regarding adherence. All the qualitative tools were administered in Chichewa language and each session lasted for an average of 45 minutes. Three research assistants namely Allatone Banda, Ambilike Chiluzi and Pauline Clyton were recruited and facilitated the interviews. To ensure reliability, research team was trained on how to conduct interviews and how to record responses. Pretest of the qualitative tools was also conducted at Cobbe Barracks Hospital in Zomba as practical part of the research assistants training. Furthermore, IDIs, FGDs and KIIs were conducted at the respective health facilities in private rooms such as offices of clinic incharges, consultation rooms and in some cases board rooms where available in order to ensure privacy.

Data was collected from a total of 68 participants. Out of these, 60 participated in FGDs. These comprised of 47 healthworkers and 13 expert clients. A total of 8 respondents participated in KIIs that comprised of 5 health workers and 3 expert clients. A total of 8 FGD sessions were conducted, one at each health facility by purposely sampling health workers and expert clients. A total of 8 KIIs were conducted by purposely sampling ART providers that include nurses and clinicians to achieve saturation per theme and per individual (Groh, K et al 2011) and 8 KIIS (Bloor, M & Wood, F, 2006: p165-166). ART nurses and clinicians for KIIs were chosen based on their experience working in the ART service provision so as to provide the researcher rich information. Saturation per individual was achieved when the last person interviewed produced no new issues in their responses that were not different from the previous respondent. Audio recorders were used to record FGD and KII sessions to supplement notes taken during the topic guided discussions.

3.4 Data analysis

Data was analysed using both quantitative and qualitative analysis methods. Quantitative and qualitative data were analysed separately. Results were then compared to determine similarities and differences. Concurrent triangulation (50:50 priority) of data was thus done to obtain a

better and balanced understanding of the results (Cresswell, 2009). Triangulation is defined as “a validity procedure where researchers search for convergence among multiple and different sources of information to form themes or categories in a study” (Creswell & Miller, 2000, p. 126; Cresswell, 2009).

3.4.1 Quantitative Data Analysis

Quantitative data was coded and entered in SPSS version 20. Data cleaning was done prior to analysis. Entries with incomplete information as well as duplicates were removed. Some variables were recoded after data entry but prior to data analysis. Variable Age was recoded from actual age into age categories such as 18-25, 26-35, 36-45, 46-55 and 55 above. Frequency of missing appointment and frequency of missing pills was recoded as those who missed at least once as non-adherent and those who never missed as adherent. Distance to health facility was also recoded as those who reported any value below 4km were classified as short distance and those who reported distance of 4km, or more as long-distance Time spent at clinic was recoded in that those that reported value below two hours into short time and those that reported 2 hours and above into long time category.

Descriptive statistics on demographics such as age, gender, marital status, education levels, occupation, distance to health facility and time spent at clinic were performed on the data to obtain inherent dynamics within the study population. Further, chi-square (χ^2) tests of association was also conducted between adherence status and demographic variables namely age, sex, education, religion, and occupation. A binary and multivariate logistic regression model was used to identify potential communication factors associated with non-adherence (Wasti, et al, 2012) and therefore test their potential influence on non-adherence. Crude Odds ratio (COR) and Adjusted Odds ratio (AOR) from univariate and multivariate logistic regression estimations were conducted respectively and were reported at 95% confidence interval. The level of significance for all tests of association was set at $p < 0.05$. All variables except, phone call by health worker, were not significant both at binary logistic regression and multiple logistic regression level. Therefore, significance in bi-variate analysis was not considered before including in the final regression model.

In this study, the outcome variable of interest was adherence to ART analysed against several communications related independent variables. We defined $P(\hat{Y})$ as the probability of adherence/non-adherence, the multiple logistic regression model takes the general form as follows.

$$P(\hat{Y}) = \frac{\exp(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_i X_j)}{1 + \exp(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_i X_j)}$$

Where:

\hat{Y} = Adherence/non-adherence to ART among test and start clients

β_0 =Constant

$\beta_1, \beta_2, \beta_3 \dots \beta_i$ = multiple logistic regression coefficients

$X_1, X_2, X_3 \dots X_j$ = potential factors that may influence non-adherence to ART

Deductive approach to analysis was used for quantitative data analysis. (See conceptual framework). Variables were grouped into three major categories namely personal, interpersonal and environment factors. These categories relate to the various levels of the Socio-Ecological Model as well as the Social Cognitive Theory constructs.

3.4.2 Qualitative data analysis

Qualitative data analysis was done using thematic analysis of the interview transcripts collected through, FGDs and KIIs to compliment quantitative findings. FGDs were transcribed verbatim from audio recorders. Transcripts were then reviewed for completeness and accuracy by reviewing audio recording. The transcripts were used for thematic analysis to identify main themes and were then coded for retrieval and analysis. Data was coded according to themes predetermined by the topic guides and those emanating from the responses.

Deductive approach to analysis was also used for qualitative data analysis. Themes highlighted in qualitative results and emanates from study objectives. Factors have been discussed by integrating three levels as extracted from the Social Ecological Model namely: Personal, interpersonal and environment factors. It also relates to the Social Cognitive Theory dwelling on the reciprocal causation or determination of human behaviour. Hence thematic data analysis approach was used as follows: The (1) transcription notes were read several times to become familiar with the data (2) key issues were identified and recurrent themes emanating from the data (3) coded and organized the data into categories (4) interpreted the data guided by SEM.

3.5 Ethical consideration

The study was approved by the Ministry of Health through the National Health Sciences Research Committee (NHSRC) who provided ethical clearance to conduct the study (ethics approval number 2193 as shown in Appendix 6). For ethical reasons, the respondents of the study were not asked their names and their identification details were not documented in any way or published at any site. The general ethical issues included research participants' consent, no incentives, keeping sensitive information private and ensuring no harm to participants. The study team ensured avoiding interviewer bias through training the research assistants on how to effectively implement the study protocol and how to conduct the interviews during data

collection. The training helped in standardising the way the questionnaire, topic guides for IDIs, FGDs and KIIs were used to collect data to maximise consistency and minimize harm.

Prior to administering a questionnaire, conducting interviews, FGDs and KIIs, the purpose of the study was explained to participants. Participation in the study was kept completely voluntary. Participants were asked to sign a consent form (*Appendix 8: Informed Consent Form (ICF)*) written in Chichewa language to acknowledge their willingness to participate in the study. Anonymity of participants was maintained in the study by use of unique participant identity numbers. In addition, participants were asked to use pseudo nyms, during focus group discussion sessions to preserve the anonymity of the participants. For purposes of security, paperbased data was stored privately by the main researchee and electronic data was stored by the main researcher on a computer and was protected by passwords. Only the main researcher had full access to the final data.

3.6 Reflexivity

Reflexivity refers to the various ways in which one may affect and be affected by the research (Attia & Edge, 2017). There was possibility of certain level of reflexivity based on my own identity and positionality that may have influenced the qualitative component. Due to the subjective nature of qualitative data, it may have influenced prospective reflexivity in choosing the kind of questions to ask and how I framed the questions because my own preconception about the subject of ART adherence and prior work experience in the field partly driven by personal values and the kind of information I wanted rather than what I would get from the research. On one hand I experienced retrospective reflexivity in the sense that the responses I got and the feelings of respondents through the interaction and what I have learnt from the experience may have developed, shaped, and influenced the reframing of research questions, data analysis as well as conclusions and recommendations. However all these experiences helped to achieve congruence the present study.

CHAPTER 4: RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results and discussion of potential factors that might be influencing adherence and non-adherence patterns among test and start ART clients in Zomba district. First, a general description of final sample is presented followed by a description of the sociodemographic characteristics of the sample with respect to ART adherence. Then factors are presented under three main sections, namely: intrapersonal, interpersonal as well as social cultural and environmental communication related factors that influence non-adherence to ART among test and start ART clients.

4.2 Description of Final Sample

The quantitative questionnaire was administered to a final sample of 325 ART clients. It focussed on assessing client knowledge of test and start prior to their HIV testing, media through which they accessed information about test and start, individual adherence levels and personal, interpersonal communication factors as well socio-cultural and environmental factors that could influence their adherence or nonadherence to ART. Table 2. is a summary of the number of respondents for each health facility.

Table 2: Summary of respondents for each sampled health facility

Health Facility	No. of respondents	% of Total
Matawale	91	28
Domasi Rural	27	8.3
Matiya	63	19.4
Thondwe	40	12.3
Naisi	18	5.5
Chingale	26	8
Chipini	37	11.4
Namikango	23	7.1
Total	325	100

Qualitative results based on IDIs, FGDs and KIIs with health workers and expert clients complemented the study and shed further light on the quantitative findings. These focussed on themes such as healthworkers perception of ART clients' adherence, assessment of knowledge about test and start among their clients, mode of communication about test and start, perception about their clients' adherence to ART, reasons for non-adherence, perception about current modes of communication and ways to improve behaviour change communication regarding adherence Table 3 is a summary of health workers that participated in FGDs.

Table 3: Health workers in 8 FGDs

Category of healthcare workers	Health Facility								Total
	Matawale	Domasi Rural	Matiya	Naisi	Thondwe	Chingale	Chipini	Namikango	
Nurses	4	2	3	2	3	3	3	4	22
Clinicians	3	4	3	4	4	3	3	3	25
Expert Clients	1	2	1	2	2	2	2	1	13
Total	8	8	7	8	9	8	8	7	60

4.3.1 Sociodemographic characteristics of the sample

As summarized in Table 4, out of a total of 325 ART clients who participated in the study, 69.9% were female while 30.1% were male. The gender distribution in the study sample represents a true reflection of the general ART cohort in Zomba district which comprises a relatively greater proportion of females than males (MoH, 2016; NSO, 2016). The mean age of sample was 43 years (SD 11.8; range 18 to 79). Many of the respondents were married (60.3%) to either one wife or husband. Some (2.8%) were in a polygamous marriage. The majority of patients attended education up to only primary school level (85.8%), while only a few (less than 2%) completed tertiary education. This can have a bearing on knowledge and appreciation of important public health issues such as ART test and start. The majority (70.1%) were either farmers or doing small scale businesses. Only a few (5.8%) were in a formal employment in either government or private sector as summarized in Table 4.

Most health workers that participated in the study were female (63%). Participants comprised of nurses (36%), clinicians (41%) and expert clients (21%). All nurses and clinicians had minimum qualification of diploma level of education, while 52% had first degrees. The majority 68% had a minimum of four years experience as certified ART providers.

Table 4: Demographic characteristics of sample

Variable	ART Patients		Health Workers	
	N	%	N	%
Sex				
Male	97	30.1	22	37.1
Female	228	69.9	38	62.9
Respondent Age category				
18-25	25	8.4	6	9.9
26-35	61	8.8	24	39.9
36-45	120	36.9	14	23.3
46-55	67	20.6	12	20.1
56+	51	15.7	4	6.7
Level of Education				
Primary	279	85.8	0	0.0
Secondary	39	12	0	0.0
Technical	1	0.3	0	0.0
College/University	3	0.9	68	100.0
Never attended	3	0.9	0	
Religion				
Christian	261	80.3	59	86.7
Muslim	63	19.4	9	13.3
None	1	0.3		
Marital Status				
Single	14	4.3	4	6.7
Monogamous marriage	196	60.3	49	81.7
Polygamous marriage	9	2.8	0	0
Widowed	52	16	3	5.1
Divorced/separated	54	16.6	4	6.7
Occupation				
Farming	123	37.8	-	-
Self employed	105	22.3	-	-
Permanent employment	19	5.8	-	-
Piecework(maganyu)	33	10.2	-	-
None	20	6.2	-	-
Other	25	7.7	-	-

4.3.2 Health Access Factors and Adherence to ART

More than half of the respondents (56%, n=325) lived a minimum distance of 4km or more away from the health facility where they access ART service. However, despite this being the case, many of the respondents (62.8%) reported walking to their health facility as mode of travelling they used to access ART service. The rest used kabaza (push bicycle) (27.1%), public transport such as minibus (7.7%) and motorcycle (1.8%). Many respondents 84.1% reported

that they spent a minimum of 2hours at a health facility on a clinic day. The summary health access factors and adherence to ART are as shown in Table 5.

Table 5: Health Access factors and Adherence to ART

Variable	N	%
Phone call by health worker		
Never	322	99.1
Sometimes	3	0.9
Time spent at hospital		
<30mins	4	1.2
30mins-1hr	14	4.3
1-2hrs	33	10.2
>2hrs	274	84.3
Distance to Health Facility		
<1km	53	16.3
2-3km	89	27.4
4km or more	183	56.3
Mode of transport to clinic		
Walking	204	62.8
Push bicycle (<i>Kabaza</i>)	88	27.1
Motorcycle	6	1.8
Car	2	0.6
Public Transport	25	7.7

4.4 Adherence to ART

The results of the present study showed that adherence among test and start ART clients was generally low in Zomba District. The study showed that 20.3% (N=325) of ART clients were non-adherent² to ART among test and start ART clients (Figure 7). This finding is similar to other studies in Sub-Saharan Africa, Asia and South America that also revealed that over 20% ART clients were non-adherent to ART. For instance, in Ghana it was noted that 27% of ART clients were non-adherent to ART (Prah, et al., 2018) while 28% were reported non-adherent to ART in a recent study conducted in China (Kipsang, Chen, Tang, Li, & Wang, 2018). Further, in another study in Brazil, the prevalence of non-adherence was found to be 25% (Silva, Dourado, Brito, & Lima-da-Silva, 2015).

² Non-adherence is defined as missing taking ART pills for at least once in the four weeks prior to the survey.

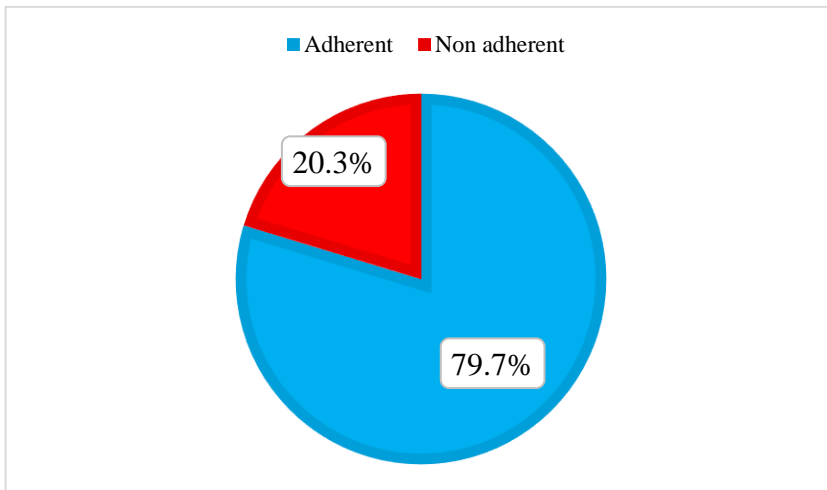


Figure 7: Adherence status among test and start ART clients in Zomba District in April 2019.

4.4.1 Reasons for Missing Pills and Clinic Appointments

The study noted reasons for missing pills and appointments that could potentially influence non-adherence among ART clients. For instance, out of those that missed taking pills, the majority 62.3% (N=66) indicated forgetting as the reason for missing taking of pills while others mentioned being sick (10.1%), not feeling like taking ARVs (7.2%), attending funeral (20.9%) and having no food (5.8%). The reasons for missing pills mentioned in this study are consistent with what Wast, et al (2012) found in a Nepal study and what Sasaki, et al (2012) found in a Zambia study. Forgetting to take pills is not uncommon especially when clients have not disclosed their status to partner or family member because failing to disclose may mean that there is nobody to remind or encourage an individual to take drugs consistently.

Attending funerals especially of a relative is considered highly as a social value in a Malawian culture and therefore may also lead to missing pills mostly when the funeral happens at a distance that require one to travel. This result is also consistent with research by Kumwenda(2011) who reported that poor adherence to ART was in most cases because of unplanned travelling to funerals. Being busy with other things was also found by Sasaki, et al(2012) as a factor that leads to missing pills leading to non-adherence. Summary of the reasons for missing pills and clinic appointment are shown in Table 6.

The rate of missing a scheduled clinic visit appointment for a drug refill for at least once within the one-year period preceding the survey among test and start clients was high (33.8%). This rate is higher than the 29.2% found in a Ugandan study, Shumba et al(2013) and the 20.5% found in a Ghana study (Prah et al., 2018). Among the notable reasons for missing a scheduled appointment include being busy with other things (24.5%), forgetting (20%), attending funeral

(20.9%), being sick (15.5%), having no money for transport (7.3%) and being a guardian at the hospital (5.5%). These factors are in agreement with what other related studies about ART adherence found. For instance Sanjobo et al (2008) and Mukumbang et al, (2017) reported lack of food mainly due to poverty as a factor. Other factors such as being busy, forgetting and being away from home were also reported (Kumwenda., 2011; Bijker et al., 2017; Chesney., 2018).

While lack of food due to poverty was associated with non-adherence in Zomba, a study in Zambia observed that most clients had adequate food and that it influenced positive adherence (Sanjobo et al., 2008). This is because in Zambia there is support for income generating activity programmes that help clients to engage in small scale businesses and hence afford food and other basic amenities. The importance of nutrition and ART among ART clients has been well documented. According to Bisika et al., 2008), adequate nutrition improves ART acceptability, adherence, and effectiveness. ART drugs also interact with certain foods and nutrients, affecting the drugs' efficacy and clients' adherence to the drugs. Additionally, poor nutritional status may hasten progression to AIDS related illnesses and undermine response to ART (Behre et al., 2013). With respect to ART adherence, the belief that ARVs must be taken with food can potentially lead individuals to skip doses when they are not able to access adequate food to eat. In this case, it is imperative that ART programmes need to be supported by community support programmes like income generating activities as well as nutritional support if adherence is to be improved among ART clients.

Table 6: Reasons for Missing Pills and Clinic Appointments

<i>Variable</i>	<i>N</i>	<i>%</i>
<i>Reason for missing pills (N=66)</i>		
<i>Forgot</i>	43	62.3
<i>Was sick</i>	7	10.1
<i>don't feel like taking ARVs</i>	5	7.2
<i>Had no food</i>	4	5.8
<i>Was at funeral</i>	4	5.8
<i>Was guardian at hospital</i>	2	2.9
<i>Missing a scheduled clinic appointment (past 1 year) (N=325)</i>		
<i>Never Missed</i>	215	66.2
<i>Once</i>	80	24.6
<i><3 times</i>	20	2.2
<i>3 times or more</i>	10	3.1
<i>Reason for missing appointment</i>		
<i>Busy (Engaged)</i>	27	24.5
<i>Funeral</i>	23	20.9
<i>Forgot</i>	22	20
<i>Sick</i>	17	13.5
<i>No transport money</i>	8	7.3
<i>Was guardian at hospital</i>	6	5.5
<i>Long distance</i>	3	2.7
<i>Had more drugs</i>	2	1.8
<i>Floods</i>	1	0.9
<i>Was in polic custody</i>	1	0.9

4.5 Client background characteristics and ART adherence

4.5.1 Age, Gender, Marital Status, and adherence

Results indicate that there was a statistically significant association between age and non-adherence to ART . An increase in age from 18 to 45 was associated with adherence and as age increased further from 46 to older it was associated with decreased adherence ($\chi^2 = 7.822, p = 0.0485, df=4$) as shown in table 4.2.5. This result is consistent with Van-Dyk(2010) who also found that apart from the most elderly , adherence to ART increased with age. Another study found that patients under 34 years had a likelihood 2.2 times higher of not-adhering to treatment than those aged 34 years or older (Silva et al., 2015). Further, another study in Coastal South India found that adherence to ART was higher among PLHIV aged above 40 years compared to those below or equal to 40 years of age (Yathiraj et al., 2016). This could be explained by the fact that most people in relatively young and middle ages tend to be in more denial about their HIV positive status than relatively older people and that they rarely have a health seeking habit.

Results also suggest that there is no statistically significant association between gender and non-adherence. That is there was no relationship between being male or female with non-adherence. This result is contrary to what Wast, et al (2012) and Sasaki, et al(2012) found that gender was associated with adherence. In the two respective studies, it was found that being female was positively associated with adherence than being male. Prah, et al(2018) also found that adherence was significantly associated with gender, and that males were more likely to miss their doses as compared to women.

Further, this study did not find statistically significant association between marital status and adherence to ART among the test and start clients. That is to say whether one is married, single, divorced or widowed was not related to one's adherence.

4.5.2 Occupation, Religion, and adherence

Results indicate that there was statistically significant association between adherence and occupation of the respondents ($\chi^2 = 14.243$, $p = 0.043$, $df = 5$, $\phi_c = 0.209$) as shown in table 4.5.5. From the results, the value of Cramer's V indicates that the strength of the relationship was relatively strong. This means that occupation and adherence were related. Results suggest that those who had something to do such as farming, business, self, or permanent employment were more likely to adhere as compared to those with nothing to do such as none (not doing anything) and other forms of occupation. Occupation is related to one's income status in that those that have employment may likely have relatively high income than those without employment. In another study, Shubber et al.(2016), found that ART clients with higher income had increased adherence. A possible reason is that those with income had less difficulty to access ART clinics as they could easily afford transport money than may be the case with those with relatively low income. Another possible reason could be that those with something to do could appreciate the value of maintaining good health to satisfy the needs of employment or business and accomplish certain goals in life unlike those with nothing to do as they could not appreciate the value of medication.

Furthermore, there was no significant association between one's religion and adherence to ART among the test and start ART clients. That is to say being Christian and Muslim were independent with regard to adherence.

Table 7: Other background characteristics and ART adherence

Variable	Non adhere		Adhere		Total	%	x	p	df
	N	%	N	%					
Sex									
Male	23	34.8	77	29.7	100	30.8	0.647	0.254	1
Female	43	65.2	182	70.3	225	69.2			
Age Category									
18-25	1	1.5	25	9.7	26	8	7.822	0.0485	4
26-35	18	27.3	43	16.6	61	18.8			
36-45	25	37.9	95	36.7	120	36.9			
46-55	13	19.7	54	20.8	67	20.6			
56+	9	13.6	42	16.2	51	15.7			
Religion									
Christian	56	84.8	205	79.2	261	80.3	1.477	0.478	1
Muslim	10	15.2	53	20.8	64	19.7			
Education									
Primary	60	90.9	219	84.6	279	85.8	4.046	0.041	3
Secondary	6	9.1	33	12.7	39	12			
Tertiary	0		4	1.6	4	1.2			
Never attended	0		3	1.2	3	0.9			
Marital Status									
Single	3	4.5	11	4.2	14	4.3	1.105	0.894	3
Married	42	63.6	163	62.9	205	63.1			
Widowed	11	16.7	41	15.8	52	16			
Divorced	10	15.2	44	17.1	54	26.6			
Occupation									
Farming	21	31.8	102	39.4	123	37.8	14.243	0.046	5
Self Employed	19	28.8	86	33.2	105	32.3			
Permanent	4	21.1	15	78.9	19	2.2			
Employment									
Business	5	7.6	15	9.7	20	6.2			
None	8	12.1	25	9.7	33	10.2			
Other	9	36.3	16	6.4	23	7.4			

4.5.3. Education and adherence

Chi square test results showed a statistically significant association between education and adherence ($\chi^2 (3) = 4.046, p = 0.041, df = 3$). This means that those with low education were generally associated with non-adherence while those with relatively high education were associated with relatively high adherence. This finding is consistent with Wast et al. (2012) who also found that being illiterate influenced non-adherence. Other studies found that a lower level of general education and poorer literacy influenced non-adherence to ART (Shubber et al., 2016) while a higher level of education increased adherence (Van-Dyk, 2010). This could be explained by the fact that those with relatively high education had easy understanding of the

importance of starting medication at an early stage of HIV diagnosis than their uneducated counterparts. Additionally, a review of the behaviour change communication materials currently in use showed that even though most of them were written in a local language, Chichewa for instance, the fact that majority of respondents did not go beyond primary school level was likely to contribute to poor comprehension, understanding and interpretation of concepts contained in the written messages thereby leading to non-adherence.

4.6 Potential Factors Associated with ART Non-Adherence among Test and Start

The objective of the study was to assess communication factors that may potentially influence non-adherence to ART among test and start clients in Zomba District. The study was based on the following three categories of explanatory variables: intra-personal, interpersonal as well as socio cultural communication factors.

4.6.1 Intrapersonal Communication Factors that Influence Non-Adherence to ART

4.6.1.1 Knowledge about test and start

Knowledge refers to the factual information a person possesses about a particular subject (Kagendo, 2017). In this context, it is the information that ART clients had about test and start at the time they were being initiated on ART. In terms of knowledge about test and start before accessing HIV testing services, most (84.9%) (n=275) reported being aware of the test and start concept of ART. However, among those who had knowledge of the concept, the majority (72.6%) (n=235) of them heard information about it for the first time at the hospital either through health talks at Outpatient Department (OPD), Antenatal Care (ANC) clinics and other health service delivery entry points.

The p-value was not statistically significant on logistic regression analysis and shows that there was no statistical association between having prior knowledge about test and start and adherence to ART (OR=1.163, 95% C.I:0.559-2.421) as shown in table 8. The quantitative results are in contrast with Amon, et al (2018) in a rather related systematic review study about ART adherence factors who found that not knowing the reason for taking the drugs influenced non-adherence. The findings are also in contrast with Boateng et al.(2013) in a descriptive cross-sectional mixed methods study that involved 229 HIV positive women in reproductive age (18 – 49 years) and who had been on ART for at least six months and fourteen health workers. The study found that women who had inadequate knowledge about ART and PMTCT were more likely to be non-adherent. The reason for indifference could be explained by intensive counseling that occurs during same day ART initiations that promotes adherence with test and start clients.

Despite lack of quantitative evidence that knowledge of test and start influences adherence, health workers reported that this does, in fact, influence non-adherence particularly poor knowledge about test and start. Health workers reported that knowledge of test and start concept had potential to influence adherence than lack of it. Majority of health workers reported that most clients get surprised when they are counselled to start ART immediately after testing HIV positive as a result most of them do not feel prepared to start

“Most clients get surprised because they hear about the concept when they come here at the health facility to seek medical services. They hear about it through health talks at OPD, ANC and STI clinics. Such clients are difficult to convince about test and start when diagnosed with HIV and do not adhere” (ART Nurse, FGD01, Matawale HF).

This suggests that the information about test and start is mostly limited to the health facility and is disseminated by health workers themselves, and that the other equally important methods of communication such as: radio, newspaper, fliers, posters, and community sensitisations are not being fully utilised to achieve optimum awareness for effective behaviour change among the population. Since the majority reported getting the information right at health facility than through other modes, there is risk of denial and non-adherence than when clients have knowledge of the concept before visiting clinics for such services. In addition, health workers reported that some clients show lack of knowledge on severity or consequence of non-adherence could also deter one from adopting adherence behaviour (Glanz et al., 2008).

“Ambiri mwa iwo saidziwa kuopsa komwa mankhwala mosatsatira ndondomeko”.
(Most patients do not realize the dangers of non-adherence to ART drugs). (ART Nurse, FGD07, Chipini HF)

These qualitative results therefore show that lack of personal knowledge about test and start as well as severity of treatment non-adherence can potentially influence non-adherence behaviour to ART. This means that only a few had knowledge about test and start before they visited the hospital for HIV testing.

4.6.1.2 Mode of Communication about Test and start

Most of the clients (72.6%) knew about test and start at the hospital. This is in comparison with those who accessed the information through radio (9.0%), community mobilisation (5.6%), newspaper (4.0%) and poster or fliers (0.7%). Results suggest that radio, newspaper, fliers, posters and community sensitisations media were not fully utilized to communicate behaviour change messages about test and start. Additionally, since most people that go to a health facility

are likely to have gone there to seek medical attention for either illness or other related non-clinical services, it means the information only goes to a subpopulation and not the general population. This implies that the other section of the population that may not have a reason to visit a health facility may have missed out on important information. When those people eventually go to the health facility and end up being tested for HIV and then counseled to start ART immediately, they were more likely to experience denial and hence influence their non-adherence to ART. However Multiple Regression analysis results showed no significant association between mode of communication and adherence (OR=1.701, 95% C.I:0.149-3.293). This finding is however in contrast with Tilahun et al. (2011), in a systematic review of effect of community-based behaviour change interventions to improve neonatal mortality in developing countries, who found that utilisation of other forms of communication such as community sensitizations, apart from hospital based interventions were associated with positive behaviour change responses.

Table 8: Intrapersonal communication Factors and non-adherence to ART in Bivariate and Multivariate Analysis

Variable	Non-Adhere N=259(79.7%)		Adhere N=66(20.3%)		Totals n=325	Univariate			Multivariate			
	N	%	N	%		Exp(β) COR	95% CI	ρ	Exp(β) AOR	95% CI	ρ	
Knowledge of Test & Treat	No	11	16.7	55	83.3	66	1.163	0.559-2.421	0.686			
	Yes	38	14.7	221	85.3	259						
Mode of Communication	Radio	8	30.8	18	69.2	26	1.701	0.149-3.293	0.658	0.673	0.140-3.231	0.621
	Newspaper			1		1						
	Posters	1		1		2						
	At Hospital	44	18.5	194	81.5	238	1.19	0.319-4.446	0.796	1.133	0.298-4.305	0.854
	Community Mobilastion	3	21.4	11	78.6	14						
Attitude to ART Test & Treat	Was ready to start	51	20.9	193	79.1	244						
	Less comfortable to start	3	13.6	19	86.4	22	1.674	0.477-5.877	0.422			
	Not ready	12	20.3	47	79.7	59	1.035	0.511-2.065	0.924	0.596	0.219-1.625	0.312

4.6.1.3 Perceived Health

Perceived health in the context of this study is defined as a person's belief about the current status of their health condition, that is to say, the feeling that one is physically fit. Perceived health was mostly mentioned in qualitative results as a potential intrapersonal communication factor influencing non-adherence to ART. The main reason as mentioned by ART clients was that many people are asked to start ART even when they are asymptomatic hence many do not feel ready and the need to commit themselves to lifelong medication when they are not feeling any signs of being sick.

When I was diagnosed HIV positive, I was counselled and told to start ARVs the same day. However, I felt reluctant to start since was not feeling any signs of being ill in my body. (ART Client, IDI03, Matiya HF)

The results agree with health workers in FGDs who also reported that with test and start, most clients are asked to start ART while they are not showing any signs and symptoms of ill health hence do not appreciate the need for medication. This kind of conflict occurs within the individual and decisions about starting and consequently adhering to ART are made within the self.

“Most clients start ART when they have not fully accepted it. This is because we initiate them when they are not sick. As a result, they throw away the drugs. Sometimes they go to other health facilities for re-testing to confirm if they are indeed HIV positive. They can go to St Luke's, Matawale or Machinjiri just to confirm their HIV status.” (FGD 06, ART Nurse, Chingale HF)

Based on the qualitative results as quoted above, health workers reported that some clients did not believe that they were indeed HIV positive due to perceived health. Health workers further reported that some clients visited more than one clinic for retesting to confirm the HIV positive status. Hence some denied starting ART or did not adhere even after starting ART.

In a related study by Kumwenda.(2011), it was found that patients could start taking ART but once they felt that they were better, they believed that there was no need for continuing with medicine. In another related qualitative study on ART adherence, Mukumbang et al.(2017), found that patients stopped taking their medication after they noticed an increase in body weight and start to look healthy because of taking their ART. In the context of test and start however, healthworkres reported that some clients did not feel ready even to start the ART due to the feeling of being physically fit. Since individuals perceived themselves as being in good health

so as not to start ART immediately after diagnosis, they felt not being susceptible to HIV related health decline hence they were not ready to start ART due to the feeling that medication may not be important at that moment

4.6.1.4 Non-Acceptance/Denial

Denial in the context of this study is a state of repudiation or abjuration about one's HIV positive status. Qualitative results as reported by health workers showed that many clients especially those tested through Provider Initiated Testing and Counseling (PITC) disaffirmed or were in a position of counterstatement about their HIV positive results. As a result, many of them did not feel prepared to start ART immediately and therefore required intensive counseling to start. This is because they visited the health facility for other illnesses only to get tested for HIV and diagnosed HIV positive when they least expected. In this case denial is communication occurring with the individual that comes in conflict with communication within the same individual to start ART and possibly continue ART.

“Most clients don't accept on the same day, although some do understand. For instance, when a client comes due to pregnancy and is diagnosed HIV positive, they are convinced to start ART and they accept because of the pregnancy. However, when they deliver most of them could not continue” (ART Nurse, KII03, Matiya HF).

In a related study by Ross et al. (2011), it was found that patients acknowledged that for them to be adherent to ART, it was essential for them to come to terms with the fact that they were HIV positive and that they needed to take medication for the rest of their life. Another qualitative study (Kumwenda,2011) found that patient respondents agreed that individual acceptance of being HIV positive was key to the behavioural change, in this context the behaviour is starting ART as well as adhering to ART. Though not confirmed by quantitative data, the qualitative findings suggest that acceptance of status has potential to influence adherence. Since most people do not immediately accept their HIV positive status, let alone to start ART soon after diagnosis, the non-acceptance potentially acts as a personal level factor influencing non-adherence to ART with reference to SEM.

As seen in the qualitative results, there is high likelihood of pregnant women adhering to ART. This is not unique as Nachega et al.(2012) also had similar findings in a systematic review and meta-analysis study. Among others, intensive HIV counseling provided at PMTCT/ANC clinics may play a role in influencing these women to adopt adherence behaviour because of the emphasis on protecting the unborn child. Socially, the value women put on pregnancy

outcomes may also play a significant role in behaviour change towards ART adherence (Nachega et al., 2012).

Among others the healthworkers explained that ART clients' denial was due to the fact that some felt they had no HIV to the extent that they went to other clinics for retesting due to denial. Healthworkers further reported that some clients felt they were healthy as they had asymptomatic HIV. This makes them not see any reason to continue treatment even after ART initiation.

Health workers also mentioned that sometimes denial among ART patients comes because the client has been overwhelmed or taken by surprise with the outcome of the result and is not in a position to listen to any form of counseling just as one health worker mentioned in one of the FGDs

'Pena sizimveka' (Sometimes they don't listen) to you during counseling because it is mostly done while they are stressed with the HIV positive result (ART Nurse, KII04, Thondwe HF).

Such clients therefore are more likely not to start ART or if they start, they may find difficulties to adhere to ART.

On the other hand, before test and start approach, clients were being initiated on ART in the presence of a guardian while with test and start many clients are started on ART without a guardian. A guardian is an individual to whom a patient disclosed their HIV status and accompanied a patient to every ART clinic visit. He/she played a role of encouraging and reminding a patient to take medication consistently. Health workers reported that abolishment of guardian system was potentially influencing poor adherence as explained by some health workers in FGD.

"With test and start, many clients receive counseling for ART initiation while alone without spouse or relative. Some accept to start but they don't come back for refill afterwards" (Clinician, FGD07, Chipini HF).

The use of guardian in the previous approach therefore assisted in facilitating acceptance as well as encouraging medication continuity resulting in good adherence. Denial of HIV positive Status therefore is another factor that can potentially contribute to non-adherence to ART

4.6.1.5 Perception about ART

Perception is related to one's attitude and refers to people's belief that they can exert control over their own motivation through processes, emotional states, and patterns of behaviour (Wast et al., 2012). According to Kagendo (2017), it is a way of conceiving something and in the context of this study, it is the way clients conceive ART especially in the context of test and start. 33.9% of clients had negative perception to ART and were non-adherent to treatment. Further, despite non-significant association between attitude to test and start and adherence to ART, clients in qualitative results reported that having prior knowledge of test and start influenced relatively positive perception to ART.

Sindinaone vuto kuyamba mankhwala pompopompo chifukwa ndinali nditamva kale ndisanabwere kuzayedzetsa magari (I had no problems with starting ART on the same day since I knew before hand about test and start (ART client, IDI02, Domasi Rural HF).

On the contrary, ART clients that did not have prior knowledge about the concept of test and start showed some level of resistance to starting ART immediately and continue ART uptake. The qualitative findings agree with Paterson (2010) and Kagendo (2017) who also noted that negative beliefs about efficacy of ART may influence ART adherence resulting in non-adherence.

When I was diagnosed HIV positive, I was surprised to be told that I needed to start taking ARV s right away hence I did not show much interest to receive the drugs and I said I needed to come again another day to collect the drugs. (ART Client, IDI 08, Namikango HF)

Health workers also reported that patients that had prior knowledge of test and start before going to the health facility for HIV testing showed a relatively positive attitude towards test and start as compared to those that did not have knowledge before hand. Unlike the present study, other quantitative studies found that the belief that ART is effective (Shubber et al., 2016) and prolongs life (Treffrey-Goatley, et al., 2016) and a recognition that poor adherence may result in treatment failure (Lucas & Bengsberg, 2009) have influence on a person's adherence behaviour.

4.6.2 Interpersonal Communication Factors that Influence Non-Adherence to ART

4.6.2.1 Disclosure of HIV status

Disclosure of HIV positive status as well as talking about ARVs to a spouse, children, parents, relative or any other person is interpersonal communication level behaviour. In this study 62.8% (n=202) of respondents who were married had disclosed their ART status to spouse and /or family member. This is lower than what Sasaki et al. (2012) found in a Zambia study where over 80% disclosed their status to their spouse. However, multiple regression analysis analysis did not show that disclosure of HIV status was significantly associated with adherence to ART. Non-adherence (OR=0.787, 95% C.I:0.410-1.513) as shown in table 9. Despite this being the case, qualitative findings suggest that disclosure has potential to influence adherence to ART. Health workers reported that disclosure especially to the spouse was a challenge amongst those that are non-adherent than among adherent clients. This was the case especially on the part of women. It was mentioned that with test and start, if a woman is tested HIV positive and started on ART on same day, they were afraid to disclose to their husband about it as a result they would not continue taking drugs for fear of marriage termination.

“On the part of women, they find it difficult to disclose to their husbands as a result they don’t start medication immediately or if they start, they don’t continue due to fear that their husbands may abandon them. (Expert Client, FGD02, Domasi Rural HF)”

A lot of research has established the linkage between HIV status and intimate partner violence following disclosure by women. For instance, the qualitative results agree with another qualitative study on conceptualizing the factors affecting retention in care of patients on antiretroviral treatment conducted in Kabwe District, Zambia, that patients do not want to disclose their HIV status to either marital partners or other members of their social network for fear of domestic violence, partner abandonment, or rejection by the community (Mukumbang et al., 2017).

The qualitative results are also consistent with Bezabhe, et al(2014) who also found that disclosure of one’s HIV status to friends, family and neighbors was a facilitator of adherence. Bezabhe’s study further revealed that patients who disclosed their HIV status to relatives and close friends did not fear stigma and discrimination to obtain and take drugs; hence they more likely to adhere to treatment. In a descriptive, qualitative study using free attitude interviews (FAI) and FGD, Ross, et al, (2011) found that disclosure to family members and friends was seen as essential to successful adherence. Furthermore, Kumwenda (2011) also found self-disclosure of one’s HIV status to close and loved ones as a critical facilitator to ART adherence

and that it is directly linked to support from family members. He found that with no disclosure, it is difficult for another individual to collect medication on behalf of the client in case of sickness or being engaged, thereby promoting non-adherence to medication. Again, in a mixed methods study on the fears associated with disclosure of HIV status to partners, Obiri-Yeboah et al (2016) found that clients who had not disclosed had significant challenges with ART adherence.

Qualitative results further agree with Mukumbang (2017) who in his qualitative study also found that ART clients hardly disclose their HIV status to partners or other members of their social network for fear of domestic violence, partner abandonment, or rejection by the community. The main reason for non-disclosure was that when women get tested and diagnosed with HIV and then immediately started on ART, it was difficult for them to disclose to their husbands for fear of likely consequences such as family breakdown. Further, Shabalala et al. (2018) found that women feared that intentional or accidental disclosure of their HIV status to partner would lead to violence. With reference to HBM, in which barrier is one of the useful constructs, nondisclosure may be regarded as a barrier to adherence behavior among test and start ART clients.

4.6.2.2 Openness and frequency of talking about ART

Openness in the context of this study refers to one's willingness to talk and discuss about HIV and ART with peers either at workplace or in any other group settings. Again, despite lack of quantitative evidence that openness and frequency of talking about ART influences adherence, (OR=1.365, 95% C.I:0.758-2.458), healthworkers reported that it, infact, does. Health workers reported that some clients are open to talk to their peers about HIV and ART and these find it easy to adhere than clients who do not feel comfortable to do it. A possible reason for the qualitative finding could be that being open and free to talk about the subject of HIV and ART and frequently doing it has potential to reduce stress, increase moral and psychological stamina and hence minimise incidences of missing drugs thereby increasing adherence. Individual acceptance of being HIV positive and being open about it is therefore critical to medication adherence. Studies have shown that discussing about HIV is one source of social support and plays an important role in helping clients cope with HIV/AIDS. Such studies have found that through sharing information and social support, clients are more likely to experience positive adjustment to HIV/AIDS, reduce depression, develop healthier coping strategies, and lower growth rate of their HIV-related symptoms (Ashton et al., 2005; Coursaris & Liu, 2009).

In addition, staff attitude has a communication effect and sends a rather strong message to ART clients about health workers feelings towards them and affects how a health worker can provide a service to a client. Clients interpreting it as a negative attitude may not feel motivated to report on the next scheduled appointment visit, hence contributing to non-adherence. Respondents mentioned that sometimes the attitude of nurses and clinicians when talking and assisting clients puts the clients at a disadvantage. In relation to SEM, these are interpersonal level issues that potentially influence non-adherence.

4.6.2.3 Quality of Counselling and Staff Attitude

Counselling is a typical example of interpersonal communication that if used properly can influence adoption of desirable behaviour, in this case adherence to ART. Despite lack of quantitative evidence that quality of counselling influences adherence (OR=1.705, 95% C.I:0.197-14.783), Health workers reported that, it does, in fact influence non-adherence. Health workers reported that test and start clients that receive adequate and quality counselling were more likely to start ART almost immediately and adhere to treatment as opposed to those that received inadequate counselling.

“Pena zimatengera luso la chilangizo kwa yemwe akumuyambitsa mankhwala. Ngati alibe luso ena sayamba ndi komwe komanso ena satsatira ndondomeko yoyenre ya kamwedwe ka mankhwala”. (Sometimes it depends on the skills of the one counseling the patient which determines whether client starts and adhere to treatment or not.) (ART Nurse, FGD03, Matiya HF).

Other health workers mentioned that there is no component of psychosocial support in the new counseling guidelines, which is otherwise important for adherence.

“There is no part on psychosocial support in new counseling guidelines, need to be included. Clients need to be with counselor’s full time.” (ART Nurse, FGD 05, Naisi HF)

Health workers also reported that sometimes it depends on the attitude of staff towards patients. Attitude refers to a complex state involving beliefs, values and dispositions to act in certain ways (Kagendo, 2017). In this context, it is the disposition of health workers who provide ART services to clients on ART. Health workers reported that, staff negative attitude influenced non-adherence to ART among test and start clients.

“Most of the times counsellors come to the ART clinic late and when we complain about it, mostly they don’t politely talk to us” (Expert Client, FGD 08, Namikango HF)

Staff attitude has a communication effect and sends a rather strong message to ART clients about health workers feelings towards them and affects how a health worker can provide a service to a client. Clients interpreting it as a negative attitude may not feel motivated to report on the next scheduled appointment visit, hence contributing to non-adherence. ART clients mentioned that sometimes the attitude of nurses and clinicians when talking and assisting clients puts the clients at a disadvantage. In the event of test and start, quality or adequate counseling is one that leads to convincing a newly diagnosed HIV positive client to start ART and ultimately facilitates adherence behaviour on the client. For instance, Schoenthaler, et al(2008) found that the quality of provider's counseling techniques had positive influence on adherence. Groh, et al (2011) further noted that creating effective communication between patients and healthcare workers who are from different social and ethnic backgrounds is challenging.

4.6.2.4 Follow up Reminders to ART Clients

From descriptive analysis results, almost all clients (99.1%) never received a phone call from a health worker while at home as shown in table(*Table 5: Health Access factors and Adherence to ART*) above. Further analysis showed that phone call was significantly associated with adherence (OR=1.787, 95% C.I:1.410-2.513) as shown in table 4.6.2. This means that clients who received phone calls from health workers were more likely to adhere than clients who never received a call. In qualitative results, health workers reported that most clients were not reminded about the day of their next appointment visit through home visits or using phones. As such clients mostly relied on the verbal message on the day of clinic visit and the date written in their health passport book

“We don't do home visits or call clients to remind them of their next clinic visit mostly due to lack of airtime. We only tell them verbally, and we also write the date in their health passport book. (Clinical Officer, FGD06, Chingale HF)”

Client follow-up through home visits or phone communication for instance, is important as it may act as a reminder to clients as well as a motivation factor for a client to show up on the next scheduled appointment date. In a related study, (Penn,et al, 2011) found inadequate client follow up systems that includes lack of phone calls by health workers to clients as barrier to adherence. Another study in Coastal South India found that PLHIV who were contacted personally by health workers through phone calls to remind them of their next clinic appointment reported better adherence than those that were hardly contacted through phone (Yathiraj, et al., 2016). Therefore, patient follow up systems such as home visits or calling clients through phones need to be strengthened in ART programmes as they may likely work

not only to remind them of their next clinic appointments, but also makes them feel valued and a sense of involvement leading to adherence.

Table 9: Interpersonal communication factors and non-adherence in Bivariate and Multivariate Analysis

Variable		Non Adherence		Adhere		Totals n=325	Exp(β) COR	Univariate		Exp(β) AOR	Multivariate	
		N	%	N	%			95% CI	ρ		95% CI	ρ
Disclosure (Sexual Partner/Family relation)	Yes	43	21.1	161	78.9	204	0.87	0.49-1.54	0.65	0.83	0.43-1.59	0.58
	No	23	23.5	98	76.5	121						
Phone call by helath worker)	Yes	52	21.2	193	78.8	245	0.7	0.410-0.91	0.04	1.787	1.41-2.53- 1.632	0.03
	No	14	17.5	66	82.5	80						
Quality of Counseling	Average	39	19.2	164	80.7	203	1.70	0.19-14.78	0.62	1.26	0.65-2.42	0.48
	Very good	27	22.1	95	77.9	122	1.18	0.67-2.05	0.55			
Freely talk about ART	Yes	45	18.9	193	81.1	238	1.36	0.75-2.45	0.30	1.54	0.75-3.14	0.23
	No	21	24.1	66	75.9	87						
Frequency of Talking about ART	All the times	15	33.3	45	66.7	60	3.0	0.17-50.91	0.44			
	Rarely/Never	30	16.8	149	83.2	179	3.2	0.192-54.15	0.41			

4.6.3 Social Cultural and Environmental Communication Factors and ART Non-Adherence

4.6.3.1 Transport Cost

The majority of the respondents (62.8%) reported walking to their health facility as mode of travelling they used to access ART service. The rest used *kabaza* (push bicycle) (27.1%), public transport such as minibus (7.7%) and motorcycle (1.8%). In addition, only 5.8 % (N=325) of clients had permanent employment while the rest were predominantly subsistent farmers, self-employed or rely on piece work as occupation. This means that for the economic status for the majority of the clients is low. Due to poverty therefore, as most of them are unemployed, they may not afford public transport. Health workers also reported that sometimes clients fail to come to the hospital on a scheduled clinic visit date due to lack of transport money.

“When we ask clients who report to our clinic on a date other than their appointment date, some of them answer us that they had no transport and that they felt tired to walk.”

(ART Nurse, FGD01, Matawale HF).

With reference to SEM, such environment factors may act as a barrier to access a clinic and therefore affect scheduled clinic appointments and consequently contribute to non-adherence

Bijker, et al. (2017) found low income as a contributor to non-adherence. Additionally, Kumwenda (2011) also found that poverty of most patients made it difficult for them to afford transport fare to travel to a clinic. In a qualitative study by (Mukumbang et al., 2017), ART clients also mentioned lack of money to pay for transport as a barrier to adherence. Hence transport cost may act as a potential barrier to accessing ART thereby contributing to non-adherence.

4.6.3.2 Distance to Clinic

Even though quantitative results showed that 56.3% of the clients come from 4km and above, a total of 62.8% of the clients walk to health facility to access ART services. Long distance can be considered as a communication barrier if people must depend on walking as a mode of travel to a health facility, and it came out as one of the contributing factors to ART non-adherence. Health workers reported that most clients come from far to access ART in their health facilities. Interestingly, however, some health workers revealed that most clients did not really have problems with distance, as most of them deliberately chose a clinic that is far from home for the sake of their own privacy. Results of logistic regression suggest that distance to clinic has no influence on non-adherence (COR=1.154, 95% C.I:0.667-1.996, ρ -value=0.610). Since confidence interval includes 1, it means that unit changes in distance variable does not affect

the dependent variable adherence/non-adherence. This finding is consistent with Bezabhe et al (2014) in a qualitative study of barriers and facilitators to ART drug therapy and retention in care among adult HIV positive patients in Ethiopia who found that ART clients preferred to receive treatment in clinics far away from home to avoid disclosure of their HIV status to their community members. Receiving ART at a nearby health facility, therefore, was seen as having the potential of disclosure to relatives, neighbours and friends through meeting them at the clinic by chance.

“Some clients tell us that long distance does not matter; they want privacy and they follow quality of service delivery... the problem of long distance is difficult to deal with because some clients chose where they want to access ART for the sake of their own privacy. People around our clinic also chose somewhere far for the same reason of privacy” (Clinician, FGD07, Chipini HF)

Another explanation for this is self-stigma. Although being stigmatised was not conspicuously mentioned by health workers, it is evident in the results. The fact that clients feel comfortable to access ART from a health facility that is far and do not opt for a nearby health facility is due to self-stigma. This behaviour suggests pursuit of privacy, which is driven by self-stigma. People do not want to be seen by others, especially those known to them, accessing ART, hence opting for a health facility that is at a longer distance. This finding is however in contrast with Paterson (2010) and (Kagendo, 2017) who found that proximity of a health facility to a client's home influenced positive adherence. It also contradicts the findings of Wasti. et al (2012) in their ART adherence study in Nepal who found that long travelling distance to and from ART sites was a challenge to adherence and was mentioned by both PLHIV and ART providers. Although other researchers found long distance as factor influencing non-adherence, this study has found that long distance potentially influenced positive adherence rather indirectly as it promoted their privacy. Therefore, this study has contributed new knowledge to the general body of knowledge in that the further the clinics are, the better for the clients as they are assured of privacy than when clinic is within their vicinity.

4.6.3.3 Time spent at a clinic

Time spent at a clinic in this study refers to the total amount of time that is consumed when a client arrives at a clinic for a service to the time they are finally assisted and are ready to go back home. Many clients (84.1%) reported that they spent more than 2 hours at health facility when they went to access ART on a clinic day. However further analysis showed that time spent at a clinic was not significantly associated with adherence to ART among test and start clients. Despite this being the case, healthworkers reported that time spent at clinic had influence on adherence behaviour. Reasons that health workers gave for clients to spend more time at clinic included inadequate staff where health workers are assigned to ART, OPD and other services at the same time; sometimes there are more clients to be assisted on a day resulting in long queues that lead to more waiting time.

In studies related to ART adherence (Watt et al., 2009; Miller et al., 2010; Alamo et al., 2013; Mwale., 2016), reported long waiting hours at health facilities due to high patient loads as one of the key factors influencing non-adherence to ART. Kumwenda (2011) also found that long waiting time contributed negatively to health service utilization and consequently adherence. Long waiting hours therefore has potential to influence non-adherence to ART among test and start clients.

4.6.3.4 Lack of Privacy at ART Clinics

Qualitative results indicate that places where clients receive ART service do not ensure privacy. Health workers mentioned that places where ART services are offered lacked privacy. In many instances, they are open places where everybody sees people receiving ART services and knows that it is a place where ART clients are usually assisted. They mentioned that in most cases it is due to lack of space caused by inadequate infrastructure. Such situations have a communication effect to the clients and can influence behaviour of missing appointments, leading to non-adherence.

“Privacy for ART provision is not adequate at this clinic due to infrastructure. As you can see the rooms where we offer ART service are also used for other services like family planning, ANC. Also, many people pass through here to go to the other side”
(ART Nurse, KII03, Matiya HF)

“There is no privacy due to hospital setting. It is very open to everybody. Some clients come at around 12 noon to avoid meeting other people who come to OPD in the morning for other illnesses.” (ART Nurse, FGD08, Namikango HF).

This finding is consistent with Bandura's view of triadic reciprocity and definition of human behaviour as a triadic, dynamic, and reciprocal interaction of personal factors, behaviour, and the environment and that these three fundamentals work in a reciprocal nature (Harinie et al., 2017). The need for privacy therefore explains that most people are influenced to a very great extent by the people around them and the environment in which they live because of the interaction that occurs, may indeed influence how they respond to adherence behaviour. In related studies such as Paterson (2010); Kumwenda (2011); Kagendo (2017) found privacy as one of the factors that influenced non-adherence to ART.

The study finding has therefore suggested that privacy is an important factor in ART adherence. In most clinics, privacy was a problem due to inadequate infrastructure in health facilities. The fact that ART Clinics were being conducted at an open space and, in most cases, mixed with other clients that came for other services, most clients did not feel comfortable to receive ART services in such open spaces. Lack of privacy at the clinic therefore acts as a potential barrier with reference to the constructs of the Health Belief Model because it has potential to affect their showing up on next visit for drug refill thereby leading to non-adherence

Table 10: Social cultural factors and non-adherence to ART

Variable	Non N=259(79.7%) N	Adhere %	Adhere		Totals n=325	Univariate			Multivariate			
			N	%		Exp(β) COR	95% CI	ρ	Exp(β) AOR	95% CI	ρ	
Time spent at clinic												
<30 min	0		4	1.2	4							
30min-1hr	1	1.5	14	4.3	15	3.265	0.0418- 25.496	0.259	1.23	0.64- 1.45	0.48	
Proximity to clinic												
1-2hrs	10	15.2	33	10.1	43							
>2hrs	55	83.3	274	84.3	329	0.578	0.260-1.284	0.178	1.78	0.73- 2.36	0.34	
<4km	39	21.3	144	78.7		1.154	0.667-1.996	0.610				
\geq 4km	27	19.1	115	80.9								

4.7 Summary of Results

This chapter presented results of the quantitative and qualitative analysis data from test and start sample respondents ($n=325$) and health workers ($n=68$) that were included in the study.

On Chi-square tests of association analysis results suggest that some demographic factors namely age, education and occupation were associated with adherence to ART among test and start ART clients and were found to be statically significant. Demographic factors that were not significantly associated with adherence included gender, marital status, and religion.

Binary and Multiple Logistic regression results of the independent communication factors against the dependent bivariate variable Adherence, were not statistically significant on p-Values. In addition, all the 95% CI of the Crude Odds Ratios (COR) or Exp (β) and Adjusted Odds Ratios (AOR) values, except for phone calls by health workers, included the value 1 and were therefore not statistically significant to explain association between the variables and adherence. Despite this being the case, the qualitative findings did, in fact, suggest that the factors do influence adherence. At intrapersonal communication level, the following factors were reported to have potentially influenced non-adherence under qualitative results; lack of knowledge about test and start, perceived health, negative perception about ART, as well as denial or non- acceptance of HIV positive status. Similarly, the following interpersonal communication factors were reported to have potentially influenced non-adherence particularly under qualitative results; non-disclosure of HIV status to sexual partners and families, mode of communication about test and start, lack of privacy at ART clinics, inadequate or quality of counseling, negative staff attitude as well as lack of health worker follow up through home visits or phone call to clients. In addition, the social cultural factors such as transport cost and time spent at clinic were reported to potentially influence non-adherence under qualitative findings. Qualitative analysis results were found to disagree with the quantitative findings.

The qualitative results of the study at all the three levels of communication were consistent with Bandura's Social Cognitive Theory specifically under the 'reciprocal determinism' construct. This construct is based on the notion that behaviour is a product of several factors that interact with each other. The qualitative results suggest that behaviour is complex and can be influenced by several factors that interact with each other (Green & Peil, 2009). Obviously, there are some factors that could be within the individual's control, however other factors are beyond an individual's control hence may require policy adjustments. The next chapter presents conclusions and recommendations of this study. It is the last chapter in this thesis.

4.8 Strengths and Limitations

The study had several strengths. Firstly, to minimize measurement errors, the study adapted some of the questions from WHO standardized tools for assessing alcoholism and tools for assessing recommended distance to health facility in developing countries. Secondly, the research assistants were trained on how to effectively implement the study protocol during data collection phase to avoid information bias. Thirdly in assuring reliability, research team was trained on how to conduct the interviews and how to record the responses. The training helped in standardising the way the questionnaire, topic guide for IDIs, FGDs and KIIs were used to collect data and the processes leading to and after collection of data to maximise consistency and minimise inter-data-collector variability among the data collectors. Additionally, the study used mixed methods design, and this enabled a certain degree of triangulation in the analysis of data.

Social desirability was an inherent limitation of the survey design in the quantitative part. The study followed self-reported measure of adherence to ART, which might overestimate the level of adherence, and other ART measurement methods were not used. Hence there was a possibility of ART clients' reporting the frequency of missing doses and clinic appointment with varying degree of accuracy coupled with the possibility of the participants giving false responses due to the sensitive nature of the study. However, some of these social desirabilities were minimised by repeatedly asking the question during interviewing to check consistency of response given.

The study was conducted within Zomba district which may limit generalization to Zomba district. However use of health workers that have experience working in various districts provided an opportunity for them to provide responses that may have a broader context as issues were likely to be looked at from a wider perspective.

There was possibility of certain level of reflexivity based on my own identity and positionality that may have influenced the qualitative component of the study in choosing the kind of questions to ask and how I framed the questions because my own preconception about the subject of ART adherence. On one hand the responses I got and respondents feelings through the interaction may have developed, shaped, and influenced the reframing of research questions, data analysis as well as conclusions and recommendations. However, all these experiences helped to achieve congruence in the study.

Another limitation of the study was over reliance on health workers to report on client behaviour which might to some extent be subjective. In addition, the cross-sectional nature of the design, may mean the information is only true for that time of data collection and cannot speak to causality. However, use of mixed methods and collecting data from various units such as ART

clients, health workers, and expert clients provided opportunity for data triangulation which has a possibility of providing a true and elongated picture of the population.

Finally, the target sample included 10% sample to cover for nonresponse to ensure an adequate sample size. This helped to cover for the refusal rate and hence helped to deal with non-response.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the conclusion of the results of the study and main recommendations for improving adherence to ART among test and start clients based on the findings of this study. The study found that adherence to ART among test and start clients in Zomba district was suboptimal. It has also shown that adherence to ART is a dynamic behaviour that can be influenced by many factors. The study concludes that despite lack of quantitative evidence that communication factors influence adherence, qualitative results showed that they in fact do. That is to say, communication factors at intrapersonal, interpersonal and socio-cultural levels have various potential influences on adherence to ART among test and start clients.

5.1 Conclusions

5.1.1 Intrapersonal Communication Factors and Non-adherence

Quantitative findings of the study showed that personal communication factors such as lack knowledge of test and start, perceived health, negative perception about ART, mode of communication as well as denial or non- acceptance of HIV positive status are not associated with adherence to ART. However, the qualitative results provided divergent results and provided evidence that the factors do, in fact, influence adherence.

Despite lack of quantitative evidence that hearing about test and start for the first time at the hospital was not associated with adherence, the qualitative findings suggested that it had potential to influence adherence. This is because those clients that had prior knowledge about test and start were perceived to be psychologically and emotionally prepared about immediate ART initiation as opposed to those that were told for the first time upon HIV diagnosis at the hospital.

Mode of communication for test and start was not significantly associated with adherence under quantitative findings. However, qualitative evidence suggests that it has potential to influence on non-adherence. Presently, communication about test and start has been biased to the health facility than other equally important behaviour change communication modes such as radio, posters, fliers and community sensitizations. This can be improved through engaging closely with the community, intensifying behaviour change messages through radio, posters, newspapers and not relying heavily on health facility-based messaging. Messages accessed in the communities will likely prepare the potential clients in advance before meeting health workers at the health facility.

The qualitative findings further suggest that with test and start, many people are likely to experience denial about their HIV positive status due to perceived health and perception that ART may not be needed at the asymptomatic stage. Although there is lack of scientific evidence of association, all these factors still have potential to influence an individual's internal decision-making mechanisms, which may translate into behaviour of non-adherence being displayed.

The quantitative part of the study has shown that there is not enough evidence to support the assertions that interpersonal communication factors influence adherence except for one factor namely phone calls by health workers to clients. The factors include non-disclosure of HIV status to sexual partners and families, lack of privacy at ART clinics, inadequate or poor quality of counseling, negative staff attitude as well as lack of health worker phone call to clients. Despite lack of statistical evidence, the qualitative findings suggests that the factors do influence adherence.

Disclosure of HIV or ART status to sexual partners and family members was seen to influence adherence under qualitative results. This is because a partner is likely to offer psychological support and help remind client about taking pills and clinic appointments thereby promoting adherence. Good quality counseling and staff attitude towards patients potentially influence adherence as it is key to preparing potential ART clients towards starting and adhering to treatment once they start the treatment. Freely discussing about ART with friends has been seen to potentially influence adherence under qualitative findings. This is because freely discussing about ART with friends helps improve adherence through building self-esteem, facilitating acceptance, promoting positive living as well as minimizing self-stigma.

There is statistical evidence to support the assertion that health workers follow up with clients does influence adherence both from quantitative and qualitative findings. This can be through phone calls and home visits by health worker. Clients that are in constant communication with health workers are more likely to adhere to treatment than clients who are never or rarely in touch with the health workers

5.1.2 Social cultural Factors and Adherence to ART

Social cultural factors such as inability to cater for transport cost to clinic due to poverty and prolonged time spent at health facility are not associated with adherence based on quantitative findings. However qualitative findings revealed divergent results and suggested that the factors do influence non-adherence. Since the common mode of travel to clinic was identified as

walking, results suggest that clients who get tired of walking can miss appointment if they have no alternative way of getting to the clinic for ART refill.

Although other related studies found long distance to health facility as promoting non-adherence, the qualitative findings of this study observed that long distance to health facility promotes privacy of patients thereby enhancing adherence. This study has therefore contributed new knowledge to the general body of knowledge in that the further the clinics are, the better for ART clients because it promotes their privacy as people may not know that they are on ART. Therefore, though quantitative results showed that most ART clients live 4km or more from a health facility for ART services, long distance had had the advantage of privacy for the concerned clients as opposed to accessing ART from a nearby health facility.

5.2 Recommendations for Improving ART Adherence among Test and start ART Clients

The study has concluded that adherence to ART among test and start clients is still suboptimal in Zomba District. Even though quantitative results and qualitative results were divergent in that quantitative data did not show statistical significance of association between adherence and the communication factors, the qualitative results show that the various communication level factors discussed in this paper are important in as far as adherence to ART is concerned and cannot completely be ignored. Therefore, further research is required in this field to further explore these factors. Notwithstanding, health care providers, District Health Management Teams (DHMTs) and policy makers are key to ensuring that appropriate changes are implemented to ensure optimal adherence among test and start clients. Below are some of the key recommendations for enhancing adherence among test and start ART clients.

5.2.1 Intrapersonal level communication factors

- Communication about test and start should be targeted to everyone regardless of HIV status. Messages should go not only to those testing HIV positive but also to those that have not yet tested for HIV. In addition, communication about test and start should start right at community level. It should not be confined to the health facility. For instance, behaviour change at the household and individual level has gained traction amongst policymakers as a key focus of intervention (Heiskanen et al., 2010).
- There is need for intensified health education activities in the community to educate the masses on the concept of test and start and the importance of adhering to ART to increase awareness and knowledge about test and start. There is need also to involve religious leaders, traditional leaders, primary school, and secondary school teachers in communicating messages concerning test and start. Other literature has demonstrated

that community-based responses to HIV/AIDS generate positive health and development outcomes and, in some cases, more positive outcomes than those responses delivered by states or other facilities (UNAIDS, The critical role of communities in reaching global targets to end the AIDS epidemic, 2015).

5.2.2 Interpersonal Communication Factors

- For effective adherence, communication about test and start messages should not only rely on health workers at health facility level. Rather, other media of communication such as through radio, television and posters should also be emphasized. For instance, the multichannel approach was successful in Senegal at promoting positive changes in households' attitudes, beliefs, and behaviors, (Brinkerhoff et al., 2018).
- In order to overcome the issue of nondisclosure of HIV positive status and ART status to sexual partners, couple counseling should be encouraged by health workers to foster acceptance of positive HIV status and subsequently adherence. Studies have shown that Behavioural Marital/Couple Therapy and Cognitive Behavioural Therapy-based couple counselling have significantly reduced relationship distress (Klann et al., 2011; Schofield et al., 2012).
- Health workers should conduct follow ups for those who miss scheduled appointments to enhance back-to-care for potential defaulters.
- Intensive adherence counselling should be promoted among all test and start ART clients. Hence, as Perloff R.M et al (2006) suggests, cultural training and solid communication skills are necessary to achieve effective communication for behaviour change.
- Health workers in ART programs need to be well educated in provider-client relations to improve their handling of clients that may also improve their adherence to ART. (Finchchario et al., 2012).

5.2.3 Social cultural Factors and Adherence to ART

- Deliberate efforts should be made to increase staff assigned to ART service provision on a particular day so that clients are assisted in good time rather than clients having to spend the whole day at a clinic.

5.2.4 Policy and System Recommendations

- Health workers should ensure that the clients are well educated on the importance of test and start prior to ART initiation as well as having a treatment monitor.
- A system to follow up ART clients with missed scheduled appointments should be strengthened to enhance ART adherence.
- When client has been diagnosed HIV positive, health workers should ensure physical escort of clients from HTS room to ART counselling room is done.

5.3 Recommendations for further studies

- Since the study was conducted in Zomba District only, the researcher recommends that the same study should be conducted in other districts especially in other regions of Malawi to rule out contextual issues, where differences in results may be attributed to differences in population background characteristics such as culture.
- Further studies should assess the role of media in disseminating information about test and start in Malawi with focus on challenges and opportunities.

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APPENDICES

Appendix 1: Quantitative Questionnaire in English

TEST AND START CLIENT QUESTIONNAIRE

Communication factors influencing antiretroviral therapy non-adherence among test and start clients in Zomba District, Malawi.

Date of Data collection ____/____/____2019 Questionnaire ID_____

Enumerator's Name: _____ Phone number _____

Introduction

My name isfrom the University of Malawi – The Polytechnic in Blantyre. I am conducting a study on “*Communication factors influencing antiretroviral therapy non-adherence among test and start clients in Zomba District, Malawi.* I will ask you a few questions and this will take approximately 15 minutes. Your responses will be completely confidential as they will only be used for this study and are important for this survey. Your participation is completely voluntary. You are therefore free to participate or refuse to participate.

After informed consent, then proceed administering the questionnaire

Demographic Information

	Question	Code	Response	Logic
A1	Name of Health Facility			
A2	Respondent ID Number			
A3	What is your Sex?			
		0	Male	Select one
		1	Female	
A4a	What is your date of birth?			

- A4b Respondent age in years. Numeric
- A5 What is the highest level of education you have attained?
 1 Primary Select one
 2 Secondary
 3 Technical or vocational education (not college/university)
 4 Tertiary education
- A6 What is your religion? affiliation?
 1 Christian
 2 Muslim
 3 Traditional
 4 No religious affiliation
 5 Others, please specify: _____
- A7 What is your current marital status?
 1 Single, never married and not living with a partner
 2 Monogamous marriage
 3 Polygamous marriage
 4 Widowed
 5 Divorced/Separated
- A8 What do you do for earning a living? (Choose all that apply)
 1 Farming
 2 Self-employed/skilled worker
 3 Salaried government
 4 Salaried private sector
 5 None
 6 Other (specify)

Personal/Patient Factors

- B1 When did you start ART?

- 1 Less than 1 month
- 2 1 to 6 months
- 3 6-12 months
- 4 More than 2 years

B2 Since you knew your HIV positive status, with whom did you share the information?
TickTick all that apply.

- 1 Spouse
- 2 Girlfriend/Boyfriend
- 3 Mother / Father
- 4 Other relatives
- 5 I did not disclose to anyone about my HIV Status

B3 Have you ever heard about test and start?

- 0 Yes If no go to B5
- 1 No

B4 How did you hear about test and start

- 1 Radio
- 2 Newspaper
- 3 Poster
- 4 Internet
- 5 Other specify

B5 Are you currently taking antiretroviral treatment (ARV) for HIV/AIDS?

- 0 Yes if No go to B6
- 1 NO if No, go tob6.....

B6 Why are you not currently taking antiretroviral treatment (ARV) for HIV/AIDS?
TickTick all that apply

- 1 I feel health to take ARVs

- 2 Clinic is far
- 3 I am afraid of the side effects of ARVs
- 4 an afraid my partner would notice

B7 In the past 4 weeks how many times did you miss taking your medication?

- 1 Only once
- 2 less than 5 times
- 3 More than 5 times If 1,2,3 go to B8
- 4 I haven't missed in drugs in the past 4 weeks

B8 Why did you miss taking your medication? *Tick all that apply*

- 1 I simply forgot
- 2 I hate taking drugs daily
- 3 I don't feel like taking the drugs
- 4 Other please specify

B9 How did you feel about starting ART as soon as you were tested HIV positive?

- 1 I was comfortable to start
- 2 I felt I was not ready
- 3 Other please specify.....

B10 Do you drink alcohol?

- 0 Yes If yes go to B11
- 1 No

B11 How often during the past year did you have a drink containing alcohol?

- 1 Monthly or less
- 2 2-4 times a month
- 3 2-3 times a week
- 4 or more times a week

B12 Thinking about the past year, how often did you have 6 or more drinks with alcohol on one occasion?

- (0) Never
- (1) Less than monthly
- (2) Monthly
- (3) Weekly
- (4) Daily or almost daily

B13 . How often during the past year have you been unable to remember what happened the night before because of your drinking?

- (0) Never
- (1) Less than monthly
- (2) Monthly
- (3) Weekly
- (4) Daily or almost daily

B14 In the past 3 months, did drinking alcohol prevent you from taking medication consistently?

- 1 Yes
- 2 No
- 3 I did not drink alcohol in the past 3 months

Interpersonal Factors

C1 How would you describe your relation with ART providers?

- 1 Bad
- 2 Good
- 3 Very good
- 4 Perfect

C2 Do providers remind you of your next clinic visit?

- 1 Yes
- 2 No
- 3 Sometimes

C3 Have you ever been communicated to by a health worker through phone or home visit while you are at home?

- 1 Most of the times
- 2 Sometimes
- 3 Rarely
- 4 I have never been communicated to by health worker

C4 How would you rate the counseling you receive at clinic?

- 1 Bad
- 2 Good
- 3 Very good
- 4 Perfect

C5 Do you freely talk about your HIV and ART Status to your friends?

- 0 Yes If Yes, go to C6
- 1 No If No, go to C7

C6 How often do you talk about your HIV and ART Status to your friends?

- 1 All the times
- 2 Most of the times
- 3 Sometimes
- 4 Rarely
- 5 I never talk about it

C7 Why don't you talk about your HIV and ART Status to your friends? *Tick all that apply*

- 1 I fear people would laugh at me??????
- 2 I am not comfortable
- 3 I feel guilty of having been careless with my sexuality?
- 4 I feel ashamed to talk about it

Socio-cultural and environment factors

D1 How far is it from home to your ART clinic. (If not sure, please estimate)

- 1 Less than 1 km
- 2 2-3 km
- 3 4-5 km
- 4 More than 5 km

D2 How do you travel to the clinic?

- 1 Walking
- 2 Push bicycle (own? Or kabaza?)
Motorcycle
- 3 Car
- 4 Public transport
- 5 Other please specify

D3 How much time do you spend at each clinic day?

- 1 less than 30 minutes
- 2 between 30 minutes to 1 hour
- 3 between 1 to 2 hours
- 4 More than 2 hours

D4 In the past 12 months, how many times have you missed an ART clinic appointment?

- 1 Only once if 1,2,3 got D4a
- 2 less than 3 times
- 3 More than 3 times
- 4 I haven't missed a clinic appointment

D4a Why did you miss the clinic appointment on the specified dates?

Tick all that apply

- 1. I forgot
- 2. Had no transport money
- 3. Its far
- 4. Was busy at work
- 5. Other please specify.....

D5 Describe your experience the last time you were at the ART Clinic:

.....
.....

D5a I was treated with respect and dignity

- 0 Yes
- 1 No

D5b The room had rivacy

- 0 Yes
- 1 No

D5c The provider was friendly to me

- 0 Yes
- 1 No

D5d I was satisfied with the counseling

- 0 Yes
- 1 No

- D5e I was offered more than one service in one room
- 0 Yes
- 1 No
- D6 Have you ever stopped taking ART because you were prayed for?
- 0 Yes
- 1 No
- D7 Does your religion discourage you from taking ART?
- 0 Yes
- 1 No
- D8 Have you ever visited a herbalist for herbal drugs for HIV?
- 0 Yes If yes go to D8a
- 1 NO
- D8a Why did you opt for herbal medicine? *Tick all that apply.*
- 1 ARVs don't seem to work for me
- 2 I trust herbal medicine
- 3 I wanted the erbal drugs to compliment ARV
- 4 I don't trust ARVs
- 5 ARVs give me side effects
- 6 Other (please specify).....

Appendix 2: Quantitative Questionnaire in Chichewa

QUANTITATIVE QUESTIONNAIRE-CHICHEWA

Date of Data collection/Tsiku: ____/____/____2019 Questionnaire ID _____

Enumerator's Name: _____ Phone number _____

Communication factors influencing antiretroviral therapy non-adherence among test and start clients in Zomba District, Malawi

Introduction/Chiyambi

Dzina langa ndi Ndachokera ku Polytechnic ku Blantyre yomwe ndi nthambi ya Univesite ya Malawi. Tili pa kafukufuku wokhudza zinthu zomwe zingapangitse mchitidwe wosiya kumwa mankhwala a ARV mwa ndondomeko kwa iwo omwe adayamba mankhwala mu njira ya Ma ARV pompopompo. Ndili ndi mafunso angapo oti ndikufunsi ndipo izi zitenga mphindi pafupi fupi khumi zokha. Mayankho anu akhala a chinsinsi ndipo ndi a phindu pa kafukufuku ameneyu.

Kutenga nawo mbali mu kafukufukuyu si kokakamiza. Muli ndi ufulu kusatenga nawo mbali kapena kukana kuyankha funso lomwe simuli okonzeka kuliyanika.

1. Demographic Information

	Question	Code	Response	Logic
A1	Dzina la kiliniki		
A2	ID Number ya oyankha.....			
A3	Ndinu Mwamuna/Mkazi			
		0	Mwamuna	Select one
		1	Mkazi	
A4a	Tsiku /Chaka chobadwa		
A4b	Muli ndi zaka zingati		Numeric

A5 Maphunziro munafika nawo pati?

- 1 Pulaimale Select one
- 2 Sekondale
- 3 Tekiniko
- 4 Koleji/Yunivsite

A6 Ndinu a mpingo wanji?

- 1 Chikhristu
- 2 Chisilamu
- 3 Wa makolo/chikhalidwe
- 4 Ndilibe mpingo uliwonse
- 5 Zina, Tchulani: _____

A7 Kodi muli pa banja?

- 1 Osakwatira ndikukhala ndekha
- 2 Okwatira, mkazi/mwamuna mmodzi
- 3 Okwatira mitala
- 4 Okonedwa anatisiya
- 5 Banja linatha

A8 Njira yanu yopezera ndalalma

- 1 Ulimi
- 2 Ntchito za manja yozilemba ndekha
- 3 Ndili pa ntchito ya boma
- 4 Ndili pa ntchito ya ma bungwe omwe si a boma
- 5 Palibe
- 6 Zina, Tchulani: _____

2. Personal/Patient Factors

B1 Munayamba liti kumwa ma ARV?

- 1 Mwezi womwe uno
- 2 Miyezi 1 to 6 yapitayi
- 3 Miyezi 6-12 yapitayi
- 4 Zaka zoposera 2 zapitazi

B2 Chiyambireni kumwa ma ARV ndi ndani yemwe munauzapo ndani za ichi? *Check all that apply*

- 1 Mkazi/mwamuna wanga
- 2 Chibwenzi
- 3 Makolo anga
- 4 Achibale ena
- 5 Sindinuze wina aliyense

B3 Kodi Munamvapo khani ya ma ARV pompompo?

- 0 Inde **If no go to B5**
- 1 Ayi

B4 Munamva kudzera mu njira yanji?

- 1 wailesi
- 2 Nyuzipepala
- 3 Posita
- 4 Intanet
- 5 Zina, Tchulani: _____

B5 Kodi panopo mukumwabe mankhwala a ma ARV?

- 0 Inde if No go to B6
- 1 Ayi

B6 Chifukwa chiyani simukumwa mankhwala a ma ARV? *Check all that apply*

- 1 Ndimazimva kusadwala
- 2 Chipatala chili ku kutali
- 3 Ndimaopa kuti ma ARV angandidwalitse
- 4 Ndimaopa okonedwa wanga angadziwe kuti ndimamwa ma ARV

B7 Mu ma sabata 4 apitawa ndi masiku angati omwe munadumphitsa kumwa mankhwala?

- 1 Kamodzi kokha
- 2 Kochepera kasanu
- 3 Koposa kasanu **If 1,2,3 go to B9**
- 4 Sindinadumphitsepo kumwa mankhwala mu sabata 4 zapita

B8 Chifukwa chiyani munadumphitsa kumwa mankhwala a ma ARV mu masiku amenewo
Check all that apply

- 1 Ndidaiwala
- 2 Sindikonda kumwa mankhwala tsiku ndi tsiku
- 3 Sindikuwafuna
- 4 Zina, Tchulani: _____

B9 Munamva bwanji a chiptala atakufotokozerani zoyamba mankhwala pompopompo?

- 1 Sindidagwirizane nazo
- 2 Sindidakonzeke
- 3 Zina, Tchulani: _____

B10 Kodi mumamwa mowa?

- 0 Inde **If yes go to B11**
- 1 Ayi

B11 Mu chaka chapitachi ndi kangati komwe munamwa chokumwa chokhala ndi mowa

- 1 Monthly or less
- 2 2-4 times a month
- 3 2-3 times a week
- 4 4 or more times a week
- 5 Never

B12 Mu chaka chapitachi kodi ndi ka nthawi yochuluka bwanji komwe munamwa mowa okwana mabotolo 6 kapena kuposa apo pa Tsiku limodzi

- (5) Sizinachitikepo
- (6) Kochepera Mwezi umodzi
- (7) Pa Mwezi uliwonse
- (8) Sabata iliyonse
- (9) Tsiku ndi tsiku

B13. . Mu chaka chapitachi kodi ndi ka nthawi yochuluka bwanji komwe simunathe kukumbukira zomwe munachita usiku wa dzulo lake Chifukwa choti munamwa mowa

- (0) Sizinachitikepo
- (1) Kochepera Mwezi umodzi
- (2) Pa Mwezi uliwonse
- (3) Sabata iliyonse
- (4) Tsiku ndi tsiku

B14 Mu miyezi itatu yapitayi kodi kumwa mowa kunakulepheretsaponi kumwa mankhwala a ma ARV?

- 1 Inde
- 2 Ayi
- 3 I did not drink alcohol in the past 3 months

Interpersonal Factors

C1 Mungalongosle bwanji ubale wanu ndi opereka mankhwala a ma ARV?

- 1 Si wabwino konse
- 2 Wabwino pang'ono
- 3 Ndi wabwino
- 4 Wabwino kwambiri

C2 Kodi a chipatala amakukumbutsani za tsiku lozabweranso ku chipatala?

- 1 Inde
- 2 Ayi
- 3 Mwa apo ndi apo

C3 Munayamba mwayankhulana ndi wachipatala pa foni inu muli kunyumba kwanu?

- 1 Nthawi zambiri
- 2 Nthawi zina
- 3 Mwa apo ndi apo
- 4 Sizinachitikepo

C4 Kodi uphungu womwe mumaladira ku chipatala wokhudza ma ARV pompompo mumawuwona bwanji

- 1 Si wabwino konse
- 2 Pang'ono
- 3 Wabwino
- 4 Wabwino kwambiri If Yes go to C6

C5 Kodi mumwamasukira kukamba ndi anzanu za kumwa ma ARV?

- 0 Inde
- 1 Ayi If No, go to C7

C6 Ndi kwa nthawi yochuluka bwanji komwe mumwamasukira kukamba ndi anzanu za kumwa ma ARV?

- 1 Nthawi zonse
- 2 Nthawi zambiri
- 3 Nthawi zina
- 4 Mwa apo ndi apo
- 5 Sizinachitikepo

C7 Chifukwa chiyani simumasuka kukamba ndi anzanu za kumwa mankhwala a ma ARV?

- 1 Ndimaopa kuti anthu andiseka
- 2 Sindili omasuka kutero
- 3 Ndimazimfera chisoni ndekha pa za moyo wanga wa wosadziletsa ku zogonana
- 4 Ndimachita manyazi

Socio-cultural and environment factors

D1 Pali mtunda wotalika bwanji kuchoka komwe mumakhala ndi ku kiliniki?

- 1 Ochepera 1 km
- 2 2-3 km
- 3 4-5 km
- 4 Osachepera 5km

D2 Mumayenda bwanji popita ku kiliniki?

1. Ndimayenda pansu
2. Njinga yanga yopalasa/ kabaza
3. Njinga yamoto
4. Galimoto yanga
5. Ndimakwera ma minibus
6. Zina, Tchulani: _____

D3 Mukapita ku kiliniki mumakhalako nthawi yochuluka bwanji kuti muthandizidwe?

- 1 Yochepera 30 minisi
- 2 30 minisi -1 hr
- 3 1 - 2 hours
- 4 Osachepera 2 hrs

D4 Mu miyezi 12 yapitayi ndi kangati komwe munalephera kubwera ku kiliniki pa tsiku lomwe anakulemberani kuti muzabwere?

- 1 Kamodzi kokha If 1,2,3 go to D4a
- 2 Kochepera katatu
- 3 Kopitirira katatu
- 4 Sizinachitikepo

D4a Chifukwa chiyani munalephera kubwera ku kiliniki pa tsiku lomwe anakulemberani kuti muzabwere? *Check all that apply*

- 1. Ndinaiwala
- 2. Ndinalibe ndalama ya tilansipoti
- 3. Ndi kutali
- 4. Ndinatanganidwa ndi ntchito zina
- 5. Zina, Tchulani: _____

D5 Tsiku la posachedwa lomwe munabwera ku kiliniki

D5a Anandithandiza mondisungira ulemu ndi umunthu wanga

- 0 Inde
- 1 Ayi

D5b Chipinda chothandizira chinali chosunga chinsinsi

- 0 Inde
- 1 Ayi

D5c Wa chipatala anandithandiza mwa nsangala

0 Inde

1 Ayi

D5d Ndinakhutitsidwa ndi uhphungu womwe adapereka wokhuza ma ARV

0 Inde

1 Ayi

D5e Adandifokozera za zinthu zina za umoyo kupatula za HIV

0 Inde

1 Ayi

D6 Kodi mudasiyapo kumwa ma ARV chifukwa adakupempherani?

0 Inde

1 Ayi

D7 Kodi mpingo wanu umaletsa kumwa ma ARV?

0 Inde If yes go to D8a

1 Ayi

D8 Kodi munapitapo kwa asing'anga kukafuna mankhwala okhudzana ndi HIV?

0 Inde

1 Ayi

D8a Chifukwa chiyani mudapita kwa asing'anga kukafuna mankhwala a HIV?

1 Sakumagwira ntchito mthupi mwanga

2 Ndimakhulupira kwambiri mankhwala achikuda

3 Ngati othandizira ma AR V

- 4 Ma ARV sindiwakhulupira
- 5 Ma ARV amandidwalitsa
- 6 Zina, Tchulani: _____

ZIKOMO CHIFUKWA CHA MAYANKHO ANU

Appendix 3: In-depth Interview Guide for ART clients

Communication factors influencing antiretroviral therapy non-adherence among test and start clients in Zomba District, Malawi.

In-depth Interview Guide for ART clients

Date /Tsiku la intavyu: ____/____/__2019 Questionnaire ID _____

Enumerator's Name/Dzina la wofunsa /: _____ Phone number _____

Clinic Name/Dzina la kiliniki : _____

Introduction/Chiyambi

My name isfrom the University of Malawi – The Polytechnic in Blantyre. I am conducting a study on “*Communication factors influencing antiretroviral therapy non-adherence among test and start clients in Zomba District, Malawi*”. I will ask you a few questions and this will take approximately 15 minutes. Your responses will be completely confidential as they will only be used for this study and are important for this survey. Your participation is completely voluntary. You are therefore free to participate or refuse to participate.

Dzina langa ndi Ndachokera ku Polytechnic ku Blantyre. Tikupanga kafukufuku wokhudza zinthu zomwe zingapangitse mchitidwe wosiya kumwa mankhwala a ARV mwa ndondomeko kwa iwo omwe adayamba mankhwala mu njira ya Ma ARV pompopompo. Ndili ndi mafunso angapo oti ndikufunsi ndipo izi zitenga mphindi pafupifupi makumi awiri okha. Mayankho anu akhala a chinsinsi ndipo ndi a phindu pa kafukufuku ameneyu. Kutenga nawo mbali mu kafukufukuyu si kokakamiza. Muli ufulu kukana kutenga nawo mbali kapena kukana kuyankha funso Lomwe simuli okonzeka kuliyanika.

1. Infomeshoni yoyambilira ya munthu ameme akulandila ma ARV.

- a) Kodi Ndinu mwamuna/mkazi?
- b) Kodi muli ndi zaka zingati?
- c) Kodi maphunziro anu ndi munalekeza potani? (sanapite kusukulu, pulayimale, sekondale, maphunziro a pamwamba)
- d) Kodi pali mtunda wotalika bwanji kuchokera ku nyumba kufika kiliniki ya ma ARV (kuchuluka kwa nthawi/mtunda)

- e) Kodi mumayenda bwanji popita ku kiliniki?
- f) Kodi ndi njira zANJI zomwe mumapezera ndalalma ndalama kapena thandizo?

2. Mbiri ya wodwala

- a. Kodi munayamba liti kumwa ma ARV?
- b. Kodi mungandifotokozere m“mene munayambira ma ARV?
- c. Kodi mudamvapo za ndondomeko ya ma ARV pompopompo?
- d. Kodi mudamvera kuti za za ndondomeko ya ma ARV pompopompo?
- e. Mmaganizo anu , Kodi mumayiona bwanji ndondomeko ya ma ARV pompopompo?
- f. Kodi muli okhutira ndi momwe anafalitsira nkhani ya ndondomeko ya ma ARV pompopompo?
- g. . Kodi mukuona kuti ndi zinthu ziti zimene zingalepheretse wolandila ma ARV kumwa
Ma ARV potsaila dongosolo?
.....
.....
- h. Kodi mudauza aliyense kuti mukumwa ma ARV? Mudauza ndani?
- i. Kodi okonedwa/abale akukupatsani tiritmenti yotani monga wolandira ma ARV?
- j. Kodi munayamba mwaona kusintha kuli konse pa m“mene okonedwaanu/achibale amakupangilani tiriti chifukwa choti mmuli pa ARV?
- k. Kodi ndi zinthu ziti zimene zimakulimbikitsani kuti mukhale ndi umoyo wosadandaula ngakhale muli pa ma ARV?
- l. Kodi nanga ndi zinthu ziti zimene zimapangitsa kuti munthu akhale odandaula chifukwa chakuti iye ali pa ma ARV?
- m. Kodi inuyo, mumatsatira bwinokamwedwe ka ma ARV? Nanga nchifukwa chiyani?
- n. Kodi mu miyezi inayi yapitayi, panali nthawi imwene simunatsatire ndodondomeko ya ma ARV?

- o. Kodi ndi chifukwa chiyani munalephera kukatenga ma ARV ku kililniki?
- p. Kodi muli ndi wina aliyense wokuthandizani pa kamwedwe ka ma ARV?
- q. Kodi mukudziwapo wina ali yense amene ali pa ma ARV koma sasatila kamwedwe ka ma ARV? Nchifukwa chiyani samatsatira kamwedwe koyenera? (Funsani ngati ma ARV amapezeka nthawi zones; ngati madokotala ndi aulemu ndiposons omvetsa kapena ayi; ndiponso funnsani zina ndi zina?)
- r. Kodi inuyo mukanafuna ndi zinthu ziti zikanachitka pokkhuzana ndi kufalitsa nkhani ya ma ARV pompopompo kuti zonse ziziyenda bwino ?

ZIKOMO CHIFUKWA CHA MAYANKHO ANU

Appendix 4: Topic Guide: Focus Group Discussion (FGD)

TOPIC GUIDE: FGD

FGD for ART Providers

Date of Data collection/Tsiku: ____/____/____2019 Questionnaire ID_____

Interviewer Name/Dzina la ofunsa: _____ Phone number_____

Introduction/Mau oyamba

My name isfrom the University of Malawi – The Polytechnic in Blantyre. I am conducting a study *“Communication factors influencing antiretroviral therapy non-adherence among test and start clients in Zomba District, Malawi”*.I will ask you a few questions and this will take approximately 15 minutes. Your responses will be completely confidential as they will only be used for this study and are important for this survey. Your participation is completely voluntary. You are therefore free to participate or refuse to participate

Dzina langa ndine Ndachokera ku Polytechnic ku Blantyre .Tili pa kafukufuku wokhudza zinthu zomwe zingapangitse mchitidwe wosiya kumwa mankhwala a ARV mwa ndondomeko kwa iwo omwe adayamba mankhwala mu njira ya Ma ARV pompompo. Ndili ndi mafunso angapo oti ndikufunsi ndipo izi zitenga mphindi pafupi fupi khumi zokha. Mayankho anu akhala a chinsinsi ndipo ndi a phindu pa kafukufuku ameneyu. Kutenga nawo mbali mu kafukufukuyu si kokakamiza ayi. Muli ndi ufulu kusatenga nawo mbali kapena kukana kuyankha funso lomwe simuli okonzeka kuyankha.

1. Based on your own observation and experience so far, do your clients know about Test and start. If so, explain how they get knowledge about the concept. *Kudzera mu kugwira ntchito yanu ndi kuona kwanu kodi ma patient anu amadziwa za ndondomeko ya ma ARV pompompo, nanga ndi njira ziti zomwe ambiri amadziwira? Fotokozani*
2. How do clients perceive Test and start method of ART initiation? *(Kodi ndondomeko ya ma ARV pompompo akuiwona bwanji anthu omwe mukuwayambitsa mankhwala kudzera mu ndondomekoyi?)*
3. What do you think are the possible reasons for non- adherence among test and start ART clients?*(Fotokozani ndi zifukwa ziti zomwe zikupangitsa kuti anthu omwe adayamba*

kumwa ma ARV kudzera mu ndondomeko ya ma ARV pompompo akumasiya kumwa mankhwala)

4. Do you think the current communication strategies regarding test and start are effective?*(Kodi Mukuganiza kuti njira zofalitsira uthenga zomwe zikugwiritsidwa ntchito panopo zikuthandiza mokwanira kumvetsa ndi kuilandira ndondomeko ya ma ARV pompompo?)*
5. What should be done to improve the current communication strategies so as to improve adherence among Test and start clients?*(Kodi mukuganiza kuti ndi ziti zomwe zingasinthe pakufalitsa ma uthenga a ma ARV pompompo kuti tichepetse mchitidwe osiya kumwa mankhwala a ma ARV?)*
6. Is there any difference between the counseling procedures now and before test and start was introduced? If yes can you explain them? *(Kodi pali kusiyana pakati pa uphungu omwe umaperekedwa kale ndi omwe ukuperekedwa mu ndondomeko ya ma ARV pompompo. Ngati pali kusiyana fotokozani)*
7. What do you think should be included in the adherence counseling for Test and start?*(Kodi mukuganiza kuti mu ndondomeko yopereka uphungu mu ma ARV pompompo miukidwe zotani kuti anthu asamasiye kumwa ma ARV)*
8. Do you think there is adequate privacy for ART provision at your clinic? *Explain(Kodi mukuganiza kuti malo operekera mankhwala ndi othandiza kusunga chinsinsi pa chipatala pano?Longosolani)*
9. What procedures do you follow when initiating ART under Test and start regime?*Tandifotokozelani mwasatane ndondomeko imene mumasata mukamapeleka ma ARV ku odwala mu ndondomeko ya ma ARV pompompo panthawi yoyamba?*
10. How do you assist clients to appreciate the benefits of ART? *Kodi olandila ma ARV mumawathandiza bwanji kuti adziwe zaubwino wotsata ndondomeko ya kamwedwe ka ARV?*
11. What communication related challenges do you face on implementing Test and start of ART initiation? *Kodi mumapeza mabvuto anji pa kiliniki ino pa ntchito ya ma ARV pompompo? (Longosolani mwatsatane(Mufunse ngati zinthu monga umphawi, njala,*

masayidi efeketi a ma arv, kuchuluka kwa mapilisi pakumwa, kusowa ndi, ku talika mtunda wakukiliniki ndi mabvuto)

12. How can we deal with those challenges? Explain. *Kodi mabvutowa angathe bwanji? Fotokozani*
13. How do you perceive Test and start ART clients? *Kodi inuyo m“mawaona ndi kuwaganizira bwanji anthu olandira ma ARV? (Mufunnse ngati olandila ma ARV amatsalidwa, amapezana ndi mabvuto ena ali onse pa nkhani ya ma ARV)*
14. What activities concerning ART provision do you carry out at this clinic?. *Kodi pakiliniyi pamachitika ntchito zANJI pankhani ya ma ARV(Funsani ngati pamachitika uphungu, kuyendera olandira ma ARV, kuphunzitsa ndi zina zambiri))*
15. What do you recommend that should be done to promote adherence among Test and start clients? *Kodi chofunika chiyani kuti olandila ma ARV athe kutsatira ndondomeko ya ma ARV pompopompo*

ZIKOMO KWAMBIRI CHIFUKWA CHOYANKHA MAFUNSO ANGA.

Appendix 5: Interview Guide: Key Informant Interviews (KII)

INTERVIEW GUIDE: KII

KII For ART Providers

Date of Data collection/Tsiku: ____/____/____2019 Questionnaire ID _____

Enumerator's Name: _____ Phone number _____

Introduction/Mau oyamba.

My name isfrom the University of Malawi – The Polytechnic in Blantyre. I am conducting a study "*Communication factors influencing antiretroviral therapy non-adherence among test and start clients in Zomba District, Malawi*" I will ask you a few questions and this will take approximately 15 minutes. Your responses will be completely confidential as they will only be used for this study and are important for this survey. Your participation is completely voluntary. You are therefore free to participate or refuse to participate.

Dzina langa ndi Tikupanga kafukufuku wokhudza zinthu zomwe zingapangitse mchitidwe wosiya kumwa mankhwala a ARV mwa ndondomeko kwa iwo omwe adayamba mankhwala mu njira ya Ma ARV pompopompo. Ndili ndi mafunso angapo oti ndikufunsi ndipo izi zitenga mphindi pafupi fupi khumi zokha. Mayankho anu akhala a chinsinsi ndipo ndi a phindu pa kafukufuku ameneyu. Kutenga nawo mbali mu kafukufukuyu si kokakamiza. Muli ufulu kukana kutenga nawo mbali kapena kukana kuyankha funso Lomwe simuli okonzeka kuliyanika.

1. Based on your own observation and experience so far do your clients know about Test and start?. If so, explain how they get the knowledge about the concept. *Kudzera mu kugwira ntchito yanu ndi kuona kwanu, kodi ma patient anu amadziwa za ndondomeko ya ma ARV pompopompo, nanga ndi njira ziti zomwe ambiri amadziwira?. Fotokozani*
2. How do clients perceive Test and start method of ART initiation? *(Kodi ndondomeko ya ma ARV pompopompo akuiwona bwanji anthu omwe mukuwayambitsa mankhwala kudzera mu ndondomekoyi?)*
3. Do Test and start clients at your clinic adhere to treatment? *Kodi olandila ma ARV kudzera mu ndondomeko ya popmpopompo pakiliniyi amamwa mosatira ndondomeko*

yonse? (Funsaso za m"mene odwala amaonela amaganizila pa kutsatira ndondomeko ya kamwedwe ka ma ARV ndi yothandiza kapena ayi)

4. What do you think are the possible reasons for non- adherence among test and start ART clients?(*Fotokozani ndi zifukwa ziti zomwe zikupangitsa kuti anthu omwe adayamba kumwa ma ARV kudzera mu ndondomeko ya ma ARV pompopompo akumasiya kumwa mankhwala*)
5. What are the current communication strategies for Test and start? Do you think the current communication strategies regarding Test and start are effective? (*Kodi Mukuganiza kuti njira zofalitsira uthenga zomwe zikugwiritsidwa ntchito panopo zikuthandiza mokwanira kumvetsa ndi kuilandira ndondomeko ya ma ARV pompopompo?*)
6. What do you think should be done to improve the current communication strategies so as to improve adherence? (*Mukuganiza kuti ndi ziti zomwe zingasinthe pakufalitsa ma uthenga a ma ARV pompopompo kuti tichepetse mchitidwe osiya kumwa mankhwala a ma ARV?*)
7. Do you think there is adequate privacy for ART provision at your clinic? *Explain(Kodi Mukuganiza kuti malo operekera mankhwala ndi othandiza kusunga chinsinsi pa chipatala pano?Longosolani)*
8. What procedures do you follow when initiating ART under Test and start regime? *Tandifotokozelani mwasatane ndondomeko imene mumasata mukamapeleka ma ARV ku odwala mu ndondomeko ya ma ARV pompopompo panthawi yoyamba?*
9. How do you assist clients to appreciate the benefits of ART? *Kodi olandila ma ARV mumawathandiza bwanji kuti adziwe zaubwino wotsata ndondomeko ya kamwedwe ka ARV?*
10. What communication related challenges do you face on implementing Test and start of ART initiation? *Kodi mumapeza mabvuto anji pa kiliniki ino pa ntchito ya ma ARV pompopompo? (Longosolani mwatsatane(Mufunse ngati zinthu monga umphawi, njala, masayidi efeketi a ma arv, kuchuluka kwa mapilisi pakumwa, kusowa ndi, ku talika mtunda wakukiliniki ndi mabvuto)*

11. How can we deal with those challenges? Explain. *Kodi mabvutowa angathe bwanji? Fotokozani*
12. How do you perceive Test and start ART clients? Kodi inuyo m^umawaona ndi kuwaganizira bwanji anthu olandira ma ARV? *(Mufunnse ngati olandila ma ARV amatsalidwa, amapezana ndi mabvuto ena ali onse pa nkhani ya ma ARV)*
13. What activities concerning ART provision do you carry out at this clinic? Kodi pakiliniyi pamachitika ntchito zANJI pankhani ya ma ARV *(Funsani ngati pamachitika uphungu, kuyendera olandira ma ARV, kuphunzitsa ndi zina zambiri)*
14. What should be done to promote adherence among Test and start clients? Kodi chofunika chiyani kuti olandila ma ARV athe kutsatira ndondomeko ya ma ARV pompopompo?
15. Is there any difference between the counseling procedures now and before Test and start was introduced? If yes can you explain them? *(Kodi pali kusiyana pakati pa uphungu omwe umaperekedwa kale ndi omwe ukuperekedwa mu ndondomeko ya ma ARV pompopompo. Ngati pali kusiyana fotokozani)*
16. What would you recommend that should be included in the adherence counseling for Test and start? *(Mukuganiza kuti mu ndondomeko yopereka uphungu mu ma ARV pompopompo miukidwe zotani kuti anthu asamasiye kumwa ma ARV)*

ZIKOMO KWAMBIRI CHIFUKWA CHOYANKHA MAFUNSO ANG

Appendix 6: Letter of Ethical Approval from NHSRC

Telephone: + 265 789 400
Facsimile: + 265 789 431

All Communications should be addressed to:
The Secretary for Health and Population



in reply please quote No.
MINISTRY OF HEALTH AND POPULATION
P.O. BOX 30377
LILONGWE 3
MALAWI

28th January, 2019

Adson Victor Nantehito
Malawi Polytechnic

Dear Sir/Madam,

Re: Protocol # 18/12/2193: Assessing Communication Factors that Influence Non-Adherence to ART among Test and Treat Clients at Selected Health Facilities in Zomba District, Southern Malawi

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

- **APPROVAL NUMBER** : 2193
- The above details should be used on all correspondences, consent forms and documents as appropriate.
- **APPROVAL DATE** : 28/01/2019
- **EXPIRATION DATE**
This approval expires on 27/01/2020. 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 +265 994 063 425 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.



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

Executive Committee: Dr B. Chilisa (Chairperson), Dr B. Ngwira (Vice-Chairperson)
Registered with the USA Office for Human Research Protections (OHRP) as an International IRB/IRB
Number IRB0003905 FWA0005976

Appendix 7: Letter of support from Zomba DHO

Telephone: + 265 01 324 388
Facsimile: + 265 01 324 320

All Communications should be
addressed to:
The District Health Officer



MINISTRY OF HEALTH AND POPULATION
ZOMBA DISTRICT HEALTH OFFICE,
PRIVATE BAG 18,
ZOMBA, MALAWI

REF. NO. ZA/DHO/066

21st December 2018

TO WHOM IT MAY CONCERN

LETTER OF APPROVAL FOR MR. ADSON V. NATCHITO

I write to authorize Mr. Adson Victor Natchito to collect data for his research on
"Assessing communication related factors that influence non-adherence to
antiretroviral therapy among Test and Treat clients in Zomba District, Southern
Malawi.

Any assistance rendered to him will be greatly appreciated.

Yours faithfully,

Dr. Wilson Ching'ani
DISTRICT MEDICAL OFFICER

Appendix 8: Informed Consent Form (ICF)

Informed Consent Form

I have read and understood the information concerning the study which is provided in the information sheet.

I have been given a chance to ask questions and all of my questions have been answered to my satisfaction.

I have understood that there is no benefit and risk for taking part in this study.

I have understood the requirements of this study and what is expected of me.

CONSENT TO TAKE PART IN THIS PROJECT

I voluntarily consent to participate in this study by checking the consent box. I will receive a copy of this consent form for my records.

I consent I DO NOT consent Day Month Year __ __ / __ __ / __ __

Participant ID

Appendix 9: Informed Consent Form (ICF) in Chichewa

Informed Consent Form

Ndawerenga (kapena munthu wandiwerengera) uthenga omwe wapelekedwa okhuza kafukufukuyu. Ndanvesetsa zonse zofunikila mu kafukufukuyu ndiponso ndikudziwa zomwe ndikuyenera kuchita. Ndanvesesa za cholinga cha kafukufukuyu.

Ndanvesesa kuti palibe phindu lililonse lomwe nditapeze pakutenga nawo gawo mu kafukufukuyu Ndanvesetsa kuti chinsinsi chizasungidwa. Ndapatsidwa mwayi ofunsa mafunso okhuza kafukufukuyu, kuphatikizapo phindu, ziopsezo ndi chilichonse chomwe chili pa pepala ili. Ndamvetsa cholinga chake, zifukwa zake ndi momwe akupangidwira. .

KUVOMEREZA KUTENGA NAWO MBALI MU KAFUKUFUKU

Ndikuvomera kutenga nawo gawo mu kafukufuku ameneyu pakuchonga mu bokosi. N dipatsidwa pepalali kuti ndisunge.

I consent I DO NOT consent

Day Month Year ___ ___ / ___ ___ / ___ ___

Participant ID

Appendix 10: Participant Information Sheet

Study on Communication factors influencing antiretroviral therapy non-adherence among test and start clients in Zomba District, Malawi.

My name is **Adson Nantchito**. I am a postgraduate student at the Malawi Polytechnic and conducting a research on. “*Communication factors influencing antiretroviral therapy non-adherence among test and start clients in Zomba District, Malawi* “You will be asked some questions concerning Test and start approach of ART and communication related factors that may influence non-adherence behaviour with the concept. I would like to get information that you know about this study. The findings from this research will assist in modifying key behaviour change messages for promoting and ensuring optimal adherence to ART especially among clients currently being initiated on ART through Test-and Treat approach.

This study is voluntary. There are no direct benefits for taking part in this study. However, there are no risks for participating in this research.

The interviewer will take you to a private place where the interview will be held. This will ensure confidentiality and privacy of information you are going to give. Once again the information that you will give me will be kept confidential. Please note that your participation in this research is entirely voluntary. You are free to deny from participating and if you then change, you are free to tell the enumerator to stop and end the interview.

More information

If you have further questions you may also contact:

Kingsley Lungu

Senior Lecturer and WASHTED Fellow

University of Malawi

The Polytechnic

Phone: +265 997076076

Email: klungu@poly.ac.mw.

Lusizi Kambalame

Language and Communication Lecturer

University of Malawi

The Polytechnic

Phone: +265999924779

Email: lkambalame@poly.ac.mw

Appendix 11: Participant Information Sheet in Chichewa

Participant Information Sheet

Study on Communication factors influencing antiretroviral therapy non-adherence among test and start clients in Zomba District, Malawi.

Dzina langa ndine **Adson Nantchito**. Ndachokera ku Polytechnic, nthambi ya Yunisite ya Malawi. Ndikuchita kafukufuku pa mutu uwu *‘Kufufuza zinthu zomwe zikupangitsa anthu kuti asamatsatire ndondomeko ya kamwedwe ka ma ARV kwa iwo omwe adayamba kumwa ma ARV mu ndondomeko ya ma ARV pompopompo ku Zomba’*. Ndikufunsani mafunso okhudza zomwe zikupangitsa anthu kuti asamatsatire ndondomeko ya kamwedwe ka ma ARV maka kwa iwo omwe adayamba kumwa ma ARV mu ndondomeko ya ma ARV pompopompo kuno ku Zomba. Tikufuna tifufuze ngati pali zifukwa kapena mikhalidwe yomwe ingapangitse anthu kusiya kumwa mankhwala kwa iwo omwe adayamba mankhwala kudzera mu ndondomeko yatsopanoyi.

Kafukufukuyu ndiosakakamiza. Kutenga nawo mbali mu kafukufukuyu ndimwakufuna kwanu ndipo palibe phindu lomwe mungalipeze pakutenga nawo mbali mu kafukufukuyu ndiponso palibe chiopsezo china chilichonse chomwe chingadze pakutenga nawo mbali mukafukufukuyu.

Ofunsa mafunso akutengerani pambali. Kuonjedzerapo, dziwani kuti uthenga omwe mutapeleke pa nkhanayi ukhala wachinsinsi ndipo palibe yemwe atanve nao za uthenga umenewu ndiponso dzina lanu sililembedwa paliponse. Ndinu omasuka kufunsa funso lililonse kapena kusiya kutenga nawo mbali mu kafukufukuyu pa nthawi yomwe mwafunila

Uthenga Owonjezera

Ngati muli ndi mafunso ena funsani anthu omwe alembedwa m'munsimu.

Kingsley Lungu

Senior Lecturer and WASHTED Fellow

University of Malawi

The Polytechnic

Phone: +265 997076076

Email: klungu@poly.ac.mw.

Lusizi Kambalame

Language and Communication Lecturer

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