A cross sectional study on the factors associated with HIV ART adherence among adolescents living with HIV who are in peer support programme in the rural areas of Chirumhanzu District, Zimbabwe

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Abbreviations

AACTG	Adult AIDS Clinical Trials Group
AIDS	Acquired Immune Deficiency Syndrome
ALHIV	Adolescents Living with HIV
ART	Antiretroviral Therapy
CATS	Community Adolescent Treatment Supporters
CAYPLHIV	Children, Adolescents and Youth Living with HIV
HIV	Human Immunodeficiency Virus
NGO	Non-Governmental Organisations
SMS	Short Message Service
SRHR	Sexual Reproductive Health Rights
SRHR	Sexual and Reproductive Health and Rights
STEPS	Support for Treatment Empowerment Pillar Soldiers
UNAIDS	Joint United Nations Programme on HIV and AIDS
UNICEF	United Nations Children's Fund

WHO   World Health Organisation

Abstract

Background: Adherence to treatment is important for ensuring positive health effects for people living with HIV. This is even more so important for adolescents and young people who are in their formative years and should be in optimum health condition to get the best quality of life. However, HIV ART adherence for young people is generally lower than for other populations groups in Sub-Saharan Africa. If the young people are based in a rural area, the dynamics become harder for HIV adherence to treatment due to challenges of infrastructure, distance and living conditions. An understanding of the facilitators and barriers to treatment for young people who have been exposed to a peer support programme could help in ensuring that the young people adhere to treatment. The aim of the study was to determine factors associated with HIV ART among adolescents living with HIV who are in a peer support programme in the rural areas of Chirumhanzu District, in Zimbabwe.

Methodology: The study utilised a quantitative approach in particular the cross-sectional survey design to determine factors associated with HIV ART adherence among adolescents who are in peer support programme in Chirumhanzu District. Participants were young people living with HIV, between 18 and 25 years old and in the St Theresa Hospital ART register. A purposive sampling technique was utilised to select 172 respondents who have been exposed to the HIV ART peer support programme. Data on socio-demographic variables, sexual and substance behaviours and HIV ART adherence was collected using a structured questionnaire administered by the researcher.

Results: A total of 95.3% of respondents reported high adherence levels of 100%, while 4.7% reported low adherence. Those respondents who were affiliated with a peer supporter were found to be three times more likely to have high adherence. 96.5% of the respondents who were affiliated with a peer supporter had a positive attitude towards adherence to treatment (p-value=0.035). 98.6% of those who were affiliated with a peer supporter were seven times more likely to believe that the medication they are taking will bring about positive effects on their health (p-value=0.013). A total of 97.9% of the respondents who were affiliated with a peer supporter were seven times more likely to have a positive attitude that the treatment will lower their HIV viral load (p-

value=0.006). Work and or school schedule was three times more likely to be identified as a barrier along and diet/nutrition which was two times more likely to be identified. Peer support (p-value=0.002) and SMS reminders (p-value=0.003) were identified as the major facilitators for adherence with statistical significance.

Conclusion:. The study showed that a peer support programme can improve adherence, the adolescents who regularly interacted with peer supporters had high adherence. Peer support also improved attitude towards treatment. Adolescents need work/school-life balance to have time to take their medication. Innovative technologies such as SMS can improve adherence.

DECLARATION

I declare that "*A cross sectional study on the factors associated with HIV ART adherence among adolescents living with HIV who are in peer support programme in the rural areas of Chirumhanzu District, Zimbabwe*", is my work. The study has not been submitted for any degree or examination in any other university and that all the sources I have used or quoted have been acknowledged accordingly and included in complete references.

Full Name: Christon Tinotenda Zimbizi

Date: 09 November 2022

Signed:

CHAPTER 1: INTRODUCTION

1.1 Background

Globally there are an estimated 2.4 million adolescents (10 to 19-year-olds) living with HIV (UNAIDS, 2019). In Zimbabwe, an estimated 68% of adolescents living with HIV are registered for HIV care and treatment (UNICEF, 2019). Scientific progress has resulted in the introduction of ART medicine for people living with HIV to have better quality of life. Antiretroviral therapy (ART) treatment offers the opportunity for people living with HIV to live healthier, fulfilling lives and reduce their chances of infecting others with HIV through treatment as prevention (Oguntibeju, 2012).

HIV ART adherence is best defined as a patient's ability to follow a prescribed treatment plan, take their medications at recommended times and frequencies, combined with following restrictions regarding food and other medications (Sahay et al, 2011). Adherence to ART is difficult among adolescents living with HIV and or AIDS, despite the life-saving benefits of this medical therapy (MacCarthy, 2018). The concern (gathered from anecdotal evidence), however, is that some young people are defaulting, by not taking this treatment for various reasons. Young people living with HIV face challenges regarding adherence to, and retention on, treatment and have lower viral suppression rates compared to adults due to the following: factors of social support and depression, treatment regimen side effects of the drug and pill burden, trust and confidence in the healthcare provider, clinical settings, education about the virus (Ankrah et al., 2016). Support from caregivers, peer focused support groups, knowledge of their HIV status, usage of set reminders and assistance from healthcare workers have been shown to be the key factors facilitating adherence (Ammon, Mason & Corkery, 2018).

In Zimbabwe, the Zvandiri programme run by Africaid has a differentiated community and health facility integrated model that delivers services for children, adolescents, and young people living with HIV in Zimbabwe (Willis, 2019). The Zvandiri programme started from one support group in Harare and has now become a comprehensive model, bringing together community and health facility-based services plus psychosocial support for young people living with HIV. Various

studies show that the model improved uptake of HIV testing services, adherence, and retention in care of young people living with HIV (Willis, 2019). To increase HIV ART among adolescents living in rural areas of Chirumhanzu District of Zimbabwe's, in 2015, St Theresa Hospital implemented a peer support programme. The programme trained groups of adolescents who were then linked to different health centres where they conducted peer support for adolescents from the different health centre's catchment areas. The peer supporters also targeted the caregivers and provided them with counselling on how to support the adolescents in their care. Therefore, the study explored the factors affecting HIV ART adherence among adolescents living with HIV who were participating in a peer support programme.

1.2 Problem Statement

Adherence to ART is crucial in enhancing the quality of life of young people living with HIV and to increase their life years (Iacob, 2017). In rural settings, the pressures of household chores, lack of mobile phones for reminders, distance to health facilities and community attitudes towards those living with HIV are a few of the factors that affect their adherence (Croome, 2017). Defaulter rates reported in the Chirumhanzu District were at 50% of the adolescents registered for treatment in the district before the programme started (Ministry of Health and Child Care Zimbabwe, 2016). However, there is little knowledge on the factors associated with HIV ART adherence among adolescents, especially those who are in peer support programme and are living in rural areas of Chirumhanzu District, in Zimbabwe.

1.3 Purpose

The purpose of the study is to determine factors associated with HIV ART adherence among adolescents living with HIW who are in a peer support programme in the rural areas of Chirumhanzu District, Zimbabwe. The results of the study can be used to influence policy and the design of treatment and care interventions for adolescents living with HIV in rural settings.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

The goal for this chapter is to provide an improved understanding of the elements that influence antiretroviral therapy adherence (ART). Researchers undertake literature reviews to decide how best to add to the body of knowledge, and they also use them to examine if their findings are consistent with those of other researchers (Snyder, 2019). After realizing the critical importance of adherence to the effectiveness of ART, numerous research was conducted to discover and enhance aspects that can help patients stick to their treatment regimens (Rojon et al, 2021). According to the literature evaluation, there is an overwhelmingly large body of published data from clinical studies that support the use of ART as the sole HIV suppression therapy. This chapter will cover HIV pathology, screening techniques, and treatment, the advantages of antiretroviral therapy (ART), an overview of the ART program, how to measure ART adherence, and a literature review of prior studies on ART adherence.

2.2 Theoretical Framework

The Behavioural Model of Health Service Use illustrates how financial burdens related to ART, cultural and religious values, and social support impact adherence to ART among People Living with HIV/AIDS (PLWHA) (Green & Murphy, 2014). The model did not, however, consider how stigma had a bearing on adherence to ART. To show how stigma influences adherence to ART, Sweat and Denison's Model of HIV and AIDS Structural Factors has to be taken into consideration. These theories assisted in identifying and categorizing the various elements that influence adherence in young people living with HIV.

2.2.1 The Behavioural Model of Health Service

The Behavioural Model of Health Service Use was created over 46 years ago (Andersen, 1995). It has since undergone extensive application, replication, and modification. This model was initially created with a family-level focus to describe how health services are used (Deng et al, 2014). The algorithm, however, was eventually modified to forecast how each individual will use medical services. The model has been used to discover factors that affect medication adherence (Rice,

2013). To investigate adherence factors in older persons in the South-eastern United States, Haile et al. (2016) employed this model. Wekesa (2002) also utilized the approach to look into Western Kenya's adherence to prescribed medication. When Bader et al. (2015) used this model to look at self-reported adherence in asthma patients in Michigan, they discovered that there was a moderate relationship between adherence to asthma medications and risk factors like health beliefs, enabling traits, like the quantity of metered dose inhaler instructors, and perceived need, such as perceived severity of the disease.

The Behavioural Model of Health is a multilevel model that includes both personal and environmental factors that influence how often people use healthcare services (Andersen, 1995). It comprises three main parts, which are each detailed in turn. Predisposing factors are those that exist before disease and affect a person's attitudes toward using health care (Hoque and Sorwar, 2017). These include patient opinions about their own health, demographic parameters like age and gender, and social traits like education, occupation, and ethnicity (attitudes, values and knowledge). Resources that either encourage or prevent the use of health care are referred to as enabling factors. Personal factors (such as money and health insurance) and community factors are among them (Abraham and Sheeran, 2015). The person's condition or impairment that makes the usage of medical services necessary are represented by need factors. These include evaluated need (professional judgment regarding the patient's health status) and perceived need (perceptions of sickness) (Andersen, 1995). New components have been added to the model in more recent iterations to represent the part health care systems play in affecting access and retention. According to Haile et al. (2016), early proponents of this idea of access made an effort to develop global measures of access that were concerned with both process and results. Regular source of care, travel time to medical facilities, the ability to schedule an appointment in an acceptable amount of time, and in-office waiting times are some examples of the process indicators.
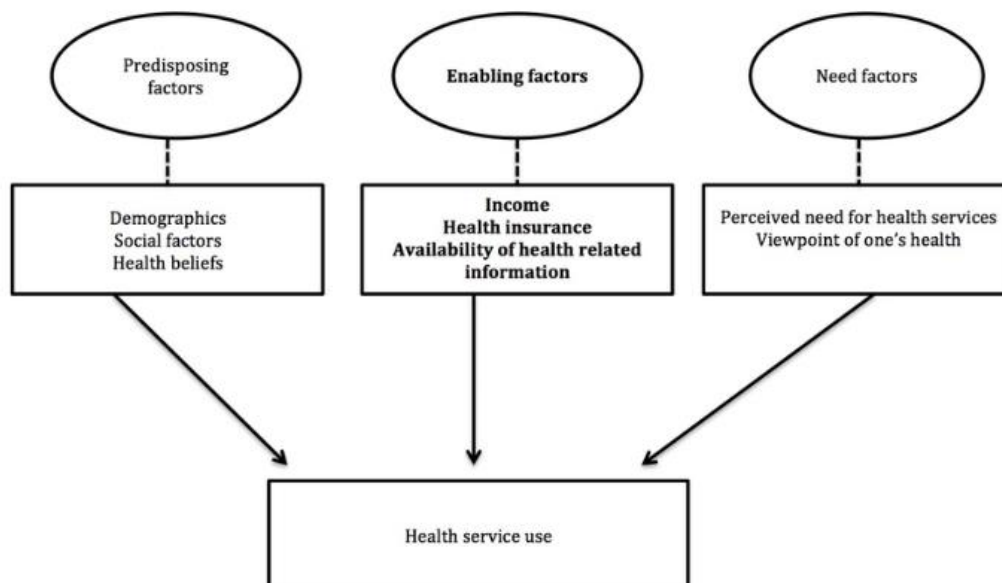
Andersen behavioural model of health services use. Adapted from Babitsch et al, (2012)

2.2.2 Sweat and Denison's Model of HIV/AIDS Structural Factors

According to Sweat and Denison (1995), structural elements relating to HIV and AIDS is categorized into four levels which are: individual, environmental, structural, and superstructural levels. This model defines individual variables as characteristics of an individual, environmental elements as those of an individual's environment and resources, and structural factors as those of existing laws, policies, and programs. According to Sommer and Parker (2013), structural elements are those that take place at the top level including sexism, racism, and economic challenges. These have an impact on the micropolitical structures and national cultural standards. These elements also relate to the various stigmatization levels. According to Adino (2020), stigma can exist on a variety of levels, including those related to oneself, one's family, one's community, and one's workplace. Each stigma is distinct and may require a different approach to combat. He also asserts that these stigma processes are influenced by broader super-structural, structural, environmental, and individual elements rather than occurring in a context-free vacuum. These elements include politics, the economics, religion and/or spirituality, and gender.

Structural
level

Health systems

Health
policy

Community
level

Stigma

Acceptance

Discrimination

Outreach
services

Family and
peer level

Disclosure

Personal
relationships

Stigma

Individual level

Resilience

Internal
stigma
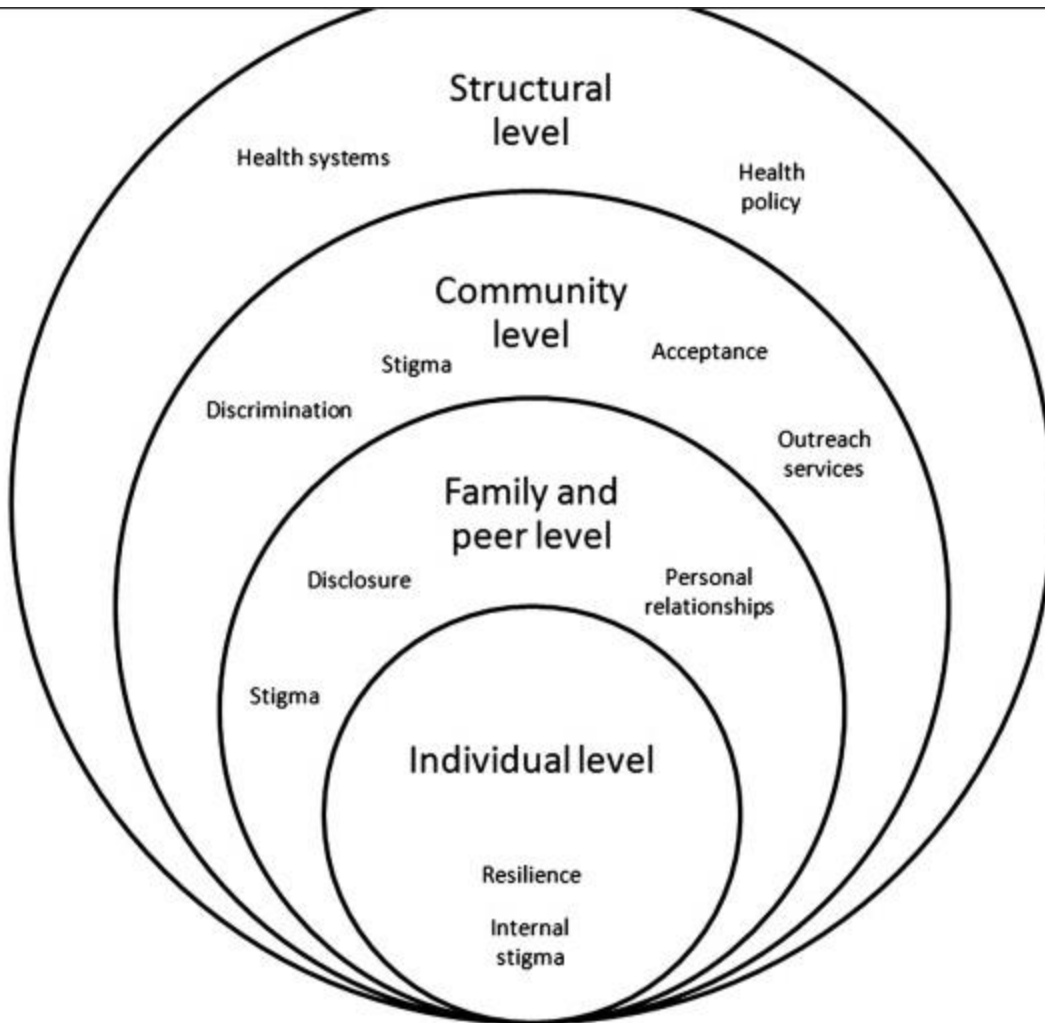
Sweat and Denison's Model of HIV/AIDS Structural Factors Adapted from Mburu et al, (2014)

2.3 HIV Pathology and Mode of Transmission

Before the early 1980s, HIV was not known, and since then, millions of people across the world have been impacted (Klaat 2017). Young people between the ages of 15 and 24 are the most affected, and this has had an impact on the economies of the countries due to the morbidities of young to middle-aged people currently in their prime years (Klaat 2017). HIV destroys T-helper cells, a type of white blood cell crucial to the immune system's proper operation, when it enters the bloodstream (Pepin, 2021). Depletion of CD4 T cells, a sign of immune system damage, exposes a person to opportunistic infections and cancers (Puleo, 2020) According to Klaat (2017), HIV is spread through the interaction of bodily fluids. Mothers who are HIV-positive can infect

their unborn children while they are pregnant, after vaginal delivery, or through breast milk. Assumptions are that a person can survive up to 8 to 10 years on average without therapy before showing clinical signs and symptoms of AIDS (Wing, 2017).

2.4 Overview of the ART program

Sub-Saharan Africa saw the largest increase in the number of individuals receiving treatment in 2010, going from an estimated 3 911 000 in December 2009 to roughly 5 064 000 in 2010. (Bellandi, 2022). Due to quick ART scale up, South Africa, which had the highest absolute number of HIV-positive people, was able to treat almost one fifth of all ART patients with antiretroviral medication (Chammartin et al, 2020). Zimbabwe experienced the biggest percentage increase in enrolment, with a nearly 50% increase in the number of patients between December 2009 and December 2010. (Takarinda et al, 2017). In 2010, the WHO stated that global retention rates were 81% after the first year of treatment, 75% after the second year, and 67% after the third (Kangendo and Gitonga, 2017). Zimbabwe was one of the Southern African nations most severely impacted by the HIV and AIDS epidemic, but thanks to aggressive preventive measures, the prevalence of the virus decreased from 23.7% in 2001 to 18.4% in 2005 and 13.1% in 2011 (Chemaitelly, 2022). Additionally, this coincided with a rise in the number of people receiving ART, which went from 55% in 2010 to 79% in December 2011 following the implementation of WHO revised eligibility criteria (Verhey et al, 2018). Although antiretroviral treatment scaling up has been effective, it remains a challenge to increase and sustain high levels of adherence among all of these ART patients in order to achieve successful treatment.

WHO created the Treatment 2.0 project to increase access and adherence to ART. Its focus areas and targets for 2020 included optimizing medication regimens, lowering drug costs, giving access to point of care, implementing delivery systems, and mobilizing communities (Klatt, 2017).

2.5 Concept of Adherence
It is concerning that maintaining adherence is difficult considering probable virus resistance, treatment failure, and disease progression (Bruser et al, 2022). Poor drug compliance, including ART, impairs the effectiveness of treatment for chronic diseases (Bloch et al, 2020). The degree

to which a person takes medication, adheres to a diet, or makes lifestyle changes in accordance with the advice of the healthcare professional is referred to as medication adherence (Lailulo et al, 2020). To fully realize viral suppression, prevent the establishment of viral resistance, and stop the recurrence of opportunistic infections, ART treatment requires one to have lifelong diligence in taking their medication (Ekong et al, 2020). 95% compliance is the very minimum recognized level for HIV. Poor adherence is referred to as a patient's inability or reluctance to stick to the recommended course of action.

2.5.1 Measurement of Adherence for ART

The level of ART adherence cannot be gauged using a perfect standard. Process-oriented and outcome-oriented definitions are the most popular techniques for gauging adherence to ART (Onono et al, 2020). Process-oriented indicators use intermediary variables like appointment keeping or pill counts to gauge adherence to ART (Ekong et al, 2020). It has been reported that the most popular ways to gauge adherence to ART are drug counts, electronic drug monitoring, therapeutic medication levels, pharmacy data, and self-reporting. In clinical practice, self-reports are the most practical, trustworthy, and popular method for gauging client adherence (Sadeh-Sharvit and Hollon, 2020; Agala et al, 2020). Even though the medication event monitoring system (MEMS) appears to be the most reliable indicator of ART adherence, the technique is too expensive for broad adoption (Ekong et al, 2020).

Using a variety of techniques, adherence levels are assessed. The use of a variety of approaches is advised because adherence measurement methodologies are difficult and there is no universally accepted method to measure adherence since each procedure has pros and cons (Shah et al., 2019). Patients reporting missing medications, pharmacy restock records, several self-reporting instruments such as surveys, monitoring of assay levels, and electronic drug monitors are among the most frequently utilized techniques (Byrd et al, 2019). Self-report is the most usually utilized indicator of ART adherence because it is straightforward and affordable (Shah et al., 2019), however, it is important that interviews are conducted in a setting where patients feel comfortable disclosing non-adherence events. The measure continues to be the most useful approach for assessing ART adherence even though self-report of adherence occasionally has a tendency to

exaggerate adherence since it allows for straightforward reporting of missed doses during the previous three days or previous week.

2.6 Factors that influence Patients Adherence to ART

The capacity of a patient to adhere to a treatment plan, take drugs as directed, and abide by dietary limitations and other prescription restrictions is known as adhesion in general (Adeniyi et al, 2018). When patients report taking 95% or more of their prescribed antiviral medications in the three days, they are exhibiting HIV ART adherence (Tadesse, 2014). This can be achieved for kids and young people by a 3-day triangulation of caregiver, child, and pharmacy records (Nichols et al, 2018). The proper execution of strategies and procedures to increase adherence, even before the start of ART therapy, is ensured by the identification of the key elements that contribute to treatment adherence to ART. Adeniyi et al. (2018) also suggested offering the right tools and techniques that help a patient in achieving and maintaining optimum adherence, such as prescribing easy-to-follow regimens, attending to the patient's psychosocial needs and educational requirements, and making a multidisciplinary, dependable health care team available even before treatment is started. The task shifting strategy was put into practice, more health professionals were trained on ART, waiting times were shortened, and ART-related expenditures were covered, among other things. These and other factors were found to have influence adherence in Zimbabwe (Strauss et al, 2021).

The literature study makes it evident that there are numerous and complex elements that affect a patient's capacity to adhere; as a result, it is necessary to investigate these factors and develop techniques that encourage adherence to ART. Four categories of elements will be covered: factors relating to the patient or individual, pharmacological regimen, sociocultural, and service delivery-related factors.

2.6.1 Service-Related Factors

A multidisciplinary health team's high-quality service delivery, which was part of comprehensive treatment that addressed the medical, social, and emotional requirements of PLHIV, had an impact

on adherence to ART (Schmitz et al, 2019). Sufficient workforce that is motivated, easily accessible ART clinics, the elimination of user fees, positive nurse-patient relationships, keeping a consistent health service provider, and short waiting times were some of the service delivery factors that promoted ART adherence identified by Yu et al. (2018). Sufficient workforce ensures quality service delivery. A few factors that increased adherence to ART included hiring appropriate health personnel, implementing measures to improve service delivery, and providing services to underprivileged and destitute populations (Ammon et al, 2018). A pilot study conducted in Tete, Mozambique, which utilised an out-of-clinic model of care proved to promote ART adherence. The model involved patients collecting medication from ART centers on behalf of other patients, distribute the medication to their fellow patients, track one another's adherence rates, and provide support for one another's adherence (Nangobi, 2018). The methodology also lowered transit expenses, boosted adherence, decreased loss to follow-up, and decongest clinics because patients were closely monitored for adherence (Ammon et al, 2018).

Furthermore, certain ART services may not be user-friendly and be too far away from users, making it difficult for some patients to attend their monthly sessions (Kelly et al, 2019). As a result, moving ART clinics to convenient locations guarantees access, lowers transportation expenses, encourages adherence, and assures proper monitoring. According to a study done in Vietnam, individuals who had easy access to ART clinics—that is, those who lived less than 10 kilometres from the clinic—were more adherent than those who lived more than 10 km away (Koirala et al, 2017). Those who lived far away occasionally were forced to borrow money to pay for their transportation, and even when they had the money, transportation from their homes to the health facility occasionally fell through, leading them to miss appointments (Koirala, et al, 2017). According to Najjuma et al. (2020), patients who travel far and at great expense to treatment facilities face a higher risk of non-adherence. ART clinics were successfully decongested and made more accessible to the community thanks to a task shifting model of care that was devised and put into practice in Thyolo. This model of care comprises giving tasks like ART stock up and adherence counselling to less specialized health workers.

According to Lin and Kishore's (2021) research, patients who already have a cordial and

trustworthy relationship with their medical professionals are able to manage their illnesses better and stick to ART more consistently. According to Kelly et al. (2019), one of the factors that facilitated adherence to ART was the friendly environment fostered by nurses, which includes shaking hands, which is a culturally acceptable way of greeting. Other factors included taking the time to learn more about the patients' lives by listening to their problems and taking into account their religious beliefs. The same study found that patients valued the staff's interest in getting to know them personally by spending quality time with them at each clinic visit (Kelly et al, 2019). Since they would have formed strong bonds with certain healthcare professionals, some patients preferred to remain a regular health provider given that HIV is now categorized as a chronic condition requiring frequent visits to ART facilities (Venables et al, 2019). However, there were reports of strained relationships when patients mistakenly believed that good nurses were those who prescribed medications for several months at a time, while terrible nurses were those who prescribed pills for only one month or fewer.

2.6.2 Patient Related Factors

The patient's readiness to take medicine should be evaluated prior to starting ART since it is important to find and address any issues that can make it difficult for the patient to comply to the regimen (O'Reilly, 2022). The individualized treatment plans, increased knowledge of adherence, counselling sessions, missed appointments, housing, aging, and reminders, competing priorities, literacy level, nutrition, substance abuse, mental health issues, health service fees, marital situation, religion, improvement in overall health, and short waiting times are all adherence facilitators for patients. Better adherence is ensured when patients are involved in the treatment plan's creation. A patient-centred strategy was viewed as the key to ART adherence and involved personalizing the treatment plan with patient input, ongoing assessment of adherence determinants, and adapting adherence interventions to the individual (Kelly, 2020). Every time a patient visits the clinic, adherence is continuously assessed in an effort to pinpoint the causes of patients' sporadic failure to keep appointments and stick to treatment schedules. According to a study conducted in Uganda by Shumba et al. (2013) that evaluated adherence levels, individuals who missed appointments had travelled. Other common excuses for missing doses were forgetfulness, work conflicts, and feeling under the weather. Transport issues were mentioned as one of the major obstacles to adherence because when patients do not make it to ART clinics for pharmacy refills,

they also miss clinic sessions and are likely to miss their doses if there is insufficient supply.

Ministry of Health and Child Welfare (2011:32) suggested monitoring ART adherence and identifying early warning indicators for potential drug reactions as a method to increase adherence (Blake Helms et al, 2017). The plan involved tracking the percentage of ART patients picking up prescribed ARV on time and the percentage of ART patients showing up on time for all scheduled clinic appointments (Shumba et al, 2013). By doing this, prompt follow-up on people who missed appointments was ensured. Prior to starting ART, it was discovered that assessing housing and household conditions was crucial since unstable housing is linked to missed appointments and lack of follow-up. In conflict zones where patients could not access ART health facilities, ART adherence was disrupted, according to research by Adejumo et al. (2015). As a result, patients missed visits, and some were lost to follow-up.

Another element that affected adherence to ART is a person's age. Horberg et al. (2015) found that ART adherence increased with age and declined once people reached the age of 60. Young people's adherence to ART was mostly impacted by stigma and denial, but elderly people's knowledge of adherence issues was influenced by senile dementia, and they had difficulties adhering to ART instructions as a result (Kelly, 2020). The usage of cell phones, alarm clocks or watches, text messages, and calls from healthcare providers were some of the reminders utilized to increase adherence. Forgetfulness was found as a major contributing cause to non-adherence (Letta et al, 2015). However, some patients disregarded reminders, and some turned to establishing second reminders as a result of competing responsibilities (such as childcare, household duties, and work).

A study conducted in Zambia showed that the most common methods for remembering when to take ARVs were wearing a watch (47%) and using a clock (15%). The position of the sun was cited by 20 and 49 respondents (10%) to remember when to take ARVs (Van Wyk and Moomba, 2019).

Low adherence to ART was influenced by food insecurity, especially in the beginning stages when the body requires more nutrients (Young et al, 2014). Some patients were obliged to take their medications once daily in the evening instead of twice due to a lack of food because that was the

only time they could get nourishment (Abas et al, 2018). Furthermore, da Silva Escada et al. (2017) observed that failing to receive a healthy diet was linked to the high mortality that occurred during the first 90 days of ART treatment. Patients' adherence to ART therapy was impacted by a variety of reasons, including alcohol misuse, problems integrating HAART into one's lifestyle, psycho-emotional problems like melancholy and hopelessness, and a lack of motivation to live with HIV (Shumba et al 2013). Although providing directly observed therapy (DOT) to drug users was thought to be a beneficial method, the strategy was deemed to be unsustainable (Mesidor et al, 2020). To help patients make educated decisions regarding their treatment, it is essential to enlighten them about their disease and current therapies (Worden and McLean, 2017). Patients' adherence to ART was found to be significantly influenced by a number of adherence counselling meetings that provide information to patients about their situation, ART, side-effects, how to handle them, when they miss a dose, and how to get refills.

Adherence issues can occasionally be linked to problems people have getting the resources they need to follow the necessary treatment plans (Ward et al, 2019). Therefore, it was discovered that covering additional ART treatment-related costs was a crucial element that influenced ART adherence. Even though The Global Fund to Fight AIDS, TB and Malaria and the United States Emergency Plan for AIDS Relief fund government hospitals to provide free ARVs, it was discovered that some patients faced difficulty for costs like transportation costs, health facility fees (Mokheseng et al, 2017). According to a study conducted in Zimbabwe by Skovdal et al, (2011), the majority of males denied having HIV because they wanted to maintain their sense of masculinity and saw HIV and AIDS as threats to it. They also believed that being ill diminished their feeling of manhood.

According to research by Mbirimtengerenji et al, (2013), it was found that Christians had high adherence to ART more closely than belonged to any other religion. Mbirimtengerenji et al. (2013) also noticed non-adherence in certain ardent religious believers who thought that God has supernatural abilities and treated HIV and AIDS as a result of discontinuing therapy in the same study. According to a study by Mbirimtengerenji et al. (2013), patients who were self-employed or owned businesses adhered better to their treatment regimens than those who were employed in a formal capacity because they were in charge of when they went for refills, whereas those who

were employed in a formal capacity occasionally missed appointments because they were denied time off to go for their monthly refills at health facilities.

2.6.3 Socio-Cultural Related Factors

Adherence to ART is critically dependent on one's ability to get support from family, friends, and the community, as well as from others who have HIV (Iwelunmor, et al, 2014). According to a study done in Tete, Mozambique that involved community ART groups in ART delivery and monitoring, community support increased adherence to ART and also assisted in retention (Mukherjee et al, 2016). Additionally, it was discovered that Friend aid Friend peer support and self-help groups were particularly successful in assisting PLHIV to acquire ART and maintain the regimen (Mesidor et L, 2020). According to a study conducted in Botswana, most young people with good adherence received support from friends, family (siblings, parents, grandmothers, aunts, and caretakers), and the community (Marukutira 2012). As is customary in Zimbabwe, where secondary caregivers employed by the Community and Home-Based Care (C & HBC) program offer adherence support and occasionally help clients pick up ARV medications from the hospital, community caregivers were also crucial to the success of those on ART (Mokwele and Strydom, 2017). Studies have demonstrated that cultural perspectives on sickness and the effectiveness of the treatment plan have an impact on patient adherence (Shahin et al, 2019; Brundisini et al, 2015). According to a study conducted in Nepal, cultural influences, personal beliefs and views about health and receiving treatment had an impact on ART adherence since HIV/AIDS was viewed as a disease that only terrible people got (Thapa et al 2015). In light of the fact that there isn't a single solution that will ensure that all ARV patients stick to their suggested regimens, Thapa et al. (2015) advised tailoring the ARV treatment plan to the cultural beliefs and practices of the patient. An important sociocultural aspect that promotes antiretroviral treatment compliance is the admission of one's HIV status and the associated stigma (Omonaiye, et al, 2018). According to a study by Skovdal et al. (2011), despite the benefits of antiretroviral therapy, HIV stigma and prejudice still exist in communities and families. It is therefore advised to encourage people to be honest about their HIV status. Because they were afraid of being stigmatized, the majority of participants who did not adhere to treatment missed their doses (Marukutira 2012).

2.6.4 Medication Related Factors

Medication-related elements that encourage adherence include prescribing simple-to-follow regimens with few adverse effects, medications without dietary restrictions, and avoiding medicine stockouts. Issues with the size of the pill, the number of tablets, side effects, nutrition restrictions, and dosage schedules, were some of the factors that were shown to affect adherence (Marukutira 2012). Antiretroviral treatment users must take their dosages at the same regular intervals for the rest of their lives, which may not be an easy chore, in addition to the prescribed quantity of pills. Patients are more likely to follow treatment regimens with easy-to-follow instructions, few adverse effects, and minimal pill burden and frequency (Kuo et al, 2017). One of the most frequent causes of treatment nonadherence was adverse reactions to antiretroviral medicine (Bukenya,et al, 2019). Despite receiving pertinent information regarding the discomfort, some patients who experienced side effects missed doses while others stopped the medication altogether. Some of the negative effects that were mentioned were nausea, anemia, headaches, skin rashes, swollen legs, elevated heart rate, dizziness, and vomiting (Claborn et al, 2015). Additionally, it was observed that the number of pills taken for symptomatic relief, including TB treatments, Cotrimoxazole, cough medicines, and other symptomatic medications, increased (Fonsah et al, 2017). Stavudine was replaced with a less toxic medication after the WHO suggested phasing out its use due to its long-term toxicity and side effects (Movahed et al, 2019). ART compliance is aided by continuous ARV supply. According to a study conducted in rural Zambia, non-adherence was closely correlated with stock outs of ARVs, and other patients were under pressure to share their medications with friends or family members until the other person was able to replenish his or her supply (Nozaki et al 2011).

2.7 Peer support effects on HIV ART adherence

HIV peer support on adherence involves the use of trained peers, who share a diagnosis with the patient to provide social support and adherence assistance (Marino and Silverstein, 2007). The World Health Organisation (WHO) recommends peer support including peer counselling for adolescents and young people living with HIV as an avenue for greater involvement of People Living with HIV in the AIDS response and to promote task shifting (WHO, 2016). Peer support can be effective in ensuring that adolescents living with HIV adhere to treatment. The Child Survival Working Group (2018) outline that the different peer support models ranging from

support groups to peer-to-peer counselling and treatment buddy programs. They also state that a peer supporter can be a peer or a near-peer (someone a few years older who understands the needs of AYPLHIV). The Child Survival Working Group (2018) identifies policies against task shifting and operational complexities as barriers to peer support programmes. They identify effective management for quality assurance; training and mentoring; psychosocial support; formalisation of peer supporters; sensitisation of health staff on the role of peer supporters and standardised conditions of service among others (Child Survival Working Group: EDC, PATA, UNICEF, WHO, 2018). Bateganya et al (2015) did a systematic review of literature on the impact of support groups on clinical outcomes for people living with HIV. They found out that support groups have a high impact on morbidity and retention in care and a moderate impact on mortality and quality of life. They also found out that support groups improve disclosure of HIV status.

A Randomised Controlled Trial in Uganda found a significantly higher proportion of participants receiving adherence reminders from treatment supporters were ≥95% adherent compared to the control at end line (OR = 4.51 [1.22, 16.62], p = 0.027), but found no significant differences in mean adherence (Ridgeway et al, 2018). Campbell et al (2012) did a review of the prevailing literature on adherence of children in African contexts and found out that there was much literature on how child development specific factors such as psychosocial function, neurodevelopment, developmental stage, and characteristics of the treatment regimen affect child adherence but there was little on social factors. The authors found out that adherence was promoted by community understanding and support, NGO (Non-Governmental Organisations) activities, accessible health services, the role of treatment partners and children's active participation.

In Zimbabwe there are two known and acknowledged HIV ART Adherence Peer Support programmes for young people run by organisations – Africaid and St Theresa. The Zvandiri programme run by Africaid in Zimbabwe provides peer support to adolescents utilising Community Adolescent Treatment Supporters (CATS) who are facility based and in communities to support the integration of sexual and reproductive health services and rights, improved adherence, retention, and psychosocial wellbeing for young people living with HIV (Child Survival Working Group: EDC, PATA, UNICEF, WHO, 2018). The programme has noted some improvements in adherence levels and psychosocial wellbeing of adolescents participating in the

programme (Willis, 2019). The Ladder to Safety programme run by St Theresa in Chirumhanzu District of Zimbabwe operates in a rural setting providing peer supporters called (STEPS). The programme provides a peer led approach to supporting adolescents and young people navigate the transition from paediatric to adult treatment focusing on disclosure, SRHR, adherence and psychosocial wellbeing. The programme is unique in that it operates in a largely rural setting. The programme has resulted in re-initiation rates of 64%, 167% increase in health seeking behaviour defined as visits to youth friendly corners at clinics, increase of 267% in voluntary testing and counselling figures and a 50% decrease in opportunistic infections attributed to improved adherence levels (St Theresa Ruvheneko, 2016).

A study conducted on the Effectiveness of community adolescent treatment supporters (CATS) interventions in improving linkage and retention in care, adherence to ART and psychosocial well-being in rural Zimbabwe (Willis et al.,2019) provided a similar context to the study conducted by the student. The study was a randomised trial among adolescents living with HIV in Gokwe District located in rural Zimbabwe. Willis et al (2019) found out that adolescents living with HIV receiving the CATS peer support service had improved linkage and retention in care, improved adherence and improved psychosocial well-being, compared with adolescents who do not have access to CATS service.

2.8 Empirical Review

In four healthcare facilities in the Zomba district of Malawi's Southern Region, an exploratory qualitative research of ART patients and healthcare professionals was carried out by Kalembo et al (2018). Individual in-depth interviews with 25 ART patients and semi-structured key informant interviews with 13 healthcare professionals who were actively participating in the ART program were used to obtain the data. Data was verbatim transcribed from audio recordings. The transcribed data were subjected to a thematic and content analysis. High levels of personal commitment, receiving social support from family and friends, and ongoing, effective counselling were determined by the study to be facilitators of adherence to ART. Barriers to adherence were identified as HIV-related stigma and prejudice, nondisclosure of HIV status, lack of partner support, traveling to attend funerals, and religious convictions. Clinic attendance and appointment adherence were also shown to be hindered by aspects of the health system, such as clinic

congestion, unfavourable staff attitudes, and a lack of privacy at the pharmacy. Patients identified drug reactions as a hurdle to adherence, despite the fact that pill burden was not highlighted. Although the district has a decent road system, the cost of transportation was nevertheless cited as a barrier to treatment adherence. To boost support for PLWHIV and encourage revelation of HIV status, treatment success was reported to be both a facilitator and a barrier to adherence. To lessen reliance on outside assistance and provide funds for follow-up appointments, it is important to address the socioeconomic status of ART patients. To prevent patients from receiving ART, the health systems must cut waiting periods and clinic overcrowding.

The factors that are connected to adherence to ART among young people in Zimbabwe who are HIV positive were reported in a study by Gross et al. (2015). In 2019, a cross-sectional study was conducted among 136 randomly chosen young people (10–19 years old) who were getting ART at two referral hospitals in the Masvingo District. Data on sociodemographic characteristics, adherence, and adherence-related factors, including person/patient, health system, medicine, disease features, and social factors, were gathered through the administration of a questionnaire. From the Electronic Monitoring Patient System, clinical data were taken. For descriptive and inferential analysis, SPSS v24 was utilized. In the previous three days, about 61% of the participants had combined optimal adherence (dose, timing, and dietary guidelines). The top three cited excuses for forgetting to take HIV drugs in the previous month were being away from home (50%), having too many pills to take (25%), and having too many pills to take. Only time after HIV diagnosis was substantially linked with combined adherence to ART in the previous three days in bivariate analysis.

2.8 Summary

In Sub-Saharan Africa, illnesses related to AIDS are the biggest cause of death. This chapter covered HIV pathology, the mode of transmission, HIV preventive strategies, ARV therapy, and the advantages of ART. The literature review of earlier ART adherence trials was discussed. The literature analysis revealed several factors, primarily related to the individual, service provision, medication regimen, and support system, which help with adherence.

CHAPTER 3: METHODOLOGY

3.0 Introduction

The research techniques employed for the study will be presented in this chapter. Methodology, according to Maher et al. (2018), is the process of acquiring and analysing data for a study. We will talk about the research design, sample techniques, data gathering process, and research analysis methods used to answer the research questions. The initial sections covered topics related to the study's setting and study region, sampling techniques, and methods for gathering data and analysing that data. The topic of ethical clearance is covered in the final section. The purpose of the research and its goals will be explained below before the methodology is discussed.

3.1 Aims and Objectives

3.1.1 Aim

The aim of the study was to determine factors associated with HIV ART adherence among adolescents living with HIV who are in peer support programme in rural areas of Chirumhanzu District, Zimbabwe.

3.2.2 Objectives

- To determine the levels of self-reported HIV ART adherence among adolescents living with HIV who are in peer support programme in rural areas of Chirumhanzu District, Zimbabwe.
- To explore enabling factors to HIV ART adherence among adolescents living with HIV who are in peer support programme in rural areas of Chirumhanzu District, Zimbabwe.
- To explore barriers that prohibit HIV ART adherence among adolescents living with HIV who are in peer support programme in rural areas of Chirumhanzu District, Zimbabwe.

3.3 Study Design

According to Flick (2018), research design is the logic connecting data collection to the study's initial research objectives, thus it is important to find an appropriate design that can address those questions. According to Mohajan (2018), a quantitative research method is one that produces numerical data and typically aims to identify associations or causal correlations between two or more variables while utilizing statistical techniques to gauge the strength and importance of such relationships. This study's objective was to thoroughly examine the variables that affected adolescent patients in antiretroviral therapy clinics' adherence to ART, through a quantitative cross-sectional study. The objective of the quantitative research methodology is to provide answers to inquiries about quantifiable notions. The technique of data collection adopted for this study has the advantages of being able to reach a wide population in a short amount of time and allowing participants to freely answer questions without the researcher interfering.

3.4 Study Setting

The study was carried out at St. Theresa Hospital, which is situated 255 kilometres from Harare, the country's capital city, in the Chirumhanzu District in Zimbabwe's Midlands province. Chirumhanzu district is 496 square kilometres in size, with an estimated 86,460 residents, and is predominantly rural (Masanhu, 2021). The first rural hospital in the nation to provide ART and the first rural peer support program for young people on ART, St. Theresa Hospital is one of the district's primary referral hospitals (Umuhoza et al, 2020).

In 1994, this hospital launched the opportunistic infection and antiretroviral therapy (OI & ART) clinic. Since that time, the hospital has provided ART services to adults of all ages, including young people. After realizing that the adult clinic was not meeting the specific needs of children between the ages of 12 and 17, a separate clinic for young people was developed (Bailey et al, 2018). The opening of a separate clinic for young people gave them a place to express their feelings and discuss their experiences without being judged by adults. In 2009, paediatric ART services were also made available. Patients are started on ART at the hospital, after which they are sent to nearby clinics for a monthly check and refill. However, individuals who refuse therapy are sent

back to this institution for further evaluation by a doctor. Additionally, patients who start on second line therapy after a treatment fails still receive their medication from the hospital.

It is simpler for patients to have all essential examinations under one roof thanks to the hospital's CD4 testing machine and laboratory (Masanhu, 2021). For a CD4 count check, patients on ART from outlying clinics are referred to St Theresa Hospital. Additionally, individuals with infectious disorders are sent to it as a centre. In addition, it contains a medical examination centre, TB clinic, X-rays, and dental therapy (Humphrey et al , 2019). The hospital pharmacy, which is supported in part by the National Aids Council and in whole by The Global Fund, provided ARVs without charge to each patient (NAC). Social workers care for patients with socioeconomic issues in the social welfare department. Patients who are referred to the social welfare department and given assistance with a free treatment order are those who legitimately cannot afford their medical expenses (Masanhi, 2021). Additionally, the ART clinic is affiliated with a nongovernmental organization (food program) that provides food hampers and financial aid to individuals receiving ART (Ngundu, 2018). But only those who meet the qualifying requirements—which are based on nutritional screening—are given the food ration, and those who qualify must be underweight ART patients. Nutritional state of the patient is periodically assessed, and if it improves, the meal regimen is stopped. Patients receive instruction on antiretroviral medication and adherence during the monthly evaluations of health education classes on HIV and AIDS. The interaction also provides a chance for a short-term support group gathering where patients can share their testimonies, discuss adherence, and engage in devotional prayers that tend to their spiritual needs (Ngcobo et al , 2022). Additionally, it provides a chance for patient concerns to be raised during a question-and-answer session.

The counsellor emphasized during the health education session the importance of prioritizing daily schedules and giving clinic appointments first priority (Masanhu, 2021). Patients were comforted by the counsellor that even in cases of emergency, such as a death in the family, they should come in for their review first so that staff members can save them, and then they could go to the funeral with their prescription. Patients go through at least three counselling sessions on various days before starting ART (Bvochora et al, 2019). The first counselling session focuses mostly on providing patients with basic counselling, including information about HIV and AIDS, self-stigma,

accepting one's HIV status, disclosure-related concerns, and other fundamental topics.

The second and third sessions primarily address issues related to adherence, including the significance of adhering to treatment, the implications of not adhering, qualifying factors, providing information on ARVs and naming them, how they work, their side effects, as well as determining whether a patient is ready to begin ART (Masanhu, 2021). The themes are covered again in later counselling sessions to help patients retain the information. Participants are recapitulated, and patients are given opportunity for questions and replies. Based on the patients' adherence status during their monthly review visits, further adherence counselling sessions are provided to them. The monthly reviews' primary goals are to gauge patient adherence levels and determine whether they require additional education and care (Ndlovu et al, 2018). In accordance with WHO standards, the patients also undergo pertinent examinations, such as a CD4 count, which is performed to evaluate if treatment with ART should begin (CD4 count of 350 and below). Patients are evaluated using WHO staging, which is based on clinical symptoms, in the lack of a CD4 count.

3.5 Population

3.5.1 Study Population

Population refers to the total group of people or things with the same feature (Mohajan, 2020). The study's participants were defined as HIV-positive young people (from the ages of 18 to 26 years old), on ART who attend St Theresa Hospital and satellite clinics around it. In Masvingo, the hospital provides care for residents of the neighbourhood districts. The choice of this facility was made based on the fact that it serves a sizable population of Masvingo region residents receiving HIV and AIDS treatment. At the clinic, patients are seen from 7 a.m. to 16 p.m., Monday through Friday, with an estimated 150–200 people per day. As the only facilities the researcher is aware of that feature a peer assistance program in a rural setting, The District and St. Theresa hospital have been selected.
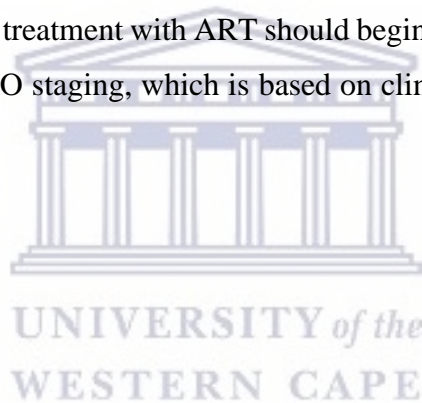
3.6 Sampling

In statistical analysis, sampling is the procedure by which researchers select a specific number of observations from a larger population (Moser and Korstjens, 2018). Depending on the sort of analysis being done, the sampling technique may be simple random sampling or systematic sampling (Flick, 2018). There are two types of sampling used in research: non-probability sampling and probability sampling. Since this study used both non-probability and probability sampling techniques, it was a mixed-methods study.

There are two categories of sampling techniques, namely probability and non-probability. Quantitative probabilistic sampling techniques were employed in this mixed-methods study because they were thought to be more suitable for constructing meaning on complicated topics relating to people and their behaviour. In the sampling technique known as stratified random sampling, a population is divided into more manageable subgroups known as strata (Yadav et al, 2018). The strata of the sample were created using stratified random sampling. The target group was split into the two key strata according to young people living with HIV who have been taking antiretroviral treatment for at least a year and pick up their prescriptions at St. Theresa Hospital and affiliated clinics. Because the referral hospitals were the first to offer free antiretroviral medicine distribution in the district, the referral hospital had a greater enrolment of adolescents living with HIV than other healthcare facilities in the neighbourhood.

The sample was then proportionately drawn from each of the specified strata using simple random sampling. The participants were chosen at random from the research population using a simple random selection procedure. The purest type of probability sampling, according to Mohajan (2020), is simple random sampling. Each person in the population has a known, equal chance of getting chosen. The pool of potential subjects gets skewed when there are very big populations since it is frequently difficult, if not impossible, to identify every member of the population. The use of random sampling assures that there is no bias in the sample selection process (Kumar, 2018). Any differences between the sample's characteristics and the population are purely coincidental.

Furthermore, the researcher chose patient participants who were knowledgeable sources and accurate representations of AIDS patients in St. Theresa by using purpose sampling. A nurse or clinician at the front desk recognized and approached patients who were going to any of the ART clinics and met the eligibility requirements. Patients who could not fully participate in study because of their medical instability were excluded. This enables the researcher to concentrate on a particular group of people who have expertise in the topic under investigation. This sampling strategy aims to increase the likelihood of obtaining detailed information on patients' perceptions and experiences with the various treatment models (Shaheen and Pradhan, 2019). From hospital registers, the researcher purposefully chose patients among young people living with HIV who had access to the St. Theresa hospital program.

3.6.1 Inclusion criteria

Young people who have tested positive for HIV, are between the ages of 18 and 25, are registered at a local health facility, are listed on the St. Theresa Hospital ART registers, have caregivers who have given their consent, and caregivers who are willing to participate in the study were all required to be included in the cohort of the study.

3.6.2 Exclusion criteria

Young people who have never attended an opportunistic infection clinic, those with HIV who are registered at health facilities in other Districts, those whose caregivers have refused consent, those with severe health complications due to their HIV, and those who have declined to participate in the study were all excluded from the study.

3.6.3 Sample Size

The process of deciding how many observations or replicates to incorporate into a statistical sample for a study is called sample size determination (Lakens, 2022). According to the St. Theresa Hospital Voluntary Testing and Counselling registries, 485 identified adolescents in the Chirumhanzu District are now receiving ART. Of these, only 200 were classified as "available,"

as the others may have left the district or have not visited the Opportunistic Infection clinic since testing positive, making them impossible to track down. Consequently, it was ultimately decided that a sample size of 200 was optimal for the study.

3.7 Data Sources

To get a more complete conclusion, the researcher used both primary and secondary data sources. The researcher utilised questionnaires to gather primary data pertinent to the study. The researcher also looked at secondary data, and in this situation, information will be gathered from ST Theresa Medical Reports, as well as literature from previously published sources, either in hardcopy or softcopy.

3.8 Data Collection

Questionnaires served as the major method for gathering primary data in this study. A questionnaire is a tool designed to ask respondents directly about their behaviour, demographic information, degree of knowledge, attitude, beliefs, and feelings (Mohajan, 2020). The correlation design called for the use of questionnaires since they allow for the quick and efficient gathering of a significant amount of data from a substantial number of respondents. For the best response rate possible, the questionnaire was administered to the participants. The three components of the questionnaire are summarized as follows: Socio-demographic factors were the focus of Section A. Date of birth, gender, orphan status, marital status, level of literacy, religion, and average family income were all questions that respondents had to answer. The respondent's clinical state was the main topic of Section B. It asked questions on how HIV was contracted, and ARV frequency. The topics covered in Section C to F included adherence rates, awareness of the HIV illness and ART, social support, and drug and alcohol usage.

The study's objectives were related to the questionnaire, which covered topics like HIV ART

adherence and potential adherence-boosting factors. The survey evaluated demographic factors such age, sex, educational attainment, employment status, marital status, and the number of children. In addition, the questionnaire inquired about self-reported adherence and interactions with peer support.

Retrospective evaluation of compliance was done using a 5-day recall from the Adult AIDS Clinical Trials Group (AACTG) follow-up questionnaire (Chesney et al, 2000). The formula was used to compute the adherence index:

$$\frac{\text{Total number of drugs taken}}{\text{Total number of drugs prescribed}} \times 100$$

Patients with adherence rates of more than 95% were deemed to have strong adherence, and those with adherence rates of less than 95% were deemed to have low adherence.

When the data gatherers were being trained, the questionnaire was initially evaluated. Through the use of an administered questionnaire, data was gathered. This was done to make sure that the questions were comprehended by the younger adolescents (10–14 years old). The questionnaire was completed by some older young people. To accommodate the young people who couldn't understand English, a translation guide was also made available to data collectors. As young people brought their leftover medications for assessment and pickup, pill counts were also performed.

3.9 Data collection procedures

Selected respondents were contacted via telephone, and the lead researcher briefly explained the study's objectives and enquired about their potential involvement. The process of gathering data was carried out in March 2020. The questionnaire was administered at St. Theresa hospital and surrounding satellite clinics to anyone who demonstrated interest in the study. After receiving more information and being certain that they fully understood the study during the study visits, participants signed an informed consent form. After that, participants completed a structured pre-tested questionnaire for thirty to forty-five minutes. English, which is widely spoken in the

Chirumhanzu District and the area around St. Theresa Hospital, was the language of the questionnaire. For those who speak various languages, a translator or interpreter was provided. The questionnaire was administered face-to-face by the lead investigator, who is proficient in the participants' language, to guarantee complete understanding and engagement from the participants.

According to Mohajan (2020), in order to collect rich data, researchers must develop and maintain a high level of trust with their subjects and "be like them." The researcher regularly attended the patients' devotional prayers and health education sessions from the counsellor when they first gathered in a hall while awaiting reviews during the data collecting period. To help the researcher win the participants' trust, the counsellor, who was familiar with the patients, presented the researcher to them while they were still gathered in the hall as a group. The researcher then had the chance to speak to the group of patients and describe the study's goals before inviting individuals who were interested in participating (voluntarily) to a private room to learn more about the research.

3.10 Data Analysis

To make analysis easier, the information gathered via the questionnaires and other methods outlined above was coded, summarized in frequency distribution graphs, and tabulated (Roberts et al, 2019). Regression analysis and other statistical techniques were utilized to highlight the research findings (Roberts et al, 2019). Epi Info was used to code and analyse the questions (Epi Info 7). A self-report technique was used to determine the degree of adherence. The participants were asked to provide information regarding the number of missed ARV doses, the degree to which they adhered to their medication schedules, and any food recommendations made by medical professionals over the previous three days. The data show how closely the study subjects followed their food, dosage, and schedule instructions during a three-day period. Frequency tables from Epi Info 7 were used to present the study's findings. The study used bi-variate analysis to examine the relationship between combined adherence and sociodemographic characteristics, medical problems, and ART knowledge.

3.11 Validity and Reliability

3.11.1 Validity

The definition of validity is "the accuracy and truthfulness of inferences drawn from study data" (Mohajan, 2017). The reliability of the data collection tool (Flick, 2018) asserts that validity deals with the question of whether there is evidence to support the conclusion that the methodologies are actually measuring the abstract notions that they claim to assess. According to Hermans et al. (2019), determining evidence supporting the use of a particular measure or instrument in a specific location with a determined population for a particular purpose fall under the purview of validity. So, whether a research tool assesses what it sets out to measure is determined by its validity. There are four different types of validity: construct validity, face validity, and content validity. Face validity and content validity were used in this investigation. According to Mohajan (2017), face validity relates to whether the instrument appears to be measuring the right construct, particularly to those who will be filling out the instrument. Face validity, which in this case was the questionnaire, therefore relates to the instrument's outward appearance. Other researchers in the field of the study evaluated the questionnaire's face value in this study. These included the hospital researcher officers. During the pretesting phase, they assessed the questionnaire's applicability, ease of administration, and relevance to the research issue.

According to Mohajan (2017), an instrument's content validity refers to how well it covers the construct being measured and includes an acceptable sample of items for it. The researcher conducted a thorough literature analysis on the subject to make sure the questionnaire has all the information in the domain. Outside credibility According to Mohajan (2017), the degree to which associations found in a study hold true for various subjects, circumstances, and contexts is known as external validity. Examining whether the study's results can be applied to the general population is what external validity focuses on. The researcher used the random sample approach in order to guarantee external validity. Everyone in the population had a fair chance of getting chosen. Thus, selection bias was reduced. The choice was made independently of any specific traits, and any disparities between the sample and the population were solely the result of chance, not the researcher's personal preferences. To ensure that the sample size remained larger, the researcher additionally expanded the sample size and promoted a high response rate. To account for the non-

respondents, more individuals were included in the sample.

3.11.2 Reliability

The ability to receive consistent responses over a lengthy period of time is referred to as reliability (Moon, 2019). According to Alam (2020), reliability is the ability of a measuring device to consistently measure whatever it is intended to measure. It is defined as random error in measurement. Reliability is defined by Mohajan (2017) as the accuracy with which an instrument measures the characteristic. Therefore, reliability assesses whether the findings are consistent when the same group is tested again. Before beginning the real research project, the researcher pre-tested the data collection instruments to confirm their dependability. The researcher was able to modify and enhance the questionnaire through pretesting. The questionnaire's administration was covered in training for the data gatherers as well. The topics of ethics, kid-friendly language, and questioning were covered in this session. This made it possible for the data collectors to follow standardized processes and interpret the questions in the same way. For the quantitative portion of the study, the Cronbach's alpha was employed to measure dependability; scores above 0.7 are regarded as good (Hermans et al, 2019). In order to determine an adequate sample size and refine the study design before carrying out a full-scale inquiry, a pilot test is a preliminary study that evaluates feasibility and statistical variability. The pilot study's objective was to evaluate the validity of the questionnaires.

A pilot test is required, in accordance with Maher et al. (2018), to evaluate the dependability of data gathering tools. The pilot study was thus carried out to identify design and instrumentation flaws and to offer precise data for sample selection (Flick, 2018). Six teens who were part of the target population but not the sample in this study were used as pilot testers for 10% of the surveys in order to obtain accurate input (Mohajan, 2020). The purpose of the pilot test was to ensure that the language used in the questions was straightforward and easy to understand.

3.12 Ethical Considerations

The researcher must take precautions and make sure that study participants' rights are upheld when

using people as study subjects (Hesse et al, 2019). All relevant ethical concerns for the study were respected by the researcher. The University gave its approval for the research's ethical conduct. Prior to the study's start, a formal request to perform the research was made to the St. Theresa hospital's administration and the Research Council of Zimbabwe, both of which gave their consent.

The requirement for informed consent is that subjects receive sufficient information about the study, comprehend it, and have the choice to participate or not (Hesse et al, 2019). The researcher was given the chance to outline the study's objectives, the requirements for involvement, and the importance of volunteer participation to the entire group. To individuals who were willing to participate, the researcher provided information on a one-on-one basis and explained what it takes to participate and the information on the consent form. Participants received a thorough description of the study's objectives. The goal of the study and the fact that participation is completely voluntary with no immediate rewards or penalties depending on their choice to participate in the study were explicitly disclosed to those who were chosen to take part. The information and consent forms were distributed to all recruited participants. No participants in the study under the age of 18 were recruited as respondents. The right to withdraw from the study at any time and without repercussions was made clear to the participants.
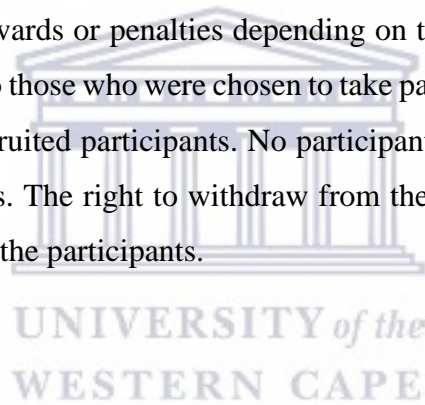
Since sexuality and HIV status are delicate topics, anonymity was rigorously upheld. Participants also had access to a qualified psychological counsellor situated at St. Theresa Hospital in case they felt uneasy while the questionnaire was being administered. Fortunately, there were no instances of psychosocial discomfort throughout the trial. Study identity numbers were employed, which were allocated to participant surveys, to protect confidentiality. To maintain anonymity and prevent linking the two, the consent forms and questionnaires were kept in separate files that were securely secured in the researcher's office and could only be accessed by him in his capacity as the principal investigator. The Principal Investigator is very sensitive to the challenges of working with such a vulnerable group and has always ensured confidentiality and their utmost comfort. He has more than five years' experience working with young people living with HIV and has already conducted some studies with them for work purposes. After the study is over, data will be kept for five years before being deleted in accordance with accepted research ethical procedures.

Before the interviews, those who agreed to participate signed consent forms. Participants were also requested to sign consent forms before audiotaping the conversations and seek their permission beforehand. To ensure that patients completely understood the information on the consent form, it was translated into the patients' native tongue (Shona), and copies of the consent form were distributed to each patient. Participants were given the researcher's and the supervisor's contact information. Since every participant in the interview was literate (could read and write), it was simpler for them to read, comprehend, and sign the consent papers. Participants had attended for their monthly reviews, so they had no out-of-pocket fees.

In addition, participants were informed that they might withdraw at any time without jeopardizing their care. There was no risk to the participants. Although the researcher had already made plans with the counsellor to refer individuals who may have emotional issues because of the nature of in-depth interviews, happily none of the participants felt uncomfortable. The study's sample techniques, data collection methods, research analysis strategies, and research design were all presented. Ethics-related topics were also covered.

3.13 Chapter Summary

This chapter discussed the methodology utilised during the study. Components including study design, sampling, data collection procedure, data analysis, validity and reliability, and ethical considerations were looked at in depth.

CHAPTER 4: RESULTS

4.1 Introduction

This chapter presents the descriptive and analytical results of this study, which were conducted according to the methodology outlined in the previous chapter. There is a description of the socio-demographic characteristics of the respondents; followed by source of HIV infection; drug abuse and alcohol consumption; HIV ART adherence; perceived barriers and facilitators of treatment adherence and interactions with a peer supporter. These results are described using several types of charts and tables. In the last section of the chapter associations between the variables are explored using crude odds ratios and p-values with 95% confidence intervals used for determining strength of association. A comparison between those who were affiliated to a hospital/clinic versus those who were not was made in the analysis.

A total of 200 questionnaires were distributed to adolescents living with HIV who were registered for antiretroviral therapy (ART) at St Theresa Hospital and its satellite clinics in Chirumhanzu District. Out of the 200 questionnaires, 172 were received and were all valid: resulting in an 86% response rate some of the adolescents had no time or lacked interest in participating in the study; others were no longer living in the target area; some were registered in other districts while others had never attended the opportunistic infection clinics in the district. In accordance with Fowler's (2013) submission that a 60% response rate is generally considered sufficient to be representative of the study population, it is submitted that the 86% response was sufficient to make a generalization.

4.2 Socio-demographic characteristics

Table 1 below shows that most of the respondents (45.3%) were aged between 18-20 years with almost equal numbers for the other age groups. The mean age was 21.5 years old. There was an almost equal number of males (50%) and females (49.4%), with one respondent refusing to identify as neither male nor female. When looking at who the respondents were staying with, most

were staying with relatives (41.9%) or parents (40.1%) with 12.8% staying with partners, 1.2% with friends and 4.1% staying alone. A total of 67.4% of the respondents did not have any children. Less than half (43.3%) were attending or still in school. The highest education level attained by most of the participants was secondary school (77.3%) while only 0.6% or one respondent had no education at all.

Table 1 Socio-demographic characteristics of the respondents (n=172)

CHARACTERISTIC	FREQUENCY	PERCANTAGE
Age Groups		
18-20 years	78	45.3%
21-23 years	46	26.7%
24-26 years	48	27.9%
Gender		
Female	85	49.4%
Male	86	50.0%
Other (Did not identify as male or female)	1	0.6%
Currently staying with		
Relatives	72	41.9%
Parents	69	40.1%
Partner	22	12.8%

Myself	7	4.1%
Friends	2	1.2%
Have children		
Yes	56	32.6%
No	116	67.4%
Attending School		
Yes	47	43.3%
No	97	56.7%
Highest Education Level		
Bachelors	6	3.5%
Secondary	133	77.3%
Primary	32	18.6%
None	1	0.6%

4.3 Organisational affiliation

When asked about organisational affiliation, 80.3% (n=138) of the respondents stated that they interacted with St Theresa; 18.0% (n=31) said that they were unaffiliated and 1.7% (n=3) were affiliated with Zvandiri as shown in Figure 1 below.

Figure 1 Organisational Affiliation of Respondents (n=172)
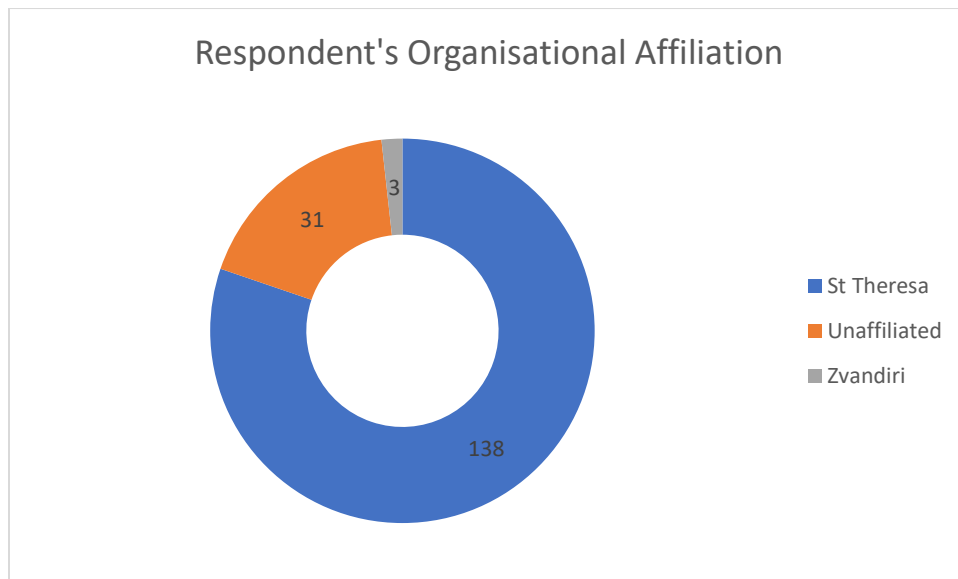
4.4 Source of HIV infection

Most of the respondents stated being born with HIV as the source of their HIV infection (64%, n=110) presented in Figure 2. The second most common source of HIV infection was unprotected sexual intercourse with a man or a woman (24%, n=42), while 11% (n=19) stated that they did not know how they got infected with HIV. A small percentage (1%, n=1) stated that they had been infected through blood transfusion or a medical procedure.

Figure 2 Source of HIV infection (n=172)

SOURCE OF HIV INFECTION

- Sexual contact with HIV+ person, 24%
- Medical Procedure, 1%
- Don't know, 11%
- Born with HIV, 64%
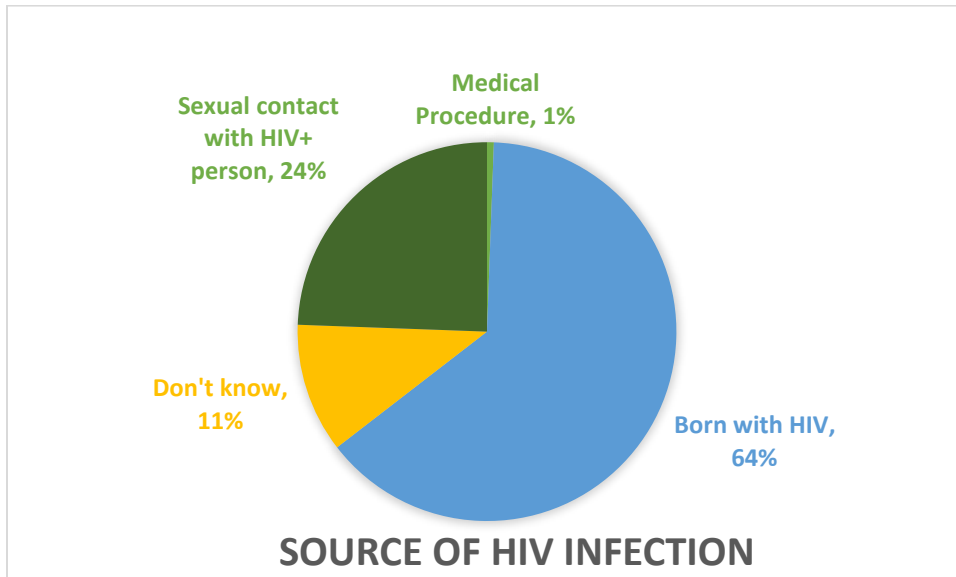
4.5 Substance Abuse

As shown in Figure 3 below, a total of 10.5% (n = 18) reported having used recreational drugs, while 89.5% (n =154) stated that they have never used them.

Figure 3 Recreational drug use among the respondents (n=172)

Recreational Drug Use

Have you ever used recreational drugs
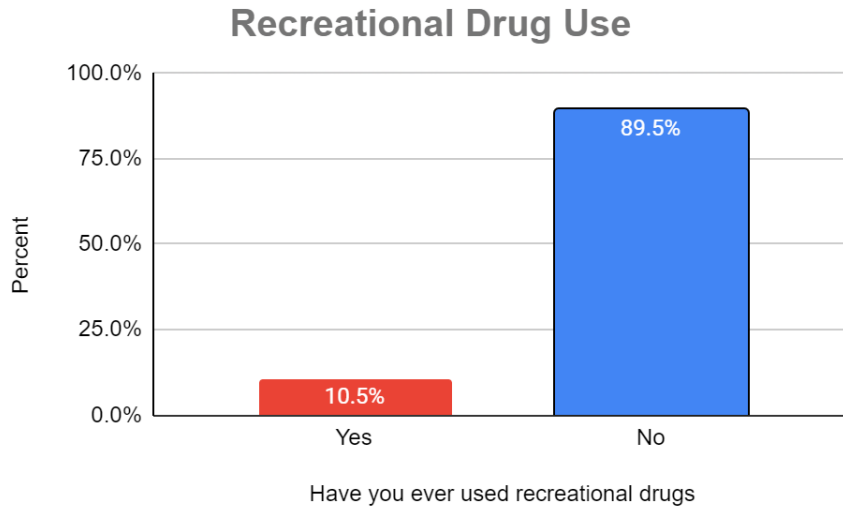
Figure 4 Respondent's alcohol consumption (n=172)

Alcohol Consumption

Have you ever taken any alcohol
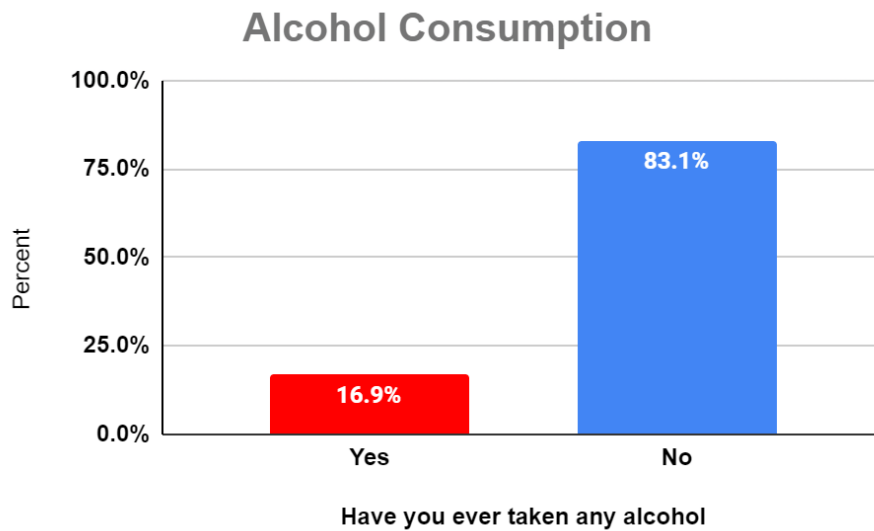
A total of 83.1% (n = 143) of the respondents stated that they do not consume alcohol while 16.9% (n =29) do, as shown in Figure 4 above.

4.6 HIV ART Adherence

4.6.1 Attitude towards treatment

Figure 5 shows that 51.2% (n = 88) of the respondents were very sure they would be able to take all their prescribed medication, 38.4% (n = 66) were extremely sure, 5.2% (n=9) were somewhat sure and 5.2% (n=9) were not at all sure. Among the respondents, 45.4% (n=78) were extremely sure that the medication they take will have a positive effect on their health, 43% (n=74) were very sure, 8.7% (n=15) were somewhat sure and 2.9% (n=5) were not at all sure. A total of 52.3% (n=90) of the respondents were very sure that if they default on their treatment the HIV in their bodies would become resistant to medication, 35.5% (n=61) were extremely sure, 8.1% (n=14) were somewhat sure and 4.1% (n=7) were not at all sure.

Among the respondents, 45.4% (n=78) were extremely sure that the medication they take will have a positive effect on their health, 43% (n=74) were very sure, 8.7% (n=15) were somewhat sure and 2.9% (n=5) were not at all sure.

Figure 5 also shows that 52.3% (n=90) of the respondents were very sure that if they default on their treatment the HIV in their bodies would become resistant to medication, 35.5% (n=61) were extremely sure, 8.1% (n=14) were somewhat sure and 4.1% (n=7) were not at all sure.

Figure 5 Attitude towards treatment (n=172)
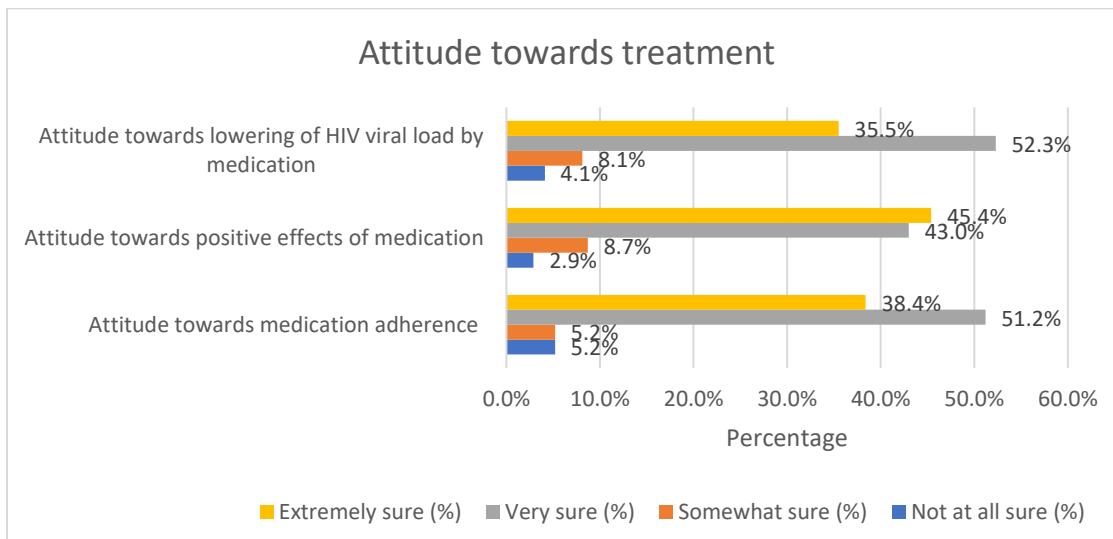
4.6.2 Levels of Adherence

Figure 6 shows the self-reported ART adherence level of the respondents for a five-day recall period. The adherence was calculated as a percentage of the number of pills taken divided by the total number of pills prescribed for the period. Most of the participants (95.3%, n = 164) reported high adherence levels of 100%, while 4.7% (n=8) reported low adherence.

Figure 6 Levels of self-reported adherence of the respondents (n=172)
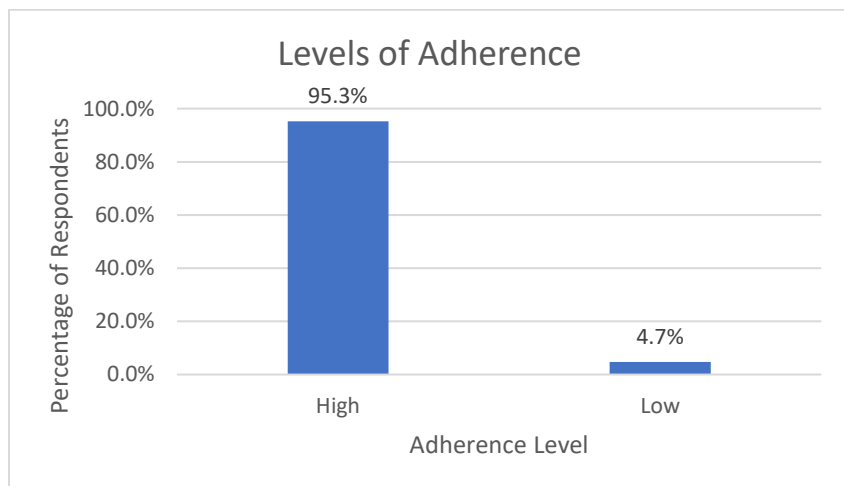
4.6.3 Perceived Barriers to treatment adherence

The respondents were all asked on what they perceived as the main barriers to treatment for young people living with HIV. The main barrier to treatment adherence reported by the respondents was stigma and discrimination (87.8%) followed by negative side effects of the treatment (23.8%), adequate diet (11%), household chores and work/school schedule were equal at (8.1%) for both (see Figure 7 below). Denial, lack of caregiver disclosure, and negative peer influence were only mentioned by one respondent each.

Figure   7   Perceived   Barriers   to   treatment   adherence   (n=172)

Perceived Barriers to Treatment Adherence
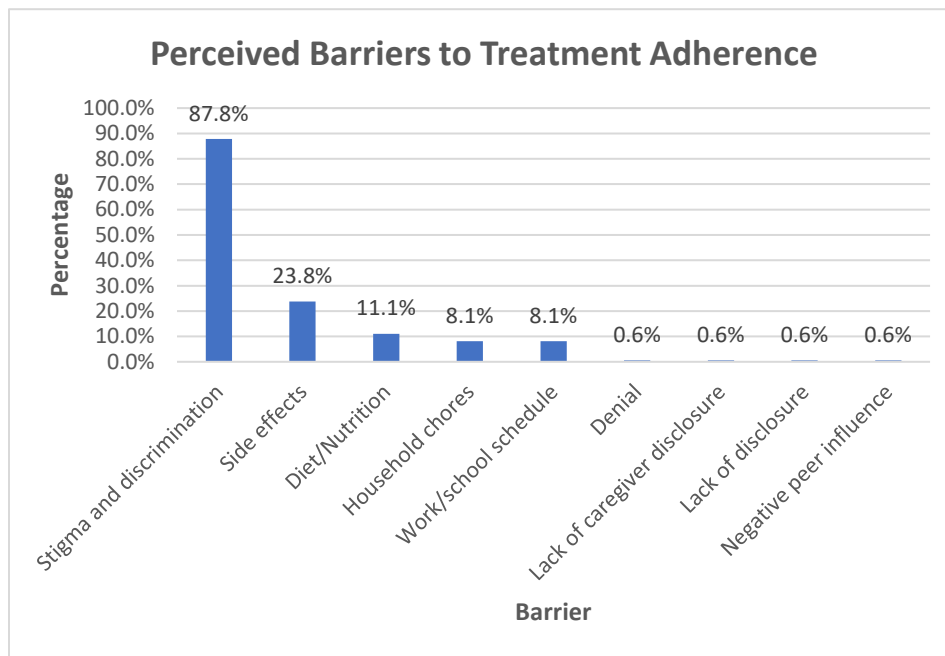
4.6.4 Perceived Facilitators of treatment adherence

The respondents were also asked on what they perceive as the main facilitators of treatment adherence among young people living with HIV. The main facilitator of treatment adherence was the presence of a peer supporter (80.8%) followed by caregiver support (40.1%), accessible health services (20.3%) and short message service (SMS) reminders (14%), (see Figure 8 below).

Figure   8   Perceived   Facilitators   of   treatment   adherence   (n=172)

Facilitators of treatment adherence
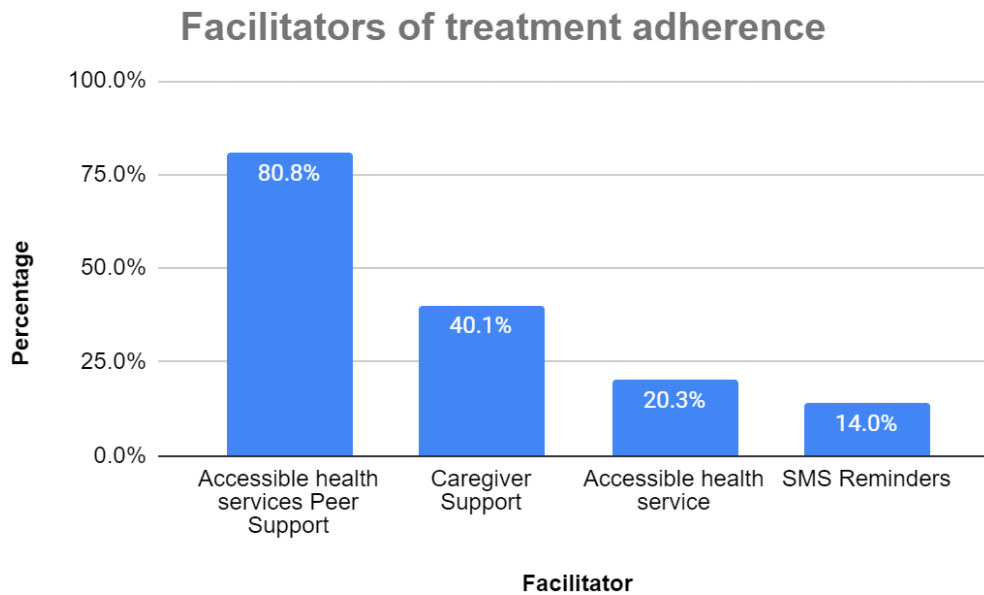
4.7 Interactions with a peer supporter

4.7.1 Contact with a peer supporter

Majority of the respondents (82%; n=141) reported having had some interaction with peer supporters as shown in Figure 9.

Figure 9 Contact with a peer supporter (n=172)

4.7.3 Type of assistance received from a peer supporter

Figure 10 below shows the responses from the study participants on the type of assistance they received. Most of the respondents reported that peer supporters helped them the most with information on their medications (72%; n=102). The second highest reported form of assistance was with mental wellbeing (27%; n=38) with (1%; n=1) stating that they were helped with nothing.

Figure 10 Type of assistance received from a peer supporter (n=141)
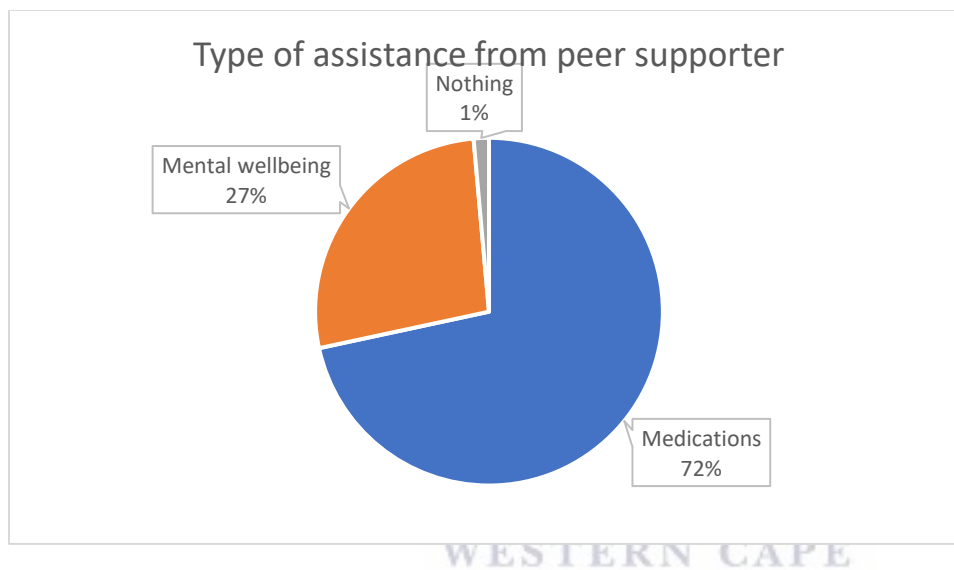
4.7.4 Peer supporter influence on adherence to treatment

Figure 11 below illustrates what the respondents stated on how much peer supporters influenced their adherence. A total of 99% (n=140) stated yes, while only 1% said no.
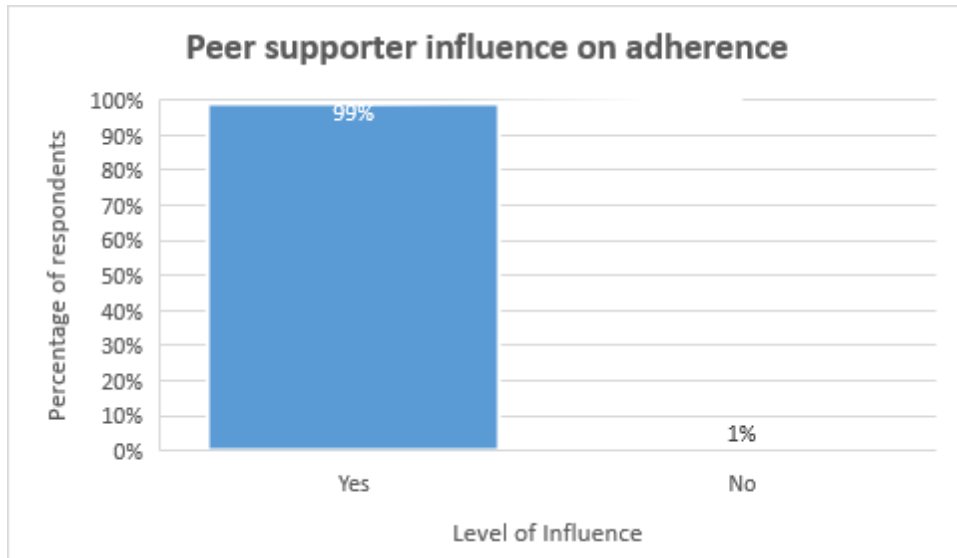
4.7.5 Effective qualities of a peer supporter

Figure 12 below shows that the respondents consider a peer supporters knowledge to be the most effective trait (80.1%), followed by those who consider attitude to be important (12.8%), (6.4%) stated ''other'' while (0.7%) said that they did not know.

Figure 12 Effective traits of a peer educator (n=141)
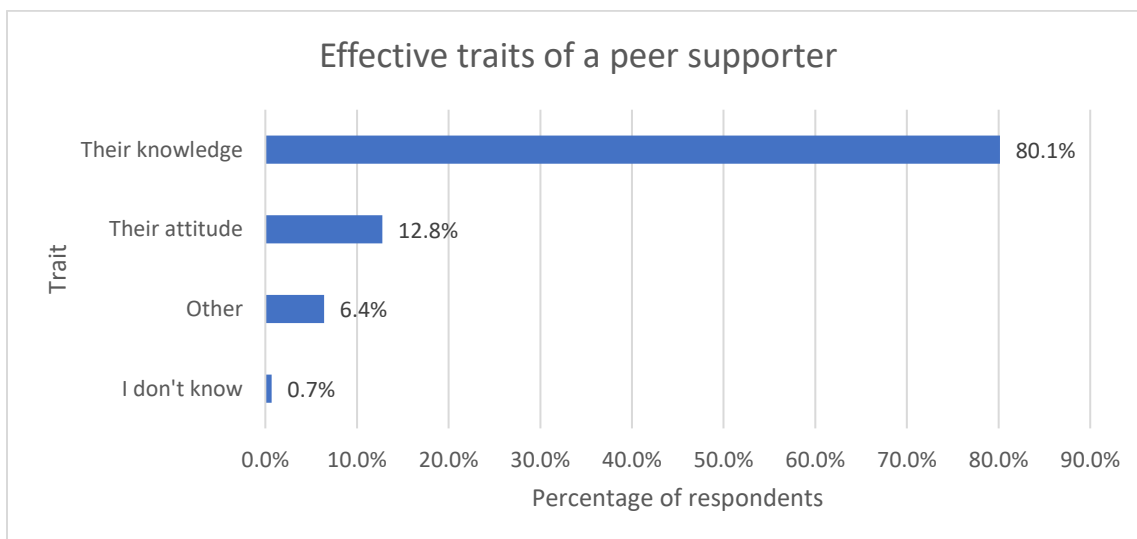
4.8.1 Association between peer support affiliation by socio-demographic characteristics

Table 2 shows the bivariate analysis of socio-demographic characteristics associated with peer support affiliation. Among the age groups, the 18-20 age group had the highest number of respondents with affiliation (42.6%). However, these results were not statistically significant having a p-value of 0.223. Males had higher reported levels of affiliation (51.1%) compared to females (48.2%), the difference was not statistically significant (p-value=0.637). Those respondents who were in school had higher reported affiliation (84.5%), this result was not statistically significant with a p-value of 0.300. Looking at highest education levels, those who had gone up to secondary school had the highest numbers of affiliation (82.0%). However, this result was not statistically significant at p-value=0.602.

Table 2 Socio-demographic factors associated with affiliation to peer support (n = 172))

CHARACTERISTIC	Affiliation with a peer supporter		P-Values
	Affiliated n (%)	Unaffiliated n (%)	
Age Groups			
18-20 years	**60 (42.6%)**	**18 (58.1%)**	
			0.223
21-23 years	**41 (29.0%)**	**5 (16.1%)**	
24-26 years	**40 (28.4%)**	**8 (25.8%)**	

Gender			
Female	**68 (48.2%)**	**17 (54.8%)**	
			0.622
Male	**72 (51.1%)**	**14 (54.8%)**	
Other (Did not identify as male or female)	**1 (0.7%)**	**0(0%)**	
Currently staying with			
Relatives	**56 (77.8%)**	**16 (22.2%)**	
Parents	**59 (85.5%)**	**10 (14.5%)**	**0.326**
Partner	**18 (81.8%)**	**4 (18.2%)**	
Myself	**7 (100%)**	**0 (0%)**	
Friends	**1 (50%)**	**1 (50%)**	
Have children			
Yes	**46 (82.1%)**	**10 (17.9%)**	**0.970**
No	**95 (81.9%)**	**21 (18.1%)**	
Attending School			

Yes	58 (78.4%)	16 (21.6%)	0.300
No	82 (84.5%)	15 (15.5%)	
Highest Education Level			
Bachelors	6 (4.2%)	0 (0%)	0.602
None	1 (0.71%)	0 (0%)	
Primary	25 (17.7%)	7 (21.9%)	
Secondary	109 (82.0%)	24 (18%)	

4.8.2 Association between substance use and affiliation with a peer supporter

Table 3 shows that 88.7% (n=125) of those who were affiliated reported not taking drugs, they were also 1.8 times more likely not to take drugs compared to the unaffiliated. This was not statistically significant (p-value=0.420). The affiliated were 3.4 times more likely not to take alcohol compared to the unaffiliated. The result was not statistically significant (p-value=0.090).

Table 3 Analysis of recreational drug use and affiliation with a peer supporter (n=172)

	Affiliation with a peer supporter	OR (CI 95%)	P-Value

	Affiliated n (%)	Unaffiliated n (%)		
Recreational Drug use				
Yes	**16 (11.3%)**	**2 (6.5%)**	**1.856 (0.404-8.524)**	**0.420**
No	**125 (88.7%)**	**29 (93.5%)**		
Alcohol Consumption				
Yes	**27 (93.1%)**	**2 (6.9%)**	**3.434 (0.772-15.285)**	**0.090**
No	**114 (79.3%)**	**29 (20.3%)**		

4.8.3 Association between affiliation with a peer supporter and attitude towards treatment

Table 4 shows the association between affiliation with a peer supporter and attitude towards treatment. Responses of ''Somewhat sure'', ''very sure'' and ''extremely sure'' were combined as positive attitude versus ''Not at all sure'', which is denoted as negative attitude. A total of 96.5% (n=136) of the respondents who were affiliated with a peer supporter had a positive attitude towards adherence to their medication. The p-value of 0.035 shows that there is a statistical significance between attitude towards treatment and affiliation with a peer supporter. The result also showed that those who were affiliated were four times more likely to have a positive attitude

towards treatment. 98.6% (n=139) of those who were affiliated were seven times more likely to believe that the medication they are taking will have a positive effect on their health. This result was statistically significant with a p-value of 0.013. A total of 97.9% (138) of the respondents who were affiliated with a peer supporter were seven times more likely to have a positive attitude that the treatment will lower their HIV viral load. The result was statistically significant (p-value=0.006).

Table 4 Association between affiliation with a peer supporter and attitudes towards treatment (n=172)

Attitudes towards	Affiliation with a peer supporter		OR (CI 95%)	P-Value
	Affiliated n (%)	Unaffiliated n (%)		
Medication adherence				
Positive attitude	**136 (96.5%)**	**27 (87.1%)**		
			4.03 (1.020-16.0)	**0.035**
Negative attitude	**5 (3.5%)**	**4 (12.9%)**		
Positive effects of medication				
Positive attitude	**139 (98.6%)**	**28 (90.3%)**		
			7.446 (1.189-46.640)	**0.013**

	High	Low	OR (CI 95%)	P-Value
Negative attitude	2 (1.4%)	3 (9.7%)		
Lowering of HIV viral load				
Positive attitude	138 (97.9%)	27 (87.1%)	6.815 (1.442-32.196)	0.006
Negative attitude	3 (2.1%)	4 (12.9%)		

Conducting bivariate analysis of the association between affiliation with a peer supporter and adherence (Table 5) shows that respondents who were affiliated with a peer supporter, (96,5%) had high adherence. This result had a p-value of 0.142 which showed that interaction with a peer supporter did not have a statistically significant effect on adherence.

Table 5 Bivariate analysis of affiliation with a peer supporter and adherence (n=172)

Affiliation with a peer supporter	Adherence		OR (CI 95%)	P-Value
	High n (%)	**Low n (%)**		
Affiliated	136 (96.5%)	5 (3.5%)	**2.914 (0.658-12.10)**	**0.142**
Unaffiliated	28 (90.0%)	3 (10.0%)		

4.9.1 Association of treatment Barriers and affiliation with a peer support programme

Most of the respondents affiliated with a peer support programme identified work/school schedule as a major barrier (92.9%); followed by diet/nutrition (89.5%); household chores (85.7%); stigma and discrimination (82.8%); side effects (75.6%) and lastly ''Other'' (50%). The results were all

not statistically significant. The results are shown in Table 6 below.

Table 6 Association of treatment Barriers and affiliation to peer support programme (n=172)

Barrier	Affiliation with a peer supporter		OR (CI 95%)	P-Value
	Affiliated n (%)	Unaffiliated n (%)		
Household Chores				
Yes	12 (85.7%)	2 (14.3%)	1.345 (0.286-6.356)	0.704
No	129 (81.7%)	29 (18.3%)		
Stigma and Discrimination				
Yes	125 (82.8%)	26 (17.2%)	1.502 (0.505-4.466)	0.461
No	16 (76.2%)	5 (23.8%)		
Work/School schedule				
Yes	13 (92.9%)	1 (7.1%)	3.047 (0.383-24.206)	0.269
No	128 (81.0%)	30 (19%)		

Side Effects				
Yes	31 (75.6%)	10 (24.4%)	0.592 (0.252-1.387)	0.224
No	110 (84.0%)	21 (16.0%)		
Diet/Nutrition				
Yes	17 (89.5%)	2 (10.5%)	1.988 (0.345-9.089)	0.367
No	124 (81.0%)	29 (19.0%)		
Other - Denial; Lack of caregiver disclosure and Negative peer influence			-	
Yes	2 (50.0%)	2 (50.0%)		0.261
No	2 (50.0%)	2 (50.0%)		

4.9.2 Association of treatment Facilitators and affiliation to peer support programme

Table 7 below shows the association between identified facilitators of treatment adherence and affiliation to peer support programme. Most of those affiliated to a peer supporter programme identified caregiver support as a facilitator (75.4%) and this result was not statistically significant

(p-value=0.065). Peer support was identified as a facilitator by (87.0%) of the respondents, those affiliated to a peer support programme were four times more likely to identify peer support as a facilitator, the result was statistically significant (p-value=0.002). SMS reminders were identified by most of those affiliated (58.3%) as a facilitator and this result was statistically significant showing an association.

Table 7 Association of treatment Facilitators and affiliation to peer support programme (n=172)

Facilitator	Affiliation with a peer supporter		OR (CI 95%)	P-Value
	Affiliated n (%)	Unaffiliated n (%)		
Caregiver Support				
Yes	52 (75.4%)	17 (24.6%)	0.481 (0.219-1.056)	0.065
No	89 (86.4%)	14 (13.6%)		
Peer Support				
Yes	121 (87.0%)	18 (13.0%)	4.370 (1.856-10.285)	0.002
No	20 (60.6%)	13 (39.4%)		
Accessible health services				
Yes	28 (80.0%)	7 (20.0%)	0.850 (0.332-2.171)	0.733
No	113 (82.5%)	24 (17.5%)		
SMS Reminder				
Yes	14 (58.3%)	10 (41.7%)	0.231 (0.091-0.589)	0.003
No	127 (85.8%)	21 (14.2%)		

4.9.3 Conclusion

The results of the study on the factors associated with HIV ART adherence among adolescents living with HIV who are in peer support programme in the rural areas of Chirumhanzu District, Zimbabwe were presented in this chapter. The results section has a total of seven tables and twelve figures detailing the socio-demographics; organisational affiliation; source of HIV infection; substance abuse; HIV ART adherence; interactions with a peer supporter; barriers and facilitators of treatment adherence. Analysis was done on the associations between various studied variables among the affiliated and unaffiliated using a chi-square test and odds ratios.

CHAPTER 5: DISCUSSION OF FINDINGS

5.1 Introduction

This chapter will discuss the findings from the quantitative cross-sectional study to determine factors associated with HIV ART adherence among adolescents who are in peer support programme in Chirumhanzu District. The discussion will focus on the findings and how they relate to current literature. The chapter will conclude with a look at the study limitations.

5.2 Socio-demographic Characteristics

The results showed an equal number of male and female respondents participating in the study at 50% for each gender. The Zimbabwe National and Sub-National HIV Estimates Report national statistics however show a higher proportion of females (6.10%) compared to males at 3.27% (Ministry of Health and Child Care Zimbabwe, 2018). This is in contrast with other studies such as a study done in South Africa (Snyder et al., 2014) on a peer support programme which had 95% females. However, a similar study done in Zimbabwe by Mavhu et al (2020) had 56% females. The equal number of males and females in the study could have been due to the sampling technique which resulted in an equal distribution of the genders although this is not reflective of the actual situation in terms of HIV prevalence among young people. The median age of 21.5 years old is consistent with Snyder et al (2014) who found a median age of 22 years old in their study. Most of the respondents were staying with relatives or parents and this is to be expected as at this age they will most likely be dependants of their caregivers. In this study, 43% of the respondents were still in school which is almost consistent with the findings of Mavhu et al (2020) who found 37% of their respondents were still in school.

5.3 Source of HIV infection

Most of the respondents stated being born with HIV as the source of their HIV infection, followed

by sexual intercourse with a man or woman and only one said medical procedure. The high numbers of those who said born with HIV could be the result of the high numbers of perinatally infected adolescents who are living longer due to advances in treatment (St Theresa Ruvheneko, 2016). National statistics also show that there has been an increase in infections among young people living with HIV due to high-risk behaviours (Ministry of Health and Child Care Zimbabwe, 2018).

5.4 Substance Abuse

Recreational drug use and alcohol were low in the study with the results showing most of the respondents did not engage in substance abuse. Those affiliated with a peer support programme were two times more likely not to take drugs and three times more likely not to take alcohol. The results are consistent with the study done in Kenya by Nyongesa et al (2021) who found that substance abuse was lower among young people living with HIV compared to their uninfected counterparts. This could be due to the fact that young people living with HIV generally have a better health awareness compared to other young people in the general population due to their constant interactions with health facilities and personnel. Peer supporters also provide health education which includes the dangers of substance abuse.

5.6 HIV ART Adherence

5.6.1 Attitude towards treatment

Most of the respondents had a positive attitude towards their treatment. They were confident that the medication will lower their viral load; have positive effects on their health and that they will be able to adhere to their medication. This is consistent with the findings of Mark et al (2017) who found out that adolescents in peer support programmes had positive attitude towards their treatment.

5.6.2 Perceived Barriers to treatment adherence

The results showed that the respondents identified stigma and discrimination as the main barrier to treatment adherence followed by the negative side effects of treatment and adequate diet/nutrition. None of the identified barriers were statistically significant. Other studies however had statistically significant results which identified the main barriers as stigma, treatment side-effects and lack of assistance and forgetfulness (Ammon, Mason, and Corkery, 2018). The authors conducted a systematic review of publications in electronic databases looking at the barriers to treatment adherence for young people in Sub-Saharan Africa and identified the same as the main barriers.

5.6.3 Perceived Facilitators of treatment adherence

The main facilitators of treatment adherence identified in the study were the presence of a peer supporter, caregiver support, accessible health services and short message service (SMS) reminders. Peer support and SMS reminders were statistically significant. This is consistent with other studies such as Bezabhe et al (2014) who found similar facilitators in their Ethiopian study identifying social support, use of reminder aids and receiving education and counselling emerged as some of the main facilitators of adherence to treatment. A study done in Zambia on mHealth also identified the use of technologies as being a good facilitator of treatment adherence due to the increased availability of mobile phones and the confidentiality offered by doing things remotely (St Clair-Sullivan et al., 2019).

5.7 Interactions with a peer supporter

Most of the respondents in the study stated that peer supporters helped them the most with information on their treatment. This would mostly be adherence counselling, and this is consistent with the findings of Mark et al (2017) who made a systematic review of programmes for young people living with HIV in Africa and found adherence counselling as the major support. This also falls in with the finding that almost all (99%) of the respondents who had interacted with a peer

supporter stated that the peer supporter influenced their adherence.

5.7.1 Affiliation with a peer supporter and attitude towards treatment

The study showed statistically significant association between affiliation with a peer supporter and attitude towards treatment. Majority of those affiliated with a peer supporter had positive attitudes towards medication adherence (four times likely), positive effects of their medication (seven times likely) and that the belief that their medication will lower their viral load (seven times likely). This is consistent with various studies from across the African continent including the findings of MacKenzie et al (2017); Willis et al (2019) and Mark et al., (2019).

The results show that those affiliated with a peer supporter were three times more likely to have high adherence. Although this result was not statistically significant, other studies have shown statistically significant results showing that that peer supporters have a positive influence on the levels of adherence to treatment. Willis et al (2019) found statistically significant similar results in their study in the rural area of Gokwe in Zimbabwe; with evidence of a peer support programme improving adherence by four times, compared to the three times found in this study.

5.8 Limitations

Significant efforts were made to limit the shortcomings of the study, however due to various factors there are limitations. The study is a cross-sectional research design. By the nature of this design, there are several limitations that are likely to happen. Firstly, it may not determine causal associations and subjected to selection bias. The study was done in rural settings and thus the findings may not be applicable to an urban population limiting generalisation. The subject matter of HIV and treatment is very sensitive in the study population and may have posed some challenges for some participants especially young adolescents. Validation of the study with relevant stakeholders in Chirumhanzu (including the young people themselves), was not possible due to time and resource constraints.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The following chapter presents conclusions drawn from the study on the factors associated with HIV ART adherence among adolescents living with HIV who are in peer support programme in the rural areas of Chirumhanzu District, Zimbabwe and highlights possible recommendations on actions to be taken.

6.2 Conclusions

The study has demonstrated the importance of peer support programmes in the HIV response among adolescents living with HIV especially in developing world contexts like rural Zimbabwe. Adolescents who had interacted with a peer supporter had high levels of self-reported adherence along with positive attitudes towards treatment. The study identified stigma and discrimination, negative side effects of treatment and adequate diet/nutrition as the main barriers to treatment and the facilitators were presence of a peer supporter, caregiver support, accessible health services and short message service (SMS) reminders.

6.3 Recommendations

The following recommendations are made:

- Scale up of peer support programmes for adolescents living with HIV in resource limited settings to facilitate better treatment outcomes.
- The use of innovative reminder aids such as the use of phones through SMS, calls or mobile applications (apps)

- Retention in care programmes should incorporate community education to address stigma and discrimination and integrate nutrition and food security support for adolescents living with HIV

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APPENDIX 1: INFORMATION SHEET

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INFORMATION SHEET

Project Title: A cross sectional study on the factors associated with HIV ART adherence among adolescents living with HIV who are in peer support in rural areas of Chirumhanzu District, Zimbabwe
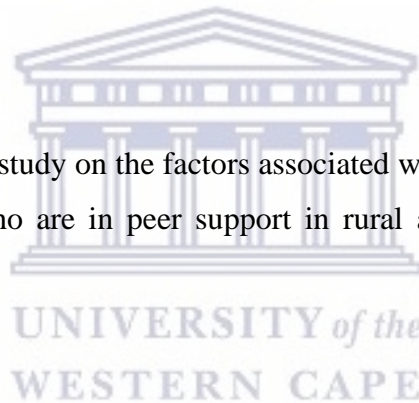
This is a research project being conducted by Christon Tinotenda Zimbizi at the University of the Western Cape. We are inviting you to participate in this research project because you have interacted with the St Theresa Ladder to Safety Peer Support programme. The purpose of the study is to analyse the contribution or impact of peer support interventions on HIV antiretroviral treatment adherence among adolescents living with HIV specifically in a rural setting using the St Theresa Peer Support Programme as a study.

You will be asked to sit down with an interviewer in a private room at St Theresa Hospital. You will be asked questions about your age, where you live, what you do, your experiences with the St Theresa programme and your experiences with HIV/AIDS treatment. The process will take 45 minutes to an hour.

The researcher undertakes to protect your identity and the nature of your contribution. To ensure your anonymity, your name will not be included on the surveys and collected data. A code will be placed on the survey and any collected data, and an identification key will be used to link your survey to your identity which only the researcher will have access to.

To ensure your confidentiality, identification codes will be used on the data forms; only the researcher will have access to the forms which will be kept under lock at the researcher's place of work which follows strict European Union Data Protection guidelines. Data entered in the computer will be stored under password protection also under European Union Data Protection Guidelines. If we write a report or article about this research project or present it at any conference or meeting, your identity will be protected.

All human interactions and talking about self or others carry some number of risks. We will nevertheless minimise such risks and act promptly to assist you if you experience any discomfort, psychological or otherwise during the process of your participation in this study. Where necessary, an appropriate referral will be made to a suitable professional for further assistance or intervention.

This research is not designed to help you personally, but the results may help the investigator learn more about the effects of peer support interventions on adherence to antiretroviral treatment for young people. We hope that, in the future, other people might benefit from this study through improved understanding of how to better support adolescents and young people to adhere to treatment.

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

This research is being conducted by Christon Tinotenda Zimbizi, MPH student at the University of the Western Cape. If you have any questions about the research study itself, please contact

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Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

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This research has been approved by the University of the Western Cape's Research Ethics Committee. **(REFERENCE NUMBER: 130416-050)**

SHONA VERSION

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Zita retsvakiridzo: Ongororo yekubatsira kana kusabatsira kwechirongwa chemasahwira evechidiki mukuita kuti varambe vachinwa mishonga yavo tichitarisa chirongwa che St Theresa semuenzaniso

Iyi istvakiridzo iri kuitwa na Christon Tinotenda Zimbizi aripa University of the Western Cape. Tinokumbirawo kuti mutaure nesu nekuti makambosangana nechirongwa che St Theresa Ladder to Safety Peer Support programme. Tinoda kuongorora chirongwa ichi kuti pane zvachinobatsira here mukuniwwa kwemishonga nevechidiki kumamisha

Muchgara pasi nesu pano pa St Theresa Hospital. Muchabvunzwa nezve kwamunogara, zvamunoita nekusangana kwamakaita nechirongwa che St Theresa Zvichatora nguva inoita 45

minutes kusvika kana pahour.

Tichachengetedza kuti ndimi hamuzombozivikanwa kuti makataura nesu. Zita renyu rininege risipo panobuda zvemutsvakiridzo asi tichashandisa chi code kumirira zita renyu. Hakuna anomboziva zvamataura nesu.

Tinoziva hedu kuti haisi nyore kutaura nezvehupenyu hwenyu asi tichaedza nepose kuti musabatikane. Kana mukanzwa zvakuoma tiudzei tokuendesai kune vanobatsira.

Tinokuzivisai kuti tsvakiridzo iyi haisi kukupai mubayiro kana mubhadharo asi ichabatsira vamwe vanotora mishonga.

Kupinda kwenyu pachirongwa hakumanikidzwe mukasada kunongobuda chero nguva yamunoda.

Tsvakiridzo iri kuitwa na Christon Tinotenda Zimbizi, MPH student pa University of the Western Cape. Kana muine mibvunzo nezve tsvakiridzo batai Christon Tinotenda Zimbizi pa:

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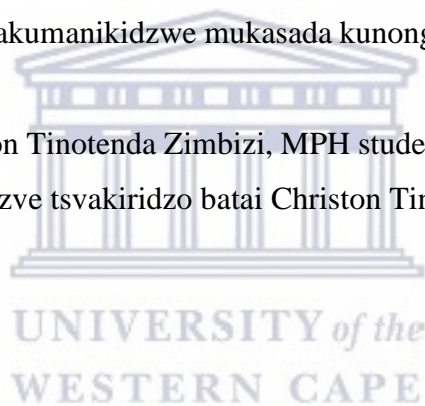
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BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office

University of the Western Cape

Private Bag X17

Bellville 7535

research-ethics@uwc.ac.za

Tel: +27 21 959 2988

Tsvakiridzo iyi yakabvumidzwa ne University of the Western Cape's Research Ethics Committee. **(REFERENCE NUMBER: 130416-050)**

APPENDIX 2: CONSENT FORM – PARTICIPANTS

UNIVERSITY OF THE WESTERN CAPE
Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21-959 2809 Fax: 27 21-959 2872
E-mail: soph-comm@uwc.ac.za

Project Title: A cross sectional study on the factors associated with HIV ART adherence among adolescents living with HIV who are in peer support in rural areas of Chirumhanzu District, Zimbabwe

The study has been described to me in a language that I understand. My questions about the study have been answered. I understand what my participation will involve, and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits.

Participant's Name :

Participant's signature :

Date :

SHONA VERSION

UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959 2809 Fax: 27 21-959 2872

E-mail: soph-comm@uwc.ac.za

SHONA TRANSLATED VERSION
CHINYORWA CHEKUNDIPA MVUMO KUTI NDITAURE NEMI

MVUMO YEKUTAURA NEMI

Zita retsvakiridzo: Ongororo yekubatsira kana kusabatsira kwechirongwa chemasahwira evechidiki mukuita kuti varambe vachinwa mishonga yavo tichitarisa chirongwa che St Theresa semuenzaniso

Tsvakiridzo iyi ndaudzwa nezvayo mururimi rwandinonzwisisa. Mibvunzo yangu yose yapindurwa. Ndanzwisisa nezve tsvakiridzo uye ndinopinda mustvakiridzo nekuda kwangu ndisina kumanikidzwa. Ndinoziva kuti zvandichataura hakuna umwe achazviudzwa. Ndinoziva zvakare kuti ndikada kubuda mutsvakiridzo hakuna anondirambidza kana kundishungurudza.

Zita rangu………………………..

Chinyorwa changu……………………………….

Musi………………………

APPENDIX 3: RESEARCH ASSISTANT CONFIDENTIALITY AGREEMENT

Research Assistant Confidentiality Agreement

UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959 2809 Fax: 27 21-959 2872

E-mail: soph-comm@uwc.ac.za

Research Assistant Confidentiality Agreement

A.   INSTRUCTIONS

Please read through the entirety of this form carefully before signing.

Electronic signatures are not valid for this form. After completing the required fields, please print and sign this form in blue or black ink. After this form has been signed by the research assistant, it should be given to the principal investigator of the research study for submission. After receiving the *Research Assistant Confidentiality Agreement*, the principal investigator should scan and upload the signed form.

The research assistant should keep a copy of the *Research Assistant Confidentiality Agreement* for their records.

B.   CONFIDENTIALITY OF A RESEARCH STUDY:

Confidentiality is the treatment and maintenance of information that an individual has disclosed in a relationship of trust and with the expectation that it will not be divulged to others in ways that are inconsistent with the understanding of the original disclosure (the consent form) without permission. Confidential information relating to human subjects in a research study may include, but is not limited to:

- **Name, date of birth, age, sex, address, and contact information.**
- **Current contact details of family, guardian etc.**
- **Medical or educational history and/or records.**
- **Sexual lifestyle.**
- **Personal care issues.**
- **Service records and progress notes.**
- **Assessments or reports.**
- **Ethnic or racial origin.**
- **Political opinions, religious or philosophical beliefs.**
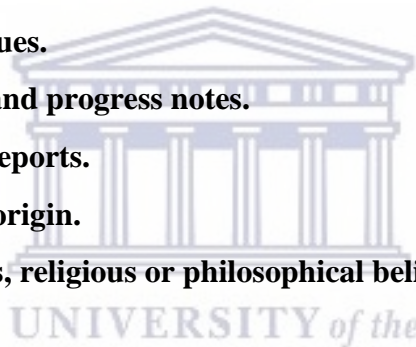
As a research assistant you will have access to confidential information pertaining to the research study. *Below is a list of expectations you will be required to adhere to as a research assistant. Please carefully review these expectations before signing this form.*

C.   EXPECTATIONS FOR A RESEARCH ASSISTANT

To maintain confidentiality, I agree to:

1. Keep all research information that is shared with me (e.g., flash drives, notes, transcripts, data, etc.) confidential by not discussing or sharing this information verbally or in any format with anyone other than the principal investigator of this study.

2. Ensure the security of research information while it is in my possession. This may include:

- **Keeping all documents and/or data related to the research study on a password protected computer with password protected files.**
- **Closing any programs, documents, or data files related to the research study when away from the computer.**
- **Keeping any printed documents and/or data related to the research study in a secure location such as a locked filing cabinet.**
- **Permanently deleting any digital communication containing documents and/or data related to the research study.**

3. Not make copies of documents and/or data related to the research study unless specifically instructed to do so by the principal investigator.

4. Give all research information/data and research participant information/data back to the principal investigator upon completion of my duties as research assistant.

5. After discussing it with the principal investigator, erase or destroy all research information that cannot be returned to the principal investigator upon completion of my duties as a research assistant.

Name of Research Assistant:

Title of Research Study: A cross sectional study on the factors associated with HIV ART adherence among adolescents living with HIV who are in peer support in rural areas of Chirumhanzu District, Zimbabwe

Name of Principal Investigator: Christon Tinotenda Zimbizi

By signing this form, I acknowledge that I have reviewed, understand, and agree to adhere to the expectations for a research assistant described above. I agree to maintain confidentiality while performing my duties as a research assistant and recognize that failure

to comply with these expectations may result in disciplinary action.

_____   _____

Signature of Research Assistant   **Date**

_____

Print Name

_____   _____

Signature of Principal Investigator

APPENDIX 4: DATA COLLECTION QUESTIONNAIRE

Adherence Study Questionnaire[1]

_____
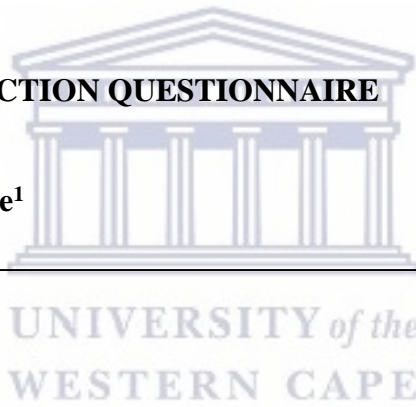
Date: _____

Participant

Identificat

ion

Number: _____

_____

    A. Socio-demographic Profile

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[1] Adopted from **ACTG Adherence Baseline Questionnaire**

Numbers	Question	Responses			
1	Sex	Male	1		
		Female	2		
2	Age	Age in completed years			
3	Are you currently in school?	Yes	1		
		No	2		
4	What is your highest education level?	Primary	1		
		Secondary	2		
		Bachelor	3		
		Post Bachelor	4		
5	Are you currently working?	Yes	1		
		No	2		
6	Currently staying with	Parents	1		
		Relatives	2		
		Friends	3		
		Partner	4		
		Other - Specify	5		
7	Do you have any children	Yes, and how many	1		
		No	2		

B.   HIV infection

Numbers	Question	Responses	
8	What is (are) the most likely way(s)	Sex with a man who was HIV+	1

	that you became infected with HIV?	Born with HIV	2
		Blood transfusion or other medical procedure	3
		Don't know	4
		Other - Specify	5
9	Do you have any children	Yes, and how many	1
		No	2

C.   HIV ART adherence

Numbers	Question	Responses			
10	How sure are you that?				
a	You will be able to take all or most of the prescribed medication as directed?	Not at all sure 1	Somewhat sure 2	Very sure 3	Extremely sure 4
b	The medication will have a positive effect on your health?	Not at all sure 1	Somewhat sure 2	Very sure 3	Extremely sure 4
c	If you do not take this medication exactly as instructed, the HIV in your body will become resistant to HIV medications?	Not at all sure 1	Somewhat sure 2	Very sure 3	Extremely sure 4
11	How many pills are you prescribed to take per day for the last week?				

12	How many pills did you take per day for the last week?	

D. Peer Support

The following questions ask about peer and family support in adherence.

Numbers	Question	Response			
13	Have you ever interacted with a peer supporter?	Yes 1		No 2	
14	If yes to above, where was the peer supporter from?	St Theresa 1	Zvandiri 2	Other, specify 3	
15	What did the peer supporter help you with?	Nothing 1	Medications 2	Mental wellbeing 3	Other, specify 4
16	To what extent has the peer supporter influenced your adherence to treatment	Not at all 1	A little 2	A lot 3	Not applicable 4
17	What do you think makes a peer supporter effective?	I don't know 1	Their knowledge 2	Their attitude 3	Other, specify 4

E Barriers and Facilitators to adherence

Numbers	Question	Responses	
18	What do you think are the barriers to treatment adherence for young people?	Household chores	1
		Stigma and Discrimination	2
		Work/school schedule	3
		Diet/Nutrition	4
		Side effects	5

		Other - Specify	6
19	What do you think can help young people to adhere to treatment?	Peer support	1
		SMS reminders	2
		Caregiver support	3
		Accessible health services	4
		Other, specify	5

F. Health habits

People have various health habits. The following questions ask about your alcohol and drug use, past and current.

If never, end administration of questionnaire and thank participant.

Numbers	Question	Responses	
20	How often have you had a drink containing alcohol – a glass of beer, wine, a mixed drink, or any kind of alcoholic beverage – in the last 30 days?	Never	1
		Once a month	2
		2 or 3 times a month	3
		Once or twice a week	4
		3 or 4 times a week	5
		Nearly everyday	6
		Daily	7
21	What do you think can help young people to adhere to treatment?	Peer support	1
		SMS reminders	2
		Caregiver support	3
		Accessible health services	4
		Other, specify	5
Numbers	Question	Responses	
22	On days when you drank any alcoholic	1 or 2 drinks per day	1

	beverages in the last 30 days, how many drinks did you usually have altogether? By a drink we mean a pint of beer, a glass of wine, a 1-1/2 ounce shot of liquor, or a mixed drink with 1-1/2 ounces of liquor?	3 or 4 drinks per day	2
		5 or 6 drinks per day	3
		7 or 8 drinks per day	4
		9 to 11 drinks per day	5
		12 or more drinks per day	6
23	Have you ever used any drugs (e.g., marijuana, broncho)?	Yes	1
		No	2

Thank you very much for answering my questions.

UNIVERSITY *of the*

WESTERN CAPE

APPENDIX 5: UNIVERSITY OF THE WESTERN CAPE ETHICS CLEARANCE

OFFICE OF THE DIRECTOR: RESEARCH
RESEARCH AND INNOVATION DIVISION

UNIVERSITY of the
WESTERN CAPE

Private Bag X17, Bellville 7535
South Africa
T: +27 21 959 4111/2948
F: +27 21 959 3170
E: research-ethics@uwc.ac.za
www.uwc.ac.za

08 August 2019

Mr CT Zimbizi
School of Public Health
Faculty of Community and Health Sciences

Ethics Reference Number: BM19/6/7

Project Title: A cross sectional study on the factors associated with HIV ART adherence among adolescents living with HIV who are in peer support in rural areas of Chirumhanzu District, Zimbabwe.

Approval Period: 08 August 2019 – 08 August 2020

I hereby certify that the Biomedical Science Research Ethics Committee of the University of the Western Cape approved the scientific methodology and ethics of the above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

Please remember to submit a progress report in good time for annual renewal.

The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape

EMREC REGISTRATION NUMBER -230416-050

FROM HOPE TO ACTION THROUGH KNOWLEDGE

APPENDIX 6: MEDICAL RESEARCH COUNCIL OF ZIMBABWE ETHICS APPROVAL

Telephone - 791792-791193
Telefax (263) - 242 - 790755
E-mail mrcz@mrcz.org.zw
Website http://www.mrcz.org.zw

Medical Research Council of Zimbabwe
Josiah Tongogara / Mazowe Street
P. O. Box CY 573
Causeway
Harare

APPROVAL

MRCZ/B/1851   16 January, 2020

Christon Tinotenda Zimbizi
5854 New Canaan
Highfield
Harare

RE: - A cross-sectional study on the factors associated with HIV ART adherence among adolescents living with HIV who are in peer support programme in the rural areas of Chirumhanzu District, Zimbabwe

Thank you for the application for review of Research Activity that you submitted to the Medical Research Council of Zimbabwe (MRCZ). Please be advised that the Medical Research Council of Zimbabwe has **reviewed** and **approved** your application to conduct the above titled study.

This approval is based on the review and approval of the following documents that were submitted to MRCZ for review:-
1. Completed MRCZ 101 new application form
2. Study protocol
3. Data collection tools

- **APPROVAL NUMBER**   : MRCZ/B/1851
  This number should be used on all correspondence, consent forms and documents as appropriate.
- **TYPE OF MEETING**   : EXPEDITED
- **APPROVAL DATE**   : 16 January, 2020
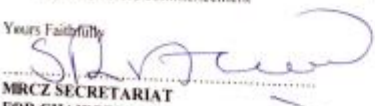- **EXPIRATION DATE**   : 15 January, 2021

After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the MRCZ offices should be submitted three months 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 Institutional Ethical Review Committee (IERC) as well as the MRCZ within 3 working days using standard forms obtainable from the MRCZ Offices or website.
- **MODIFICATIONS**: Prior MRCZ and IERC approval using standard forms obtainable from the MRCZ Offices is required before implementing any changes in the Protocol (including changes in the consent documents).
- **TERMINATION OF STUDY**: On termination of a study, a report has to be submitted to the MRCZ using standard forms obtainable from the MRCZ Offices or website.
- **QUESTIONS**: Please contact the MRCZ on Telephone No. (0242) 791792, 791193 or by e-mail on mrcz@mrcz.org.zw

Other
- Please be reminded to send in copies of your research results for our records as well as for Health Research Database.
- You're also encouraged to submit electronic copies of your publications in peer-reviewed journals that may emanate from this study.
- In addition to this approval, all clinical trials involving drugs, devices and biologics (including other studies focusing on registered drugs) require approval of Medicines Control Authority of Zimbabwe (MCAZ) before commencement

Yours Faithfully

MRCZ SECRETARIAT
FOR CHAIRPERSON
MEDICAL RESEARCH COUNCIL OF ZIMBABWE

MEDICAL RESEARCH COUNCIL OF ZIMBABWE
2020 -01- 1 6
APPROVED

PROMOTING THE ETHICAL CONDUCT OF HEALTH RESEARCH

APPENDIX 7: ST THERESA RESEARCH PERMISSION LETTER

ST.THERESA'S HOSPITAL
P.O. Box 15
CHARANDURA
Cell +263775 251 120
Email:obetandrews@gmail.com

08 January 2020

Medical Research Council of Zimbabwe

Cnr J Tongogara/ Mazowe Street

Harare, Zimbabwe

Dear Sir/Madam

RE: ACCEPTANCE LETTER FOR CHRISTON ZIMBIZI TO CONDUCT MPH STUDY AT St THERESA

This letter serves to notify all that Christon Tinotenda Zimbizi a student at the University of the Western Cape (student number 3718328), studying for a Masters in Public Health has been granted permission by St Theresa Ruvheneko to conduct his research at St Theresa in partial fulfilment of his degree.

He has been granted permission by St Theresa to conduct data gathering and any other processes required for his research at St Theresa. The title of his research project is – **A Cross sectional study on the factors associated with HIV ART adherence among adolescents living with HIV who are in peer support programme in the rural areas of Chirumhanzu District Zimbabwe.**

Your assistance would be greatly appreciated

Yours faithfully

DR. O. Sibanda (Medical Superintendent