

**FACTORS INFLUENCING ADHERENCE TO  
ANTIRETROVIRAL THERAPY AMONG YOUNG  
ADULTS AT CLINICS AROUND MANKWENG  
HOSPITAL, LIMPOPO PROVINCE, SOUTH AFRICA**

**MASTER OF MEDICINE  
in  
FAMILY MEDICINE**

**V MASHELE  
2024**

**Factors influencing adherence to antiretroviral therapy among young adults at  
clinics around Mankweng hospital, Limpopo province, South Africa  
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AMONG YOUNG ADULTS AT CLINICS AROUND MANKWENG HOSPITAL,  
LIMPOPO PROVINCE, SOUTH AFRICA**

by

**VICTORIA MASHELE**

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Submitted in partial fulfilment of the requirements for the degree of

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in

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in the

**FACULTY OF HEALTH SCIENCES**

**(School of Medicine)**

at the

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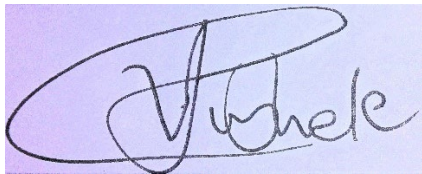
**Supervisor: Prof GJO Marincowitz**

**2024**

## DECLARATION

I declare that Factors influencing adherence to antiretroviral therapy among young adults at clinics around Mankweng Hospital, Limpopo province in South Africa

(Mini-Dissertation) hereby submitted to the University of Limpopo, for the degree of Master of Medicine in Family Medicine has not previously been submitted by me for a degree at this or for any other degree at another university; that it is my work in design and execution, and all materials contained herein has been duly acknowledged.

A handwritten signature in black ink on a light blue background. The signature is stylized and appears to read 'Mashele V'.

Mashele V

02/04/2024

## **ACKNOWLEDGEMENTS**

I want to thank the following persons for their respective contributions to this dissertation:

- I thank God for giving me strength and courage to finish this dissertation;
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- My husband Charles Mashele for his kindness, support and taking care of our children when I had to work;
- My participants for agreeing to take part in such a sensitive topic and
- Finally, my previous supervisor Dr S Maweya for his passion in my work.

## **ABSTRACT**

**Background:** The study sought to understand factors influencing adherence to antiretroviral therapy (ART) among young adults accessing HIV care at clinics around Mankweng Hospital located at Capricorn district in Limpopo Province, South Africa.

**Methods:** A descriptive qualitative study design was conducted using individual unstructured interviews to understand factors influencing adherence to antiretroviral therapy among young adults. The study was conducted at three primary care clinics around Mankweng Hospital namely Evelyn Lekganyane, Mankweng gateway and Nobody clinic. Purposive sampling method was used to select participants aged 18 to 35 years, who had been on antiretroviral therapy for more than a year. Data was collected using individual unstructured interviews with an interview guide that included characteristic description of the participants. Open-ended questions were used to explore factors that influence antiretroviral therapy among young adults. Recorded interviews were transcribed verbatim and translated. The coded transcripts were thematically analyzed.

**Results:** Eight major themes were identified, namely (i) medication related factors; (ii) family support; (iii) disclosure; (iv) acceptance of HIV status; (v) economic factors; (vi) reminders; (vii) healthcare worker attitudes and (viii) health system factors were identified as the factors that influence ART adherence among young adults.

**Conclusion:** Adherence to antiretroviral therapy is still a major problem in our communities, and people living with HIV are still finding it challenging to optimally adhere to their ART medication due to the identified factors that influence ART adherence. Family support was one of the significant factors that was identified to positively influence ART as it leads to disclosure and acceptance of HIV positive status, better mental state, and subsequently improved ART adherence. Patients are aware and have recognized the benefits of ART, which motivates them to adhere to treatment despite ART medication related challenges. This study underscores the importance of patient-centred care and family support in the management of HIV and ART adherence. It is important to encourage disclosure and acceptance of HIV status while conducting ART adherence counselling to promote ART adherence.

**Key concepts:** Antiretroviral therapy; Adherence; Factors influencing; Challenges to antiretroviral therapy.

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## LIST OF ABBREVIATIONS / ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
ARV	Antiretroviral Drugs
CD4	Cluster of Differentiation
CCLADs	Community Client-led ART delivery groups
CCMDD	Central Chronic Medicine Dispensing and Distribution
HCW	Health Care Workers
HIV	Human Immunodeficiency Virus
NDOHSA	National Department of health South Africa
NHREC	National Health Research Ethics Council
STI	Sexually Transmitted Infections
TREC	Turfloop Research Ethics Committee
UNAIDS	United Nations Programme on HIV/AIDS
VL	Viral Load
WHO	World Health Organization

## CHAPTER ONE

### INTRODUCTION AND BACKGROUND

#### 1.1. Background

Human Immunodeficiency Virus (HIV) is a disease that attacks the body's immune system to fight against infection and other diseases. If Human Immunodeficiency Virus is left untreated, it leads to Acquired Immune Deficiency Syndrome (AIDS) which is the most advanced stage of HIV (WHO 2023). HIV continues to be a major public health challenge with an estimated 39 million people living with HIV (PLWH) globally at the end of 2022, and of whom 23.3 million are accessing ART. Sub-Saharan Africa being the hardest hit by HIV, accounting for 70% of all people living with HIV globally (UNAIDS 2022, WHO, 2023 & Statistics SA, 2022).

South Africa is amongst the countries with the greatest burden of HIV in the world with 7.06 million of people living with HIV of which approximately 260,893 are in Limpopo Province (Statistics SA, 2022). South Africa is committed to attaining the UNAIDS 95-95-95 targets to control the HIV epidemic by providing the most extensive public antiretroviral therapy programs in the world, with over 80% of people living with HIV who are on ART (National ART Guidelines 2023; UNAIDS, 2022; Moosa et al., 2019)

Although there is no cure for HIV infection, with access to effective HIV prevention, diagnosis, treatment, and care, including for opportunistic infections, HIV infection has become a manageable chronic health condition (Lahai et al., 2022; WHO, 2023). The Introduction of ART in the management of HIV has reduced morbidity and mortality, achieved viral suppression which reduces the HIV transmission risk from person to person and in return improved life expectancy and quality of life for people living with HIV (Bukenya et al., 2019; Lahai et al., 2022; Simelane et al., 2022).

However, adherence to the antiretroviral therapy is a major prerequisite to realizing these ART benefits (Bukenya et al., 2019). Adherence is described as the way in which a person uses treatment and whether it is according to medical recommendations, including timing, dosing, consistency and observing any dietary restrictions in at least 95% of the time (Addo et al., 2022; Makhado et al., 2019; Simelane 2022).

Practically, adherence to ART is a complex and dynamic process, with multiple challenges being identified by several studies in both developed and developing countries. Challenges include factors related to patients and their families, socio-economic, stigmata and discrimination, medication related, healthcare provider and

healthcare system related factors (Bukonya et al., 2019; Chirambo et al.,2019; Lahai et al., 2022; Simelane et al., 2022).

## **1.2. Orientation of the study**

While providing care for the patients with HIV, it was noticed that some patients had an unsuppressed viral load despite claiming to be taking their antiretroviral therapy. The teenagers appeared to be the most affected when it came to unsuppressed viral loads followed by the young adults who also continued to have unsuppressed viral load, and this could be attributed to poor adherence to their ART medication. This motivated the researcher to also embark on a study to understand the factors influencing ART adherence in the young adults group. A young adult is generally a person ranging in age from their late teens or early twenties to their thirties (Briner & Erikson, 2006). In this study, a young adult will be defined as individuals aged between 18 to 35years.

The study aimed to investigate factors that influence adherence to antiretroviral therapy among HIV positive young adults attending clinics around Mankweng Hospital, Limpopo Province, South Africa. The objectives were to explore factors that enhance adherence to ART and those that hinder adherence to ART among young adults attending clinics around Mankweng Hospital. It is expected that knowledge acquired from this study will provide knowledge to those involved in the management of HIV/AIDS, including the patients and clinicians.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1. Introduction

Current literature related to factors influencing adherence to antiretroviral therapy in young adults living with HIV is reviewed and discussed in this chapter. To conduct literature review, the researcher used the internet, books, journals, and South African ART guidelines on the management of HIV. Search engines that were used include Yahoo, Google and databases: PubMed, Cochrane and SAGE publications. Keywords used to identify publications dealing with factors influencing adherence to ART are ART adherence, factors influencing, challenges to Antiretroviral Therapy.

UNAIDS reports that in 2022, among all people living with HIV worldwide, 86% knew their HIV status, 76% were accessing ART and 71% were virally suppressed. However, a cross-sectional study that was conducted in Ghana which investigated factors influencing adherence found that most people living with HIV are not adherent to their ART medications as scheduled with an adherence rate of 44.6% (Addo et al., 2022). When a similar type of study was conducted in rural setting of Limpopo Province (South Africa), the prevalence of adherence to ART was found to be better at 87% (95% CI: 63.0%-89.0%) (Mabunda et al., 2019). This implies that 13% of the patient's adherence was still unsatisfactory when compared to the adherence benchmark of 95%, as determined by the WHO, which is required for sustained viral load suppression (WHO 2023).

Poor adherence to ART amongst other factors is a major cause for high treatment failure, as it is associated less effective viral suppression, increased transmission rate, high chances of getting opportunistic infections and risks creating permanent HIV drug resistance to that group of ART combination therapy that the patient is taking as well as cost implications (Moosa et al., 2019; Simelane et al., 2022).

The literature found on factors influencing adherence will be presented under the following topics here below: patient beliefs and family related factors, stigmata and discrimination, socio-economic factors and food insecurity, medication related factors, healthcare provider and health care system factors.

## **2.2. Patient beliefs and family related factors**

Individual factors like forgetfulness, better perception of one's health, denial and fear of HIV status were found as common factors leading to poor adherence among HIV positive individuals in both developing and developed countries (Chirambo et al., 2019; Makhado et al., 2019; Abduali et al., 2021, Isabirye et al., 2023). In a systemic review that was conducted in South Africa that investigated factors influencing poor adherence to ART, patient beliefs were one of the major factors that influenced adherence with participants mentioning that they would rely on their pastors to pray for them for healing, while others relied on their traditional healers which led to them stopping their ART medication (Makhado et al., 2019). While a study conducted in Uganda found that some patients believed and felt cured of HIV infection after being on ART for years, as they no longer had any visible symptoms. This made them think they no longer needed the medication and stopped adhering to treatment (Bukonya et al., 2019). Similar findings were reported in a study conducted in South Africa, where improved health status affected the participants' adherence to treatment in that they stopped taking their medication thinking they have been cured (Mabunda et al., 2019). Social and family support was also identified as a significant facilitator to ART adherence across developed and developing countries (Croome et al., 2017; Ahmed et al., 2022; Knight & Schatz 2022).

## **2.3. Stigma and discrimination**

Stigma and discrimination associated with HIV is more severe than that of other illnesses, creating barriers to treatment initiation and support for adherence for people living with HIV. Discrimination of people living with HIV by family and community members is an important contributor to poor ART adherence across developed and developing countries. As a result of the stigma, patients fear disclosing their status and this robs them of a chance to be supported into taking their ART medication (Bukonya et al., 2019; Azia et al., 2016; Croome et al., 2017; Abdulai et al., 2021). In some communities, HIV/AIDS is still a taboo subject and, as such, families would advise the person with HIV not to discuss and disclose their condition to others. (Lahai et al., 2022). Some experiences of stigma and discrimination, such as lack of support, fear of death, and fear of sharing toilets, cups and cutlery, leads to people living with HIV not being able to access and adhere to ART, thereby profoundly affecting their mental health and poor outcomes (Lahai et al., 2022; Mwamba et al., 2018). Patients frequently take fewer ART tablets than they need when going to work or travelling as

they fear being seen taking daily medications as this would raise suspicion of one being HIV infected and hence being stigmatized (Bukonya et al., 2019).

#### **2.4. Socio-economic factors and food insecurity**

HIV does not only affect the health of individuals, but it also impacts households, communities, and the development and economic growth of nations. Many of the countries hardest hit by HIV also suffer from other infectious diseases, food insecurity, and other serious problems. Unemployment, lack of money for food or transport, distance or lack of transport to the ART clinic and self-discontinuation all have been found to play a significant role as a social determinant of HIV/AIDS, the spread of the virus, as well as access to ART treatment in many studies (Abdilai et al., 2021; Azia et al., 2016, Lahai et al., 2022; Simelane et al., 2022). A qualitative study conducted in Sierra Leone, people with better socioeconomic status related to income, education, and employment status were found to be more likely to adhere to treatment than those with poor socioeconomic status therefore addressing the barriers of socioeconomic factors may help prevent loss of health facility follow-up (Lahai et al., 2022). In Uganda, patients were sometimes forced to choose between paying for transportation to the ART facility and using the money for food, which significantly interrupted their adherence rate to ART (Bukonya et al., 2019).

Some patients in South Africa have deliberately discontinued their ART medication so that they become extremely sick with high viral loads then used the severity of their sickness to persuade the clinicians to qualify them for a disability grant therefore get money to buy food (Azia et al., 2016, Makhado et al., 2019). Contrary to this a recent study in Ghana stated that PLWHIV receiving ART adhered to ART despite the income loss incurred daily while traveling to access ART, and this could be linked to the perceived efficacy of adhering to the medications to reduce their viral load, enabling them to live a normal life and prolong their lifespan when compared to not taking the medications (Addo et al., 2022).

#### **2.5. Medication related factors**

It is crucial that patients are made aware of the benefits of ART adherence by understanding how the medication works, the common side effects, the long-term positive effects of daily and continual use, and its association with improved quality of life and prevention of HIV transmission (Lahai et al., 2022; Moosa et al., 2019; Makhado et al., 2019). Characteristics of the available drug formulations such as taste, size of pills and adverse effects can significantly affect adherence. Complicated

regimen, drug interactions, frequency of dosage, and a significant pill burden also influence adherence to ART adherence (Bukonya et al., 2019; Lahai et al., 2022). These challenges are similar in both developed and developing countries, where high pill burden, regimen complexity and dosing more than once a day were strongly identified to hinder ART adherence (Moosa et al., 2019, Opara et al., 2022). Fortunately, South Africa has implemented new highly effective fixed single dose drug formulations that include Tenofovir (TDF), Lamivudine (3TC) and Dolutegravir (DTG) which is the new drug with less side effects, high genetic barrier for resistance and reduced pill burden with the hope to improve adherence to ART, better viral suppression and achieve the UNAIDS 95-95-95 targets (National ART guideline 2023).

## **2.6. Healthcare provider factors**

Patient-provider relationships that are based on trust, care and excellent communication can foster an honest and open environment to discuss issues around adherence leading to patients being satisfied with their healthcare provider and more likely to have high treatment success (WHO, 2021; Mwamba et al., 2018). The attitudes and beliefs of healthcare providers as well as their provider-patient communication skills all impact one's adherence to treatment. This has been reflected in several studies across the developed and developing countries as a strong factor influencing adherence to ART (Addo et al., 2022; Simelane et al., 2022).

In a study conducted in Nigeria, poor attitude of health care workers was reported as a factor that led to patient dissatisfaction and poor retention at the health facility (Opara et al., 2022). Some patients in the study done in Uganda mentioned that regular ART adherence education was only offered to those who were suspected to be non-adherent based on decreasing CD4 cell counts. And this lack of continuous ART adherence education could be associated with poor adherence in the long term among young adults, since they were not being offered regular education from the providers (Bukonya et al., 2019). In contrast to these studies, a recent study that was conducted in Mpumalanga Province, South Africa, found that majority of the participants reported that service providers at their facility had a positive attitude towards them. They were caring and very helpful in supporting them to adhere to treatment (Simelane et al., 2022).

## **2.7. Healthcare system factors**

Studies reported health system-related factors such as the lack of follow-up of patients, dissatisfaction about the quality of the ART services provided, lack of confidentiality and long waiting times at ART clinics as the challenges to ART adherence (Abdulai et al., 2021; Mwamba et al., 2018; Simelane et al., 2022). Some health facilities allocated HIV patients to specific rooms. Patients stopped attending the services out of fear of stigmatization (Makhado et al., 2019).

Due to understaffing and high number of patients at clinics, some patients could be discouraged from honoring their medical appointments, which could lead to poor adherence to their ART medication (Opara et al., 2022; Simelane et al., 2022). Interventions to have adequate personnel at treatment centers could mitigate the problem of poor retention to care and improve ART adherence. Currently, the South African government has decentralized the distribution of ART medication in programs like Central Chronic Medicines Dispensing and Distribution (CCMDD) where patients can choose their preferred place to collect their ART medication. These efforts may improve services and alleviate long queues at clinics and hospitals. There is a similar intervention in Uganda called the Community Client-led ART delivery groups (CCLADs) which is also associated with positive responses for patients who are virologically suppressed on ART. Patients access ART easily at the nearest available facility and even form groups to take turns in collecting the packaged medications from their facilities. This strategy saves them time and money and assists adherence as they do not run out of medication (Isabirye et al., 2023).

## **2.8. Conclusion**

All these factors above have been found to significantly impact on an individual's ability to adhere to ART and remain in care for ongoing monitoring and support. Despite available evidence in literature, more studies are required to investigate these many factors contributing to the patient's adherence to ART. We aimed to get an in-depth understanding of the factors that influence ART adherence from the individual's perspectives in our setting to find the best intervention strategies that will promote and enhance adherence.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1. Introduction**

In this chapter, the research methodology of the study is outlined and described using the headings: study design, study setting, study population, sampling method and size, selection criteria, data collection, analysis, trustworthiness, bias, and ethical consideration.

#### **3.2. Study design**

A descriptive qualitative study design was conducted by means of individual unstructured interviews to understand factors influencing adherence to antiretroviral therapy among young adults aged 18 to 35 years attending clinics around Mankweng Hospital, in Limpopo Province, South Africa. This method was chosen to gain in-depth understanding from the young adult's perspective about their experiences and factors that influence their adherence to ART.

#### **3.3. Study setting**

This study was conducted at clinics around Mankweng Hospital among young adults whose management was decentralized from Mankweng Wellness clinic to the primary care clinics around Mankweng hospital. Mankweng Hospital is situated 30km east of Polokwane town, in Limpopo Province, South Africa. Mankweng Hospital is a tertiary and academic hospital that is affiliated with the University of Limpopo, also known as Turfloop found in Mankweng township. Patients who have been decentralized from Wellness clinic to the primary care clinics are managed by the nurses and the doctors from the department of Family Medicine at Mankweng hospital. HIV patients are referred to Mankweng Hospital due to either shortage of medication at clinics, side effects of treatment or HIV related complications that need specialized hospital attention. They are also managed by doctors from the Family Medicine department at Mankweng hospital in the general outpatient department (GOPD). The Mankweng community uses Sepedi and English as their common languages of communication. There are 20 feeder clinics attached. The three clinics namely Evelyn Lekganyane, Mankweng gateway and Nobody clinic, are the closest

to the Hospital and received most patients who were decentralized from the Wellness clinics. These clinics were also chosen because they are managed by the same doctors from the Department of Family Medicine who managed the patients at the Wellness clinic.

### **3.4. Study population**

The study population comprised of HIV positive young adults who were decentralized from Wellness clinic Mankweng hospital and were currently accessing HIV care at clinics namely Evelyn Lekganyane, Mankweng gateway and Nobody clinic. The 3 clinics manage 7360 HIV positive patients per annum and out of those 1970 are young adults. The inclusion criteria were the following: young adults aged 18 to 35 transferred from Wellness clinic who are on antiretroviral therapy for more than one year who were willing to participate. Exclusion criteria were the following: Patients under the age of 18 and patients above age 35 years. Those who are newly diagnosed with HIV not yet on ART, those who have not been on antiretroviral therapy for a year, severely ill patients and the mental health care users were also excluded from the study since they may have difficulty understanding questions.

### **3.5. Sampling**

In this study, a purposive sampling method was used. Although this kind of sampling may be susceptible to errors in judgments made and bias by the researcher, it was selected for this study as it allows the researcher to select information rich participants that are suitable for the objectives of the study. Purposive sampling was conducted by checking the records in the register at the selected three primary care clinics around Mankweng Hospital of the age group of interest, and a shortlist of possible candidates who met the inclusion criteria were made. Candidates who met the inclusion criteria were then invited and provided with an information leaflet and an explanation of the research topic, target participants. Patients who were willing to participate were given appointment dates that correspond with their next clinic visit follow-up date. They were provided with an informed consent form on the day of interviews to voluntarily sign to show commitment and agreement to participate in the study.

A total of 15 patients were invited to participate in the study, 13 participants agreed to participate, and 12 participants showed up on the appointment dates and agreed to participate in the interviews by means of signing consent forms. One participant came for his follow-up date but mentioned he was not interested in participating in the study and was excluded. Participants were invited regardless of their viral load statuses. Both virally suppressed and unsuppressed patients were included to obtain information rich interviews and avoid one-sided interviews of either those who are suppressed or unsuppressed. Participants were not remunerated for the interviews as they were given dates that correspond to their clinic visit to avoid spending money for transport.

### **3.6. Data collection**

Data was collected using one on one semi-structured interviews that were audio recorded. Open-ended questions with an interview guide were used in the interviews and were guided by the response of the participants to be able to gather and probe all relevant information that may be left out by the participants.

Interviews were conducted in the languages that the participants understood, which was Sepedi and English for the community of Mankweng Hospital by a trained research assistant who was briefed on the aims and the objectives of the study. All the interviews were recorded on audiotape lasting from 15 to 30 minutes for each interview, and the principal researcher was present in the interviews to take field notes and corroborate them with recorded information. Data was collected from the participants in the months July, August, and September 2023. After the tenth participant, no new information was identified. Although data saturation was reached with the tenth participant. All 12 participants who were interested in participating were interviewed.

### **3.7. Data analysis**

Recorded interviews were transcribed verbatim in Sepedi by the research assistant. The primary researcher and a Sepedi Speaking officer listened to the recorded interviews and compared it to the transcribed data simultaneously making corrections. The transcribed interviews were then translated into English by a language expert. Thematic analysis was conducted using a deductive coding process guided by the five stages of thematic analysis namely: familiarization, theme identification, indexing, charting mapping, and interpretation (Mabuza et al., 2014). The principal researcher read through the transcripts several times, familiarized, and

emerged herself with the data to identify the similarities and differences from the interviews. Similar concepts were identified and arranged together from the documented list. These were organized into main themes and subthemes. The generated list was then abbreviated into codes, and researchers checked whether new categories and codes had emerged. Related topics from the list of categories were reduced and groups were formed. The codes were then arranged alphabetically from the formulated topics and reviewed again to check if there were any new codes that developed.

Preliminary analysis was made by grouping the data together. The data was also checked by the principal researcher and the assistant before the themes and subthemes were finalized. Coding of all data was done separately by the assistant and principal researcher, and a consensus was reached after a thorough discussion. The main researcher and the research assistant then agreed on 8 themes and subthemes that will be presented in the results chapter.

### **3.8. Trustworthiness**

Trustworthiness refers to how confident the researcher is in the data, methods used and interpretation to enhance the quality of a study. Trustworthiness in qualitative research is ensured by the following principles: credibility, dependability, confirmability, and transferability.

#### *3.8.1. Credibility*

The researcher ensured credibility in this study by conducting prolonged individual interviews lasting 15 to 30 minutes with each participant and repeating some questions to ensure that patients are being truthful in their responses to ensure respondent validation. We also attained prolonged engagement with the data by listening to the audio recordings and perusing transcripts multiple times until themes were identified clearly. Triangulation was employed by having data analysis done by an assistant researcher and principal researcher independently and thereafter comparison of findings which ensured credibility. Furthermore, impartial peers and the senior supervisor of the research checked the researcher's transcripts, general methodology and the final report.

### *3.8.2. Transferability*

Transferability allows the research study findings to be applied to other contexts, circumstances, and situations. In this study a thick description of the study setting, and participants characteristics were included to allow readers to evaluate if it can be applied to other similar settings which enhanced transferability.

### *3.8.3. Dependability*

Dependability refers to how well the study can be repeated by other researchers and the findings would be consistent. To enhance dependability all the steps of the research were described in detail providing an audit trail data methods and steps of the research were clearly described in detail and documented for an audit trail. Explanation of the research design used in the study (refer to sub-topic 3.2.), procedure followed in the recruitment of participants (refer to sub-topic 3.4. For sampling techniques used), and the research process is provided (refer to sub-topic 3.5.). Thorough description of data collection (refer to sub-topic 3.6); data analysis and how major themes were obtained (refer to subtopic 3.7); and how findings and conclusions were reached is given in chapters 4 and 5. The limitations of the study were also discussed in chapter 5.3. This will enable readers to assess the degree to which appropriate research methodology was followed to guide future researchers who want to replicate the study.

### *3.8.4. Confirmability*

Confirmability was ensured during data collection with open-ended questions that allowed the participant to respond broadly. The interviewer ensured that the responses of every participant were included in the data analysis, as the interviews were audio recorded. This ensured that the findings of the study reflect all opinions from each participant. The findings narrated in the study were generated by means of transcribing, translating, and analyzing the audio recordings of the individual interviews without altering the information with the assistance of language experts. After the transcription of the audio recorded files, data transcripts were checked for precision by principal researcher and the research assistant by listening to the audio recordings while comparing them to the transcripts and ensure that all the audio recorded information was captured. Furthermore, the study findings were subjected

to peer review by the research supervisor, who was not part of data collection and analysis.

### **3.9. Bias**

Any influence that provides a systematic error or distortion in the results of a study is called bias. Bias can occur in any stage of the research, i.e., the process of selecting participants, data analysis and interpretation of data, and therefore it is important to minimize bias to enhance validity of the results in a qualitative study. Purposive sampling method was used, which minimized selection bias. The use of an interview guide could have caused respondent bias as it may channel participants to only respond to the factors only asked. Continually reevaluating participants responses minimized information bias with the research assistance and the supervisor to ensure that researcher's pre-existing beliefs, expectations and assumptions are kept at bay. All data obtained was considered and analyzed as it is by the main researcher and the supervisor independently to avoid bias. The presence of the principal researcher in the interviews could have influenced the response from participants for fear of victimization.

### **3.10. Ethical Considerations**

#### *3.10.1. Ethical clearance*

Ethical approval for this study was granted by the Turfloop Research and Ethics Committee (TREC) with the project number: TREC/31/2022: PG (Annexure 1). Permission from the Limpopo Provincial Department of Health Research Committee was also received with approval number LP\_2023-06-011 (Annexure 2). Further permission was received from the Chief executive officer of Mankweng hospital (Annexure 3).

#### *3.10.2. Informed consent*

An information letter (Annexures 4A and B) with an explanation of the purpose and nature of the study was provided and explained verbally and the participants who were interested in being part of the study were provided with a detailed written consent form (Annexure 5A and B) that was further explained and signed by both the

researcher and the participants. The information letter and consent form were written in the languages that the patients understood both in English and Sepedi.

Participants were allowed to voluntarily agree to participate in the research without being pressurized or forced. Participants were made aware that even if they agree to participate, they can still withdraw from the study at any time without any consequence and assured that what they say in interviews will not affect their future treatment at the clinic.

### *3.10.3. Confidentiality and anonymity*

The interviews were conducted in a room away from other rooms with a sign of “no entry” at the door to avoid interruptions. To remain anonymous the participants were not identified by names, they were assigned unique Identity codes using the participant’s interview number, age, gender employment status and viral load status [e.g., Participant 1,30 female, employed, VL suppressed]. Recorded interviews and information collected was password secured on Google Drive and will be kept for 5 years and only the researcher and supervisor have access to the password.

## CHAPTER FOUR

### RESULTS

#### 4.1. Introduction

This chapter presents data from the recorded interviews conducted on 12 young adults attending HIV care at primary care clinics around Mankweng Hospital. This is a qualitative study in nature, and the overall aim is to identify the factors that influence adherence to ART among young adults. Results are presented as characteristics of participants, major themes and subthemes, quotations from the participants, schematic depiction of themes and finally interpretation of the themes. Major themes identified were medication factors, family support, disclosure, acceptance, economic factors, use of reminders, healthcare worker attitudes and health system factors.

#### 4.2. Participants description

Among the 12 participants who agreed to participate in the individual interviews, nine participants were female, three were males. Five participants were between 18 and 29 years of age and seven from 30 to 35 years. Four participants had unsuppressed viral load, while 8 patients were suppressed. Many of the participants were unemployed, with only three that were employed. Table 4.1 is a table that summarizes the characteristics of the participants.

Table 4.1 Characteristics of participants

Participant	Age & Gender	Socio-economic status	Viral load status
1	27 Female	Employed	Suppressed
2	30 Female	Unemployed	Suppressed
3	32 Female	Unemployed	Suppressed
4	35 Male	Employed	Suppressed
5	33 Female	Unemployed	Unsuppressed
6	18 Female	Grade 11	Suppressed
7	26 Female	College student	Suppressed
8	32 Female	Unemployed	Unsuppressed
9	21 Female	University student	Unsuppressed
10	29 Male	Employed	Suppressed
11	24 Female	Unemployed	Suppressed
12	35 Male	Unemployed	Unsuppressed

### 4.3 List of themes and subthemes

The section below shows the list of themes and subthemes that emerged.

- Theme 1 Medication factors,
  - a. Side effects
  - b. Complexity of the medication (big pill, bitter taste)
  - c. Single pill ART regimen
  - d. Perceived benefits of ART
- Theme 2 Family support
- Theme 3 Disclosure
- Theme 4 Acceptance
- Theme 5 Economic factors,
  - a. Food insecurity
  - b. Lack of money for transport
- Theme 6 Reminders
- Theme 7 Healthcare worker attitudes
- Theme 8 Health system factors
  - a. Availability of ART
  - b. Long que
  - c. Long distances to clinics
  - d. Moving to another province

### 4.4 Description of themes and subthemes with quotations

#### 4.4.1 Theme 1: Medication related factors

##### Sub-theme 1.1 Side effects

Many participants mentioned ART side effects that include dizziness, abdominal cramps and diarrhoea with dizziness being the most mentioned as a factor that influenced their adherence to ART. The following quotations illustrate their experiences.

*“Initially when I started taking these tablets, I will feel dizzy. I had a full month of dizziness after taking them. Just when I take them, hey, I just get dizzy.”*

[Participant 2,30 female, unemployed, VL suppressed]

*“Because of side effects I did stop for like five to six months...I started becoming swollen. I developed tin-staff like spots on my face and then I came ack and continue with my treatment.”*

[Participant 8,32 female unemployed, VL unsuppressed]

*“Many a times, after having taken the medication, I will get to bed. I will feel like the bed is going in circles and circles. Thereafter, I will vomit all the medication.”*

[Participant 3, 32 female, unemployed VL suppressed]

*“Well at first for few weeks I was feeling dizzy then I realized okay I shouldn’t drive at night while I have taken medication, I felt dizzy then I go to sleep but as time goes by everything was fine.”*

[Participant 4,34 male, employed VL suppressed]

*“Initially when I was taking them, I had complications. I was becoming dizzy and also vomited. I came back here, then they gave me an explanation for such side-effects and was then given the peppermint ones which were then suitable for me. I was told that should I experience complications with those ones as well, I should come back for another batch of prescription.”*

[Participant 7,26 female college student, VL suppressed]

*“I sleep during the day, get dizzy, and also experience the heat I was talking about. Even when I have a baby in my hands, I could not feel that I am holding the baby. Side effects do not disturb me to the extent of not taking a treatment. Maybe sometimes, yes, it does come to mind for two or three days without taking them.”*

[Participant 8,32 female unemployed VL unsuppressed]

#### Sub-theme 1.2 Complexity of ART medication

ART medication comes in different forms with those who are taking the pills mentioning that the size of the pill is too big, others feel it tastes is bitter which made them feel overwhelmed when they are supposed to take the medication which influences their adherence. The following quotations support the participants experiences:

*“When I started, I felt the pills are too big and will choke me, then as I continued taking them it was like normal pills.”*

[Participant 1,27 female employed, VL suppressed]

*“I was complaining to my friend that the pill is so big, and he said he just throws the pill in the mouth and just chew it...I said no man it has a bitter taste.*

[Participant 4,34 male, employed VL suppressed]

Some participants resolved to crush the medication just to be able to swallow it.

*“I was unable to swallow the pill. Before taking it, they were crushing it for me so that I can take it in...but it was bitter as well.”*

[Participant 6,18 female high school, VL suppressed]

One participant consulted a private doctor to find out if he can be given a much smaller pill than what he was getting from the public institution.

*"I even thought that maybe going to the private doctor I will get smaller pills and they said no it's still the same here you will be spending money while clinic is free."*

[Participant 4,34 female, employed VL suppressed]

#### Sub-theme 1.3 single pill ART regimen

Participants felt that taking one pill once day made it easier to take medication.

*"Of course, yes, because it's not time and time again. You do not have to have it in the morning, during the day and in the evening. It is just once, then you relax. If you do not feel okay, you know you have your thing just at 08:00"*

[Participant 3,32 female unemployed VL suppressed]

And those who failed the first line regimen which consisted of a single pill and were switched to second line regimen, or patients who started with a combination of other opportunistic infections related to HIV required them to take multiple pills twice a day which was a challenge for them.

*"It was a bit of a problem because I was a person not used to taking medication now I have to take medication not one but two it was troubling"*

[Participant 4,34 male, employed VL suppressed]

#### Sub-theme 1.4 Perceived benefits of ART

Participants feel they have seen ART benefits that encourage them to take the medication.

*"Yes, a lot because now I have gained weight, the time I wasn't taking the medication I lost weight. I can even take this treatment again in a day if it was possible, I don't want to get sick."*

[Participant 1,27 female employed, VL suppressed]

*"I can say I see many people who are not taking treatment at home. You will find that that person does not look healthy, they become bonny. Treatment extends a person's lifespan, even the virus decreases."*

[Participant 8,32 female unemployed, VL unsuppressed]

*"It's because when I take the medication I will live long and when I take the medication, I will have a longer life span and the virus will decrease in my body."*

*They say If you don't take medication you will end up no longer in a stage called HIV and it becomes AIDS."*

[Participant 11,24 female unemployed VL suppressed]

*"I want to stay alive. I don't want to become selfish. What if I die? two of my children are okay, it is only this one who has it, so they are going to suffer because of my carelessness... I really cannot imagine how would I be if I did not take the treatment."*

[Participant 3, 32 female, unemployed VL suppressed]

*"I can say my reason is that I am living with my child, which is why I see it as an importance...I fell pregnant, and I realized that for my baby to be born without complications I have to take treatment."*

[Participant 8,32 female unemployed, VL unsuppressed]

*"It's been a while since I have been taking these tablets. Since 2015! I mean do they really cure. These ones are just for boosting the immune system. They are not meant for curing purposes. They are just weakening the disease."*

[Participant 7,26 female college student, VL suppressed]

#### 4.4.2 Theme 2: Family support

Support from family and friends plays a role in adherence to ART. People with support find it easy to adhere to treatment.

*"Let me start at home. I have quite small children. When the alarm starts ringing, they will say, mom it is that time of medication. They call them 'sweets. They will say it is time and there are your sweets. Even when I am coming to the clinic, I inform them and they will remind me when the time arrives, so I will go. That is the encouragement I get from the home."*

[Participant 2,30 female, unemployed, VL suppressed]

*"My sister I feel like she is my mom. I can say anything to her. I have full confidence in her. Neither can she badmouth me nor disown me or even hurt me."*

[Participant 3, 32 female, unemployed VL suppressed]

*"It is my family because I am not the only one at home, my mom as well has the same condition I have. So, yes, that is what made me take the treatment. I did not*

*feel any need for not taking the medication because I am not the only one at home taking them. Also, that I was not ashamed of sharing that with my friends.”*

[Participant 6,18 female high school VL suppressed]

*“The thing is, because my mother passed away from HIV, when that came in, it was not a shock. So, it was just supporting all the way. I have my entire family supportive; I also have my father and my sister.”*

[Participant 10,29 employed VL suppressed]

*“My sister just encouraged me to take the medication and that there are a lot of people who are taking this medication. She knows this lady whose been having HIV for more than 20years and she still lives so it’s not the end of the world.”*

[Participant 4,34 male, employed VL suppressed]

Not having family support was a challenge that other participants experienced.

*“I left school in Grade 11, when my mother passed away. I started having challenges. ...I had no choice but to fend for myself. No sister, no brother or anyone to take care of me. My father was there, but extremely into ladies. He never thought of being there for his children. It was really tough, we were suffering, very much in the wilderness, not even one to advice you or care for you.”*

[Participant 3, 32 female, unemployed, VL suppressed]

*“Have you realized that when you go to school while you have to take care of your mom and do the cleaning, even upon return from school, I do the same. Thereafter, I joined ABET, but fell pregnant as I was about to finish, and that is when everything came to a halt.”*

[Participant 2,30 female, unemployed, VL suppressed]

#### 4.4.3 Theme 3: Disclosure

Participants who have disclosed their status feel relieved as they get support from family when they know about their status, and they can openly take the treatment.

*“It’s a relief because it takes away the fear in you. Of course, at the beginning it is scary to do so because you will feel like they are going to isolate you all. So, it is quite a relief for people to know what one is going through.”*

[Participant 6,18 female high school VL suppressed]

*“Yes, I told my aunt who forced me to take the medication. On day 1, I did not take the medication properly because I wasn’t used to it. So, she will often remind of taking it.”*

[Participant 7,26 female college student, VL suppressed]

*“As for me, my family knows about it, because I started taking medication at an early age. At two years of age I think, because from my file I see it says I took treatment since 2004.”*

[Participant 9,21 female university student, VL unsuppressed]

One participant mentioned that they voluntarily disclose their status for fear of being blamed for infecting someone in a relationship.

*“When I meet a person who is interested in me, I will tell him of my situation so that tomorrow if he falls sick and should not blame me that I have infected him.”*

[Participant 2,30 female, unemployed, VL suppressed]

Some participants still find it hard to disclose their status for fear that their status will be disclosed to others and those who don’t disclose their status may find it difficult to take the medication as prescribed for fear that the other person may see them.

*“Yoh! My partner doesn’t know anything. Even now. That is my biggest challenge. It’s hard for me to tell him. I do not know where to start” What can I say, he is that person...he is not a person who can keep a secret. He tells everyone anything. He is so stubborn, so that is what scares me. He has no backbone; he depends on other people’s opinions. If you tell him this, he will pass it to others and he will end up taking the opinions of those people.”*

[Participant 3, 32 female, unemployed VL suppressed]

*“I used to hide my status.....I had a problem in the beginning because when I started, I had not disclosed to my husband that I have this disease, so I stopped taking treated back then for almost a year or 9months if am not mistaken.”*

[Participant 1,27 female employed, VL suppressed]

Another participant gained a treatment buddy after disclosing his HIV status to his friend.

*“I have other people, so after telling my friend about my status, he also disclosed that ah am also positive I have been taking treatment it’s been 8 years now.”*

[Participant 4,34 male, employed VL suppressed]

#### *Down-side of disclosure*

Some participants felt being known to have HIV changes the way people interact with them which affects them mentally and emotionally to a point of stopping ART treatment.

The following are the quotations to support how they feel:

*“There were many judgements, I even stopped again for six months..... they would say you cannot touch whatever belongs to me when you are HIV positive. You do not love your child; you are going to die just like your mother.”*

[Participant 8,32 female unemployed, VL unsuppressed]

*“Some treat you somehow, like when you start bleeding things like that. I used to be upset because HIV is not the way they see it.”*

[Participant 9,21 female university student, VL unsuppressed]

*“Those ones are gossipers. You tell a person about your status in confidence, only for him/her to start pointing you with fingers.”*

[Participant 6,18 female high school VL suppressed]

#### *4.4.4 Theme 4: Acceptance*

Participants who accepted their HIV positive status seem to cope well with the disease and take the medication properly while those who struggled to accept had feelings of blame and found it hard to start taking ART treatment and were prone to defaulting ART.

*“I started, first, by accepting the situation and shared the news with my family, but also requested them not to interrogate me. When I started, they told me I must not skip my medication.”*

[Participant 7,26 female college student VL suppressed]

*“Yes, I was struggling to accept...I couldn't believe that I have the HIV disease.”*

[Participant 11,24 female unemployed, VL suppressed]

*“...I could blame myself I can say it was my carelessness. ...because I could not take care of myself because I was still innocent. I was shocked, a bit scared and feeling hurt, but it was just to accept that that is how life is. You will only ask yourself as to where did you get infected and by who. Such things that you may not even have answers to. It is just a matter of saying: “Accept and go on with your life” I then made peace with it and continued with my life, became okay and then told myself that I must take the treatment.”*

[Participant 3, 32 female, unemployed VL suppressed]

*“Well, I was disappointed, but I told myself it’s not the end of the world, I blamed myself here and there and eventually I accepted.”*

[Participant 4, 34 male, employed VL suppressed]

#### 4.4.5 Theme 5: Economic factors

##### Sub-theme 5.1 Food insecurity

*“Sometimes you find that there will be no food, and I will become scared to take my tablets on an empty stomach. As I have indicated earlier on when I said there are times when I will skip medication because of non-availability of food, I am not too sure whether the clinic has something like food parcels to assist....”*

[Participant 5, 33 unemployed, VL unsuppressed]

##### Subtheme 5.2 Lack of money for transport

*“Sometimes I find myself having no money for transport because I am unemployed.”*

[Participant 8, 32 female unemployed, VL unsuppressed]

*“It affects me dearly, because at times I become penniless and then be forced to ask for help with money for transport.”*

[Participant 5, 33 unemployed, VL unsuppressed]

#### 4.4.6 Theme 6: Reminders

Majority of the participants when asked what reminds them to take their ART medication, they mentioned setting a reminder on their phones for 7pm or 8pm as an important tool that assists them to remember to take the medication as well as having family members that remind them.

*“I set it for 07:29. When it is 07:30, I then take them. At 29 past 07, I stand up, knowing that when it says 30, I will be drinking them. My alarm rings at 19:29 and then at 19:30 I am supposed to have them”.*

[Participant 5,33 unemployed, VL unsuppressed]

*“No not my aunt anymore because I have my alarm clock set for 8pm”.*

[Participant 7,26 female college student, VL suppressed]

*“I set an Alarm, 08:00 I make sure by that time I am at home, and I have eaten then I drink.”*

[Participant 6,18 female high school student VL suppressed]

*“I have an alarm set for 8pm”*

[Participant 10,29 employed VL suppressed]

*“I do not make a mistake of forgetting. It is always in my mind. When I have not taken medication, I feel like something is missing...My alarm is my mind. My own conscience is the one that tell me about time for medication intake.”*

[Participant 3, 32 female, unemployed VL suppressed]

*“I have quite small children. When the alarm starts ringing, they will say, mom it is that time of medication. They call them ‘sweets. They will say it is time and there are your sweets.”*

[Participant 2,30 female, unemployed, VL suppressed]

#### 4.4.7 Theme 7: Attitudes of Health care workers

The majority of participants expressed that the treatment they received from the health care providers was good and it enhanced their retention to care adherence to treatment.

*“Not at all, they were sweet to me. I was free to them. Even today it is still like that. You know what, these are people with serenity.....they never gave me attitude. They told me nicely that: There is a problem, so let us treat this problem. What is it that is going on with you...Nicely. It is not this thing of saying, hey...I don't want to lie, yes doctor.”*

[Participant 3, 32 female, unemployed VL suppressed]

*“They are very good to me, not harassing us. Just when you are inside the consultation room, you become free to talk about your condition, and they give you the treatment. They do not say you need to queue again. Just where you are consulting from you get your medication.”*

[Participant 2, 30 female, unemployed, VL suppressed]

*“They were very good, very good they even know me by name they know oh that's Ha..... so I never miss my treatment because of that.”*

[Participant 4, 34 male, employed VL suppressed]

Patients prefer to remain in clinics that give them better treatment although the clinic would be far from them but due to the good attitude and treatment received, they remain in care.

*“Yoh! They treated us well; hence we chose to come to this one. I got encouragement to take medication from the doctors here at the clinic, they are the ones who gave me strength.”*

[Participant 5, 33 unemployed VL unsuppressed]

*“I like coming here because they treat us well unlike other clinics, I went to before, like Molepo clinic and Sehlale clinic, I once went there, and they didn’t welcome me well because my baby was unwell. They asked me where I collect my medication and that was not in their books, so here they welcome people”.*

[Participant 1,27 female employed, VL suppressed]

Other participants experienced bad attitudes from the healthcare providers and were not happy about the treatment they received from them from their clinics.

*“Eish at the local clinic where I use to go and collect medicine, I ended up changing clinics because there was a lady who is a home-based care giver who was talking bad about our status. When we are collecting our treatment for HIV, she would talk about us saying we didn’t collect the medication, she would say this person and that person don’t just see them they have a disease. That made many people uncomfortable and open a case against her.”*

[Participant 12,35 male unemployed, VL unsuppressed]

*“Sometimes they are moody. They are too slow and that makes us depart late.”*

[Participant 6,18 female high school VL suppressed]

#### 4.4.8 Theme 8: Health system factors

##### Subtheme 8.1 Availability of ART

*“...in the clinic, there is no way you can find that your medication is not available.”*

[Participant 2,30 female, unemployed, VL suppressed]

*“Like, there is no way you could find come and find that pills are not available in between medication cycles.”*

[Participant 5,33 unemployed VL unsuppressed]

*“Medication has always been here. The only thing is that they may be overloaded the whole day, and you must come back by the following day..... you have to que again, but it will be lesser and lesser than the previous days.”*

[Participant 10,29 employed VL suppressed]

#### Sub-theme 8.2 Long ques

Participants mentioned that they must come early to avoid long ques or having to be turned back to come back the following day.

*“I have never arrived late here I always come earlier because I feel the ques don’t move in the afternoons. If you come after 12 the que doesn’t move well so it’s better, you come before 12.”*

[Participant 1,27 female employed, VL suppressed]

*“It is all well, it is just the issue of long ques. Attending us has not been a challenge, but what is of concern is the long ques that we must stand in so that we can be attended to. They do help us well especially before lunchtime, but after lunch it is a go-slow.”*

[Participant 7,26 female college student, VL suppressed]

#### Subtheme 4.4 Distance to clinic

Travelling long distances to the clinic for some participants affects their adherence to treatment as they sometimes do not have money for transportation or find the clinics closed.

*“My challenge is that I must go to school first and it’s quite a distance. Just like when I was writing on Friday when I came here, I found that they were knocking-off because I was writing.*

[Participant 6,18 female high school student VL suppressed]

*“It is quiet a distance...It affects me dearly, because at times I become penniless and then be forced to ask for help with money for transport.”*

[Participant 5,33 unemployed, VL unsuppressed]

*“Distance is a problem. Sometimes I find myself having no money for transport because I am unemployed.”*

[Participant 8,32 female unemployed, VL unsuppressed]

Sub-theme 7.4 Moving to another province.

Change in workplace or moving to another province had an impact for those participants as they could not collect their treatment in another province due to administration issues like not having the green card that gives the information about the medication of that patient.

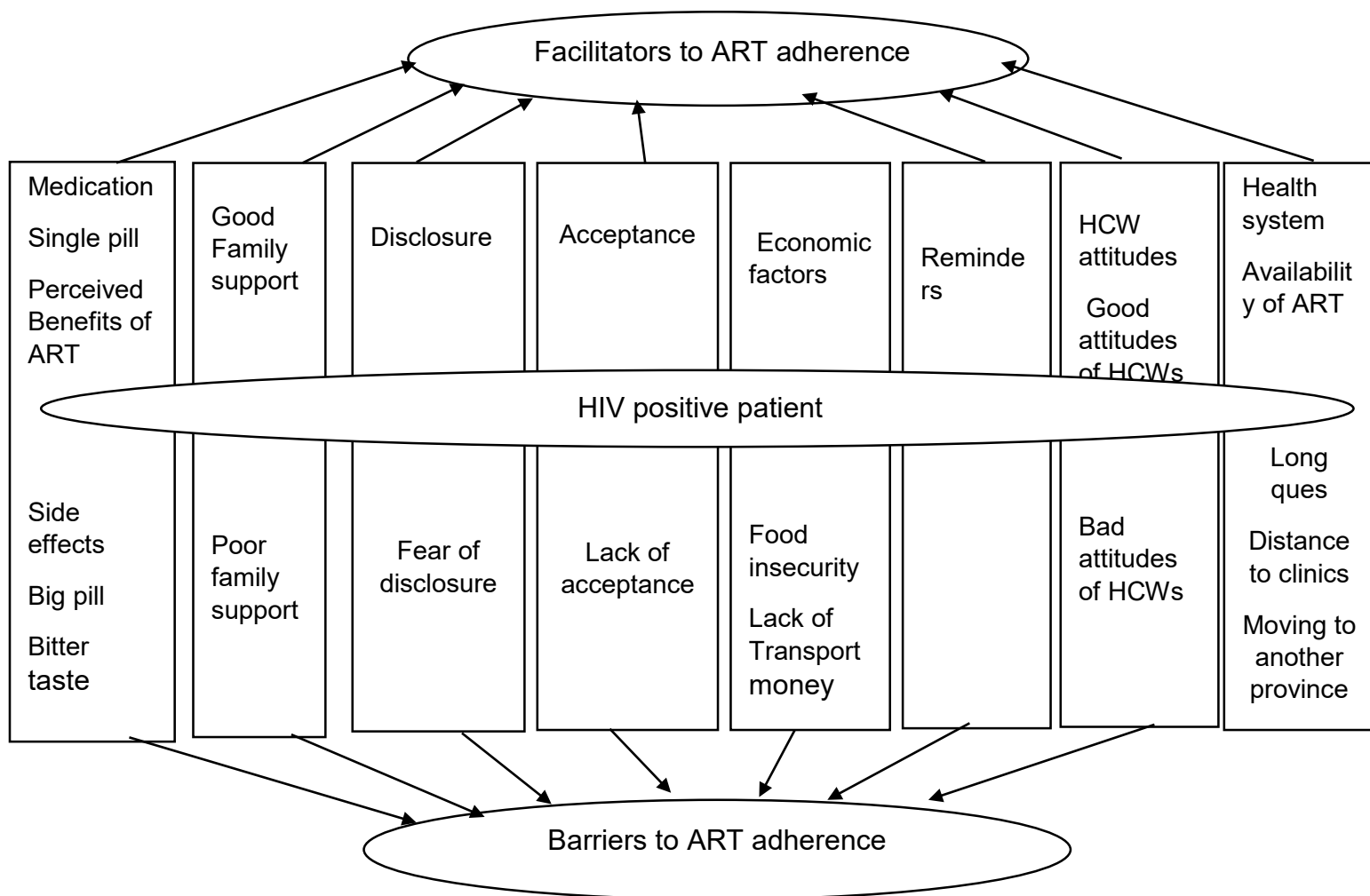
*“Well, the problem is that I was not around, it’s the time I was working as a security, and I was moved to KwaZulu natal, and it happened that I didn’t take my particulars to collect medication when I moved. That side they refused to give me the medication because I didn’t have my green card to show the medication I was taking.”*

[Participant 12,35 male unemployed, VL unsuppressed]

*“That was long ago, I think I was travelling from Gauteng, immediately after finishing my matric so I could not come here to fetch the medication.”*

[Participant 9,21 female university student, VL unsuppressed]

#### 4.5 Schematic depiction of the themes



#### 4.6 Interpretation of the themes

This diagram demonstrates how the factors that influence ART adherence interlink to each other. Some major themes may both influence ART adherence in a positive and again in a negative manner. At the center of it all it's an HIV positive patient followed by major themes and subthemes with the factors that facilitate ART adherence on the top side and the factors that hinder ART adherence represented on the bottom side. Major themes that were identified are medication related factors, family support, disclosure, acceptance, economic factors, healthcare worker attitudes, health system factors and reminders.

On medication related factors side effects, big pill that is hard to swallow and bitter taste were found be factors that lead to poor adherence while on the same medication factors, single pill regimens and perceived benefits of ART positively influenced ART adherence. Side effects that include dizziness, abdominal cramps and diarrhoea influenced adherence to ART. The knowledge that ART medication does not cure HIV, but it boosts the immune system, prevents progression of HIV to AIDS and provides a longer lifespan has facilitated their adherence.

Psychosocial factors such as disclosure and acceptance were found to significantly influence ART adherence. By virtue of being diagnosed with HIV patients felt they would be stigmatized then feared to disclose their HIV status. Fear of disclosure results in patients defaulting on treatment as they don't want to be caught taking the ART medication. Disclosure for participants assisted them in acquiring support. Most participants in this study were encouraged to take medication by their family, children or siblings and this family support played a major role in their adherence to ART medication.

Participants who accepted the condition found it easy to adhere to medication while those who struggled to accept blame themselves for getting the disease which results in poor ART adherence. Good family support leads to acceptance of the condition and disclosure, and these were found to be significant facilitators of ART adherence while lack of family support, fear of disclosure and lack of acceptance results in poor ART adherence.

Economic factors such as lack of money for transport and food were found to negatively affect ART adherence. Food insecurity led to poor adherence as some patients are scared to take pills without food and some feel the side effects may be worse if they take medication without food. Not having money to travel to the clinic also played a role as patients will not be able to collect medication if they have to travel to the clinics and some people may have to choose between using money for food or for transport. Patients who were employed did not have a problem traveling to the clinic. The majority of participants set reminders on their phones or are reminded by family members. And this was an important facilitator of ART adherence, and no negative influences were suggested on reminders.

Many patients felt that the healthcare workers had a good attitude towards them, and they encouraged them to never miss their medication. One participant commended

the HIV counsellors who gave him adherence counselling that they helped him and encouraged him to take the medicine. Few participants mentioned that the healthcare professionals are sometimes moody, and they work slowly after 12. One participant had a bad experience at one of his local clinics where he collected the medication where there was a home-based carer whom he felt disclosed patient's information about their HIV status when they do not collect their medication.

At the health facilities other participants felt that the queues can be long at the clinics where they end up leaving late or having to come back the following day which may be a challenge for those who stay far from the clinic as they have to travel again and pay for transport. Other participants have to miss work or school because of long queues. However, participants appreciated that they always have ART medication available at the clinics and this gives them hope to always come when it's their turn to collect medication. Participants who moved to other provinces unprepared without their particulars claim that the other clinic refused to issue them with the ART medicine without their green card or transfer letter that shows the patient's status and information about their condition this led to one participant defaulting treatment.

The above schematic depiction and interpretation of themes summarizes the main findings for this study on factors that influence ART adherence among young adults at primary care clinics around Mankweng hospital.

## CHAPTER FIVE

### DISCUSSION

#### 5.1 Introduction

In this chapter, the findings of the research are discussed with reference to what is already known about the topic in the literature. New understanding or insights that originated in this research study about adherence to ART is also discussed.

#### 5.2 Discussion of the research findings

##### 5.2.1 Medication related factors

Participants faced challenges related to ART medication, including side effects such as dizziness, abdominal cramps, and diarrhoea. Dizziness was the most mentioned side effect that influenced adherence. Experiencing these side effects can lead to treatment discontinuation, as individuals may find it challenging to tolerate or manage the side effects. In this study, some participants discontinued taking the ART medication due to side effects. This is similar to studies that also reported participants who defaulted on ART because they could not tolerate the side effects (Bukenya et al., 2019; Moosa et al., 2019).

However, many of the participants in this study despite the side effects adapted to the treatment by mostly taking the ART medication just before bedtime so avoid dizziness and continued taking the medication. And those who struggled to swallow the big pill resorted to crushing the tablet. This is similar to the studies in literature where perceived benefits of ART made participants to adapt to side effects rather than stop the medication (Addo et al., 2022; Lahai et al., 2022; Saya et al., 2022). The adaptation of side effects demonstrates a strong commitment and determination of patients to overcome barriers to ART adherence and willingness to find solutions to medication related difficulties. However, it is essential to emphasize that not all medications can be crushed without compromising their effectiveness, so this approach may not be suitable for all types of ART.

Multiple participants in this study recognized the benefits of ART, including weight gain, prevention of HIV transmission to others and an improved quality of life. This is similar to several studies that reported perceived benefits of ART such as improved

quality of life and general good health status as a facilitator for adherence (Addo et al., 2022, Nyamaruze et al., 2021; Ahmed et al., 2018; Lahai et al., 2022).

Participants also understand that medication does not cure HIV but boosts their immune system, prevents disease progression, and extends their lifespan, which motivates adherence. This finding is similar to other studies that investigated the perceptions towards ART medication from people living with HIV (Zhou et al., 2023; Namoomba et al., 2019; Ahmed et al., 2018).

Combining the multiple medications into a single pill simplifies the treatment regimen and reduces the complexity of daily dosing. Participants in this study mentioned the current single pill ART regimens or the fixed drug combination made adherence easier. This finding is similar to other studies which concluded that single pill ART regimen was associated with higher level of adherence and dosing more than once a day were strongly identified as a hindrance to ART adherence (Opara et al., 2022; Ngoro et al., 2022, Lahai et al., 2022). Currently the fixed single drug combination used in South Africa is a Dolutegravir based regimen as recommended by WHO which has better viral suppression and high barrier to resistance (WHO 2029).

### *5.2.2 Family support*

Almost all participants in this study were encouraged to take medication by their family, children or siblings and this family support played a major significant role in their adherence to ART medication. Good family support is a vital system that provides financial and emotional support that leads to improved mental health functioning, and which was associated with optimal ART adherence. This finding is consistent with other studies in the literature. Family support was also found to improve disclosure which then facilitates support and good adherence to ART medication (Damulira et al., 2019; Campbell et al., 2020; Mi et al., 2020; Knight & Schatz 2022). In some communities, HIV/AIDS is still a taboo subject and, as such, families would advise the person with HIV not to discuss and disclose their condition to others (Lahai et al., 2022).

### *5.2.3 Disclosure*

Stigma associated with HIV diagnosis influenced adherence in this study, as some patients chose not to disclose their status due to fear of discrimination. In this study, some participants mentioned that once you disclose your status people start treating them differently. Some experiences of stigma and discrimination include fear of sharing toilets and cutlery which leads to people living with HIV not being able to access and adhere to ART, thereby profoundly affecting their mental health and poor outcomes (Lahai et al., 2022; Mwamba et al., 2018; Namoomba et al., 2019).

Disclosure, on the other hand, in this study led to acceptance of the status and family support, which encouraged ART adherence. This is consistent with studies that concluded self-disclosure of one's HIV status having a positive effect on adherence to ART (Dessie et al., 2019; Mengesha et al., 2023; Izudi et al., 2021). However, some patients in this study still have not disclosed their statuses to their families or even to their partners for fear of stigmatization and discrimination. This is similar to several studies in both developed and developing countries which noted that as a result of the stigma, patients fear to disclose their status and this robs them a chance to be supported into taking their ART medication (Bukonya et al., 2019; Azia et al., 2016; Croome et al., 2017; Abdulai et al., 2021).

### *5.2.4 Acceptance*

Acceptance of HIV status was also found to facilitate ART adherence, whereas denial and self-blame were associated with defaulting treatment as patients struggled to come in terms of having the disease. This finding is comparable to the other studies in the literature which found acceptance of HIV as an important factor in ART adherence (Croome et al., 2017; Horter et al., 2017; Chirambo et al., 2019). Accepting the disease assists patients to disclose their status and discuss challenges they face with others, and in turn gain support.

### *5.2.5 Economic factors*

Poverty was a significant factor that some participants raised as influencing ART adherence. Majority of participants relied on child social grants, old age social grants from their family members or doing piece work that is not always available. Some patients are reluctant to take medication without food. Additionally, poverty limited some patients' ability to travel to clinics, as they did not have enough money for transport. This is echoed by other studies that also reported lack of money for food or transport, distance, or lack of transport to the ART clinic as significant social determinant of HIV/AIDS as well as access to ART treatment (Mwamba et al., 2018, Lahai et al., 2022; Simelane et al., 2022; Ahmed et al., 2021; Isabirye et al., 2023).

### *5.2.6 Reminders*

Setting reminders was identified as a facilitator to ART adherence. Many patients used their phones to remind them of taking their medication. The use of devices to set reminders has also been reported in literature on interventions used to improve ART adherence (Zhou et al., 2022; Damulak et al., 2021; Naggirinya et al., 2022).

### *5.2.7 Healthcare worker attitudes*

In this study, the majority of the participants had positive attitudes with healthcare workers at clinics who encouraged them to adhere to their ART medication. Several other studies also found that positive relationships with healthcare workers resulted in increased patient confidence and motivation to remain in care (Mwamba et al., 2018; Makhado et al., 2020, Simelane et al., 2022). However, some few participants experienced bad attitudes from the health care professionals where they felt that their confidentiality was breached and HCWs don't properly communicate with them. These instances can lead to patients defaulting on ART treatment, changing clinics, and consequently poor retention in care. Elsewhere, bad attitudes from health care workers were also found to be associated with patients' dissatisfaction and hence poor retention to care and poor adherence to ART medication. (Abdulai et al., 2021; Addo et al., 2022, Opara et al., 2022; Simelane et al., 2022). It is significant to note

that participants who experienced bad attitudes from the healthcare workers were those with unsuppressed viral load or who defaulted treatment at the time.

### *5.2.8 Health system factors*

Participants mentioned good availability of ART at clinics as a facilitator to adherence, and this gives them hope and security for their health. Other studies also agree with this finding (Ahmed et al., 2022; Heestermans et al., 2016). Some patients encounter challenges such as long clinic queues, slow service after 12 PM and travelling long distances to the clinic. These challenges can lead to patient dissatisfaction and poor adherence to ART treatment. This finding is consistent with other studies which found long queues at the facilities and slow service after lunch were associated with lack of retention to care and consequently leading to poor adherence to ART medication (Abdulai et al., 2021; Opara et al., 2022, Simelane et al., 2022). The Department of Health recommends that an HIV patient must be given a transfer letter when moving to another facility so that the patients can be traced and are not lost to follow-up. Two Patients who had relocated to other provinces in this study without documentation or transfer letters from their HIV clinic also faced difficulty collecting medication at other facilities, which negatively affected their ART adherence.

### **5.3 Limitations of the study**

During the time for data collection the study setting had to change as patients had been decentralized from the Wellness clinic in Mankweng hospital which was the initial setting for the study and were transferred to the primary care clinics around Mankweng Hospital. Participants had to be followed to the three different clinics that had most patients decentralized from the Wellness clinic and were interviewed at those individual clinics. Some patients may not respond to questions truthfully as the principal researcher was present on the interviews for fear that they may not be treated the same way after the interview if they criticized the service of giving out information that is not expected. This was minimized through timeous explanation and reassuring the participants from the beginning that their responses will not affect their treatment at the clinics as they will be kept anonymous. An interview guide could have influenced participants to report on the aspects that they themselves were not really influenced by. Patients who were not in care or who had been lost to

follow-up were not interviewed this would have provided a further layer of richness in the study.

#### **5.4 Conclusion**

This qualitative study highlights the complex interplay of factors influencing ART adherence, ranging from medication related issues, family support, disclosure, acceptance, economic factors, reminders, healthcare provider and system factors. All these factors were found to interactively influence ART adherence both positively and negatively. People living with HIV still find it challenging to optimally adhere to their ART medication due to the identified factors. Having family support was one of the most significant factors that was identified to positively influence ART as it leads to acceptance of the disease, better mental state, and subsequently improved ART adherence. It is encouraging to note that many patients are aware and have recognized the benefits of ART, which motivates them to adhere to treatment despite ART medication related challenges. While some are still struggling to disclose their HIV status, most patients have disclosed and accepted their HIV status, which gained them much needed family support. With the multiple challenges that people living with HIV face daily such as discrimination, side effects of medication, health provider attitudes and system related issues patients still persevere to continue taking ART by finding ways to adapt to the treatment and this shows their long-term commitment to ART medication which will improve their quality of life.

#### **5.5 Recommendations**

This study underscores the importance of patient-centered care and family support in the management of HIV and ART adherence. Considering the factors that influence ART adherence such as medication side effects, lack of family support, fear of disclosure, lack of acceptance of HIV status, socioeconomic factors, HCW attitudes and system factors will promote ART adherence. Patients with poor family support, those who struggle to accept their condition, or find it difficult to disclose and those with financial difficulties should be identified as at high risk for poor adherence.

When conducting ART adherence counselling classes, healthcare providers should work on promoting acceptance and disclosure of HIV status and strengthening family support for people living with HIV, as these were found to be very significant

influencers to ART adherence. Patients should be encouraged to report any challenges they face while taking ART medication, such as side effects in order for them to be managed.

According to the National Department of Health it is recommended that all service providers must be welcoming and supportive to the patients who had been lost to follow up or defaulted ART treatment and no punitive actions may be taken, and this will hopefully assist in re-engaging these patients to ART services and retained in care. Therefore, healthcare providers should be encouraged to actively work on their attitudes and engage with patients to understand their experiences, concerns, and preferences regarding ART medication.

Further research to develop intervention strategies addressing factors that influence ART adherence is recommended. Improved ART will enhance better treatment outcomes for individuals living with HIV and the possibility to achieve the UNAIDS 95-95-95 targeted goal.

## 6. REFERENCES

Abdulai, M.A., Mevissen, F.E.F., Kramer, A., Boitelet, Z, Kwaku, PA, Owusu-Agyei S, Ruitter RAC, Bos AER. A qualitative analysis of factors influencing healthcare providers' behavior toward persons living with HIV in Ghana. *International Journal of Africa Nursing Sciences*. 2023;18, 100532.

<https://doi.org/10.1016/j.ijans.2023.100532>.

Adeniyi, O. V., Ajayi, A. I., Ter Goon, D., Owolabi, E. O., Eboh, A., & Lambert, J. 2018. Factors affecting adherence to antiretroviral therapy among pregnant women in the Eastern Cape, South Africa. *BMC Infectious Diseases*, 18, 175.

<https://doi.org/10.1186/s12879-018-3087-8>.

Addo, M. K., Aboagye, R. G., & Tarang, E. E. 2022. Factors influencing adherence to antiretroviral therapy among HIV/AIDS patients in the Ga West Municipality, Ghana. *IJID regions*, 3, 218–225. <https://doi.org/10.1016/j.ijregi.2022.04.009>.

Ahmed, A., Dujaili J.A., Jabeen M., Umair M.M., Chuah L.H., Hashmi FK., Awaisu A & Chaiyakunapruk N .2021. Barriers and Enablers for Adherence to Antiretroviral Therapy Among People Living With HIV/AIDS in the Era of COVID-19: A Qualitative Study from Pakistan. *Front. Pharmacol.* 12:807446. doi: 10.3389/fphar.807446.

Ahmed, S., Autrey J., Katz I.T., Fox M.P., Rosen S., Onoya D., Bärnighausen T., Mayer K.H., Bor J .2018. Why do people living with HIV not initiate treatment? A systematic review of qualitative evidence from low- and middle-income countries, *Social Science & Medicine*, 213, 72-84, ISSN 0277-9536.

Anderson, C. 2010. Presenting and evaluating qualitative research. *American journal of pharmaceutical education*, 74(8), 141. <https://doi.org/10.5688/aj7408141>

Azia, I. N., Mukumbang, F. C., Van Wyk, B. 2016. Barriers to adherence to antiretroviral treatment in a regional hospital in Vredenburg, Western Cape, South Africa. *Southern African journal of HIV medicine*, 17(1), 476.

<https://doi.org/10.4102/sajhivmed.v17i1.476>.

Bankhead, C.R., Spencer E.A., Nunan, D. 2019. Information bias. *Sackett Catalogue of Biases*. <https://catalogofbias.org/biases/information-bias/>

Bukenya, D., Mayanja, B. N., Nakamanya, S., Muhumuza, R., Seeley, J. 2019. What causes non-adherence among some individuals on long term antiretroviral therapy? Experiences of individuals with poor viral suppression in Uganda. *AIDS Research and Therapy*, 16 (1). 2-. DOI: <https://doi.org/10.1186/s12981-018-0214-y>.

Campbell, L., Masquillier, C., Thunnissen, E., Ariyo, E., Tabana, H., Sematlane, N., Delpont, A., Dube, LT., Knight, L., Flechner, T.K., Wouters. E. 2020. Social and Structural Determinants of Household Support for ART Adherence in Low- and Middle-Income Countries: A Systematic Review. *International Journal of Environmental Research and Public Health*; 17(11):3808.

<https://doi.org/10.3390/ijerph17113808>.

Chirambo, L., Valeta, M., Banda Kamanga, T. M., Nyondo-Mipando, A. L. 2019. Factors influencing adherence to antiretroviral treatment among adults accessing care from private health facilities in Malawi. *BMC public health*, 19(1), 1382.

<https://doi.org/10.1186/s12889-019-7768-z>.

Connelly, L.M. 2016. Trustworthiness in Qualitative Research. *Medsurg nursing official journal of the Academy of Medical-Surgical Nurses*, 25(6), 435–436.

Accessed 15 Aug. 2023.

Creswell, J. W. 2014. *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, California: SAGE Publications.

Croome, N., Ahluwalia, M., Hughes, L. D., & Abas, M. 2017. Patient-reported barriers and facilitators to antiretroviral adherence in sub-Saharan Africa. *AIDS* (London, England), 31(7), 995–1007.

Crossman, A. 2020. Understanding Purposive Sampling.

<https://www.thoughtco.com/purposive-sampling-3026727>.

Damulak, PP., Ismail, S., Abdul Manaf, R., Mohd Said, S., Agbaji, O. 2021. Interventions to Improve Adherence to Antiretroviral Therapy (ART) in Sub-Saharan Africa: An Updated Systematic Review. *International Journal of Environmental Research and Public Health*. 2021; 18(5):2477.

<https://doi.org/10.3390/ijerph18052477>.

Damulira, C., Mukasa, M. N., Byansi, W., Nabunya, P., Kivumbi, A., Namatovu, P., Namuwonge, F., Dvalishvili, D., Bahar, O. S., & Ssewamala, F. M. 2019. Examining the relationship of social support and family cohesion on ART adherence among HIV-positive adolescents in southern Uganda: baseline findings. *Vulnerable children and youth studies*, 14(2), 181–190. <https://doi.org/10.1080/17450128.2019.1576960>.

Dessie, G., Wagnew, F., Mulugeta, H., Amare, D., Jara, D., Leshargie, C. T., Negesse, A., Rayasam, S., & Burrowes, S. 2019. The effect of disclosure on adherence to antiretroviral therapy among adults living with HIV in Ethiopia: a systematic review and meta-analysis. *BMC infectious diseases*, 19(1), 528.

<https://doi.org/10.1186/s12879-019-4148-3>.

Hickey, M. D., Omollo, D., Salmen, C. R., Mattah, B., Blat, C., Ouma, G. B., Fiorella, K. J., Njoroge, B., Gandhi, M., Bukusi, E. A., Cohen, C. R., & Geng, E. H. 2016. Movement between facilities for HIV care among a mobile population in Kenya: transfer, loss to follow-up, and reengagement. *AIDS care*, 28(11), 1386–1393.

Heestermans T., Browne J.L., Aitken SC., Sigrid C Vervoort., & Grobusch K.K. 2016. Determinants of adherence to antiretroviral therapy among HIV-positive adults in sub-Saharan Africa: a systematic review *BMJ Global Health*;125.

Horter, S., Thabede Z., Dlamini V., Bernays S., Stringer B., Mazibuko S., Dube L., Rusch B., Jobanputra K. 2017. "Life is so easy on ART, once you accept it": Acceptance, denial and linkage to HIV care in Shiselweni, Swaziland, *Social Science & Medicine*, Volume 176,52-59, ISSN 0277-9536, <https://doi.org/10.1016/j.socscimed.2017.01.006>.

Isabirye, R., Opii DJ., Opio Ekit S., Kawomera A., Lokiru L., Isoke R., Ssenkaali J., Puleh SS.2023. Factors Influencing ART Adherence Among Persons Living with HIV Enrolled in Community Client-Led Art Delivery Groups in Lira District, Uganda: A Qualitative Study. *HIV AIDS (Auckl)*.;15:339-347 <https://doi.org/10.2147/HIV.S414971>.

Izudi, J., Okoboi, S., Lwevola, P., Kadengye, D., Bajunirwe, F .2021. Effect of disclosure of HIV status on patient representation and adherence to clinic visits in eastern Uganda: A propensity-score matched analysis. *PLoS ONE* 16(10):0258745. <https://doi.org/10.1371/journal.pone.0258745>.

Knight, L.; Schatz, E. 2022. Social Support for Improved ART Adherence and Retention in Care among Older People Living with HIV in Urban South Africa: A Complex Balance between Disclosure and Stigma. *Int. J. Environ. Res. Public Health*, 19, 11473.

Lahai, M., Theobald, S., Wurie HR., Lakoh S., Erah PO., Samai, M & Raven J .2022. Factors influencing adherence to antiretroviral therapy from the experience of people living with HIV and their healthcare providers in Sierra Leone: a qualitative study. *BMC Health Serv Res* 22, 1327.

Lowane, M.P., Lebese, R.T., 2022. 'Why adult patients on antiretroviral therapy miss clinical appointments in rural villages of Limpopo Province, South Africa: An exploratory study,' *Health SA Gesondheid* 27(0), a1989.

Mabunda, K., Ngosama E., Babalola, J., Zunza, M., Nyasulu P., 2019. Determinants of adherence to antiretroviral treatment among human immunodeficiency virus infected young adults attending care at Letaba Hospital HIV Clinic, Limpopo Province, South Africa. *Pan African Medical Journal*.32:37.  
[doi: [10.11604/pamj.2019.32.37.17722](https://doi.org/10.11604/pamj.2019.32.37.17722)].

Mabuza, L., Govender, I., Ogunbanjo, G., Mash, B. 2014. African Primary Care Research: Qualitative data analysis and writing results. *African Journal of Primary Health Care & Family Medicine*, 6(1), 5 pages.  
<https://doi.org/10.4102/phcfm.v6i1.640>.

Makhado, L., Mongale, M., 2029. Factors influencing non-adherence to antiretroviral therapy in South Africa: a systematic review. *HIV and AIDS Review*; 18:239–246. PubMed.

Mengesha, M. M., Teshome, A., Ajema, D., Tura, A. K., Hallström, I. K., & Jerene, D. 2023. The association between HIV diagnosis disclosure and adherence to antiretroviral therapy among adolescents living with HIV in Sub-Saharan Africa: A systematic review and meta-analysis. *PloS one*, 18(5), e0285571.

Abdulai, M.A., Mevissen, F.E.F., Kramer, A., Boitelet, Z., Kwaku P.A., Owusu-Agyei S., Ruiter, R.A.C., Bos, A.E.R. 2023. A qualitative analysis of factors influencing healthcare providers' behavior toward persons living with HIV in Ghana, *International Journal of Africa Nursing Sciences*.

Mi, T., Li, X., Zhou, G., Qiao, S., Shen, Z., & Zhou, Y. (2020). HIV Disclosure to Family Members and Medication Adherence: Role of Social Support and Self-efficacy. *AIDS and behavior*, 24(1), 45–54. <https://doi.org/10.1007/s10461-019-02456-1>.

Moosa, A., Gengiah, T.N., Lewis, L., Naidoo K. 2019. Long-term adherence to antiretroviral therapy in a South African adult patient cohort: a retrospective study. *BMC Infect Dis* 19, 775. <https://doi.org/10.1186/s12879-019-4410-8>.

Mwamba, C., Sharma, A., Mukamba, N., Beres, L., Geng, E., Holmes, C. B., topp, S. M. 2018. ‘They care rudely!’: Resourcing and relational health system factors that influence retention in care for people living with HIV in Zambia. *BMJ Global Health*, 3, e001007. <https://doi.org/10.1136/bmjgh-2018-001007>.

Nabunya P., Bahar O.S., Chen B., Dvalishvili D., Damulira C., & Ssewamala F.M 2020. The role of family factors in antiretroviral therapy (ART) adherence self-efficacy among HIV-infected adolescents in southern Uganda. *BMC Public Health* 20, 340. <https://doi.org/10.1186/s12889-020-8361-1>.

Naggirinya, A.B., Waiswa, Meya, P.D., Parkes-Ratanshi R., Rujumba, J. 2022. Factors influencing ART adherence, acceptability, and potential use of “Call for life IVR tool” among young people in rural Uganda, *Social Sciences & Humanities Open*, Vol 6, Issue 1, 100311, ISSN 2590-2911, <https://doi.org/10.1016/j.ssaho.2022.100311>.

Namoomba, H.C., Makukula, M.K & Masumo, M.M. 2019. Factors Influencing Adherence to Antiretroviral Therapy among HIV Positive Adolescents at Adult Infectious Diseases Center in Lusaka, Zambia. *Open Journal of Nursing*, 9, 458-480 <https://doi.org/10.4236/ojn.94040>.

National Department of Health South Africa. 2023. ART Clinical Guidelines for the Management of HIV in Adults, Pregnancy, Adolescents, Children, Infants and Neonates.

Ndoro T., Ndlovu N., Nyasulu P .2022. Factors associated with ART adherence among HIV-positive adherence club members in Ekurhuleni Metropolitan Municipality, South Africa: A cross-sectional study. PLOS ONE 17(11): e0277039. <https://doi.org/10.1371/journal.pone.0277039>.

Nyamaruze P., Govender K., Cowden RG. 2021. Self-esteem and antiretroviral therapy adherence among young people living with HIV: An exploratory serial mediation analysis. S Afr J Sci.;117(11/12), Art. #8354. <https://doi.org/10.17159/sajs.2021/8354>.

Opara, H. C., Iheanacho, P. N., Nebo, B., Ingwu, J. A., Anetekhai, C. J., & Anarado, A. N. 2022. Factors affecting adherence to anti-retroviral therapy among women attending HIV clinic of a tertiary health institution in South Eastern, Nigeria. *African health sciences*, 22(1), 456–464. <https://doi.org/10.4314/ahs.v22i1.54>.

Peltzer K., Friend-du Preez N., Ramlagan S., Anderson J. 2010. Antiretroviral treatment adherence among HIV patients in KwaZulu-Natal, South Africa. *BMC Public Health*; 10:111.

Polit, D. F., Beck, C. T. 2014. Essentials of nursing research: Appraising evidence for nursing practice (8th edition.). Philadelphia: Wolters Kluwer Health /Lippincott Williams & Wilkins.

Saleem, H. T., Knight, D., Yang, C., Kidorf, M., Latkin, C., & Nkya, I. H. 2023. HIV Stigma, HIV status disclosure, and ART adherence in the context of an integrated opioid use disorder and HIV treatment setting in Dar es Salaam, Tanzania. *AIDS*

Care - *Psychological and Socio-Medical Aspects of AIDS/HIV*, 35(1), 91-94. <https://doi.org/10.1080/09540121.2022.2032575>.

Saya, U., MacCarthy, S., Mukasa, B., Peter Wabukala P., Lunkuse L., Wagner Z., & Linnemayr S. 2022. "The one who doesn't take ART medication has no wealth at all and no purpose on Earth" a qualitative assessment of how HIV-positive adults in Uganda understand the health and wealth-related benefits of ART. *BMC Public Health* **22**, 1056. <https://doi.org/10.1186/s12889-022-13461-w>.

Simelane, P. T., Simelane, M. S., & Amoateng, A. Y. 2022. Barriers and facilitators to adherence for antiretroviral therapy: the perspectives of patients from a wellness center in the Mpumalanga Province, South Africa. *African health sciences*, 22(3), 455–462. <https://doi.org/10.4314/ahs.v22i3.49>.

Statistics South Africa. 2022. Mid-year population estimates, Statistical Release P0302, Page 16-20.

South African National AIDS Council (SANAC), Limpopo Provincial AIDS Council (LPAC). [Annual progress report 2015/16. Provincial Strategic Plan \(PSP\) 2012-2016](#).

UNAIDS .2022. epidemiological estimates. [https://www.unaids.org/sites/default/files/media\\_asset/UNAIDS\\_FactSheet\\_en.pdf](https://www.unaids.org/sites/default/files/media_asset/UNAIDS_FactSheet_en.pdf).

World Health Organization. 2016. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach, second edition. World Health Organization.

World Health Organization. 2020. HIV/AIDS. <https://www.who.int/news-room/fact-sheets/detail/hiv-aids>.

World Health Organization .2023. [https://www.who.int/health-topics/hiv-aids#tab=tab\\_1](https://www.who.int/health-topics/hiv-aids#tab=tab_1).

Zhou J., Yun J., Ye X., Liu W., Xiao W., Song, P & Wang H .2022. Interventions to improve antiretroviral adherence in HIV-infected pregnant women: A systematic review and meta-analysis. *Front. Public Health* 10:1056915. doi: 10.3389/fpubh.2022.1056915.

Zhou Y., Li Y., Xiao X., Qian H.Z & Wang H .2023. Perceptions toward antiretroviral therapy and delayed ART initiation among people living with HIV in Changsha, China: mediating effects of treatment willingness. *Front. Public Health* 11:1105208. doi: 10.3389/fpubh.2023.1105208.

# ANNEXURES

## Annexure 1: Letter of Approval: TREC



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Private Bag X1106, Sovenga, 0727, South Africa  
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**TURFLOOP RESEARCH ETHICS COMMITTEE**  
**ETHICS CLEARANCE CERTIFICATE**

**MEETING:** 25 July 2023  
**PROJECT NUMBER:** TREC/31/2022: PG- **Renewed**  
**PROJECT:**

**Title:** Factors Influencing Adherence to Antiretroviral Therapy among Young Adults Attending Wellness Clinic at Mankweng Hospital, Limpopo Province, South Africa  
**Researcher:** V Mashele  
**Supervisor:** Dr. S Maweya  
**Co-Supervisor/s:** Prof G Marincowitz  
**School:** Medicine  
**Degree:** Master of Medicine in Family Medicine

**PROF D MAPOSA**  
**CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE**

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: **REC-0310111-031**

- Note:**
- i) This Ethics Clearance Certificate will be valid for one (1) year, as from the abovementioned date. Application for annual renewal (or annual review) need to be received by TREC one month before lapse of this period.
  - ii) Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee, together with the Application for Amendment form.
  - iii) PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.



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**TURFLOOP RESEARCH ETHICS COMMITTEE**  
**ETHICS CLEARANCE CERTIFICATE**

**MEETING:** 31 October 2023  
**PROJECT NUMBER:** TREC/31/2022: PG- **Amended**  
**PROJECT:**

**Title:** Factors Influencing Adherence to Antiretroviral Therapy among Young Adults Attending Clinics around Mankweng Hospital, Limpopo Province, South Africa  
**Researcher:** V Mashele  
**Supervisor: Co-Supervisor/s:** Prof G Marincowitz  
N/A  
**School: Degree:** Medicine  
Master of Medicine in Family Medicine

**PROF D MAPOSA**  
**CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE**

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: **REC-0310111-031**

**Note:**

- i) This Ethics Clearance Certificate will be valid for one (1) year, as from the abovementioned date. Application for annual renewal (or annual review) need to be received by TREC one month before lapse of this period.
- ii) Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee, together with the Application for Amendment form.
- iii) PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.

## Annexure 2: Letter of Approval: National approval



**LIMPOPO**  
PROVINCIAL GOVERNMENT  
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF  
**HEALTH**

Ref : LP\_2023-06-011  
Enquires : Dr Ramalivhana NJ  
Tel : 015-293 6028  
Email : [Phoebe.Mahlokwane@dhsd.limpopo.gov.za](mailto:Phoebe.Mahlokwane@dhsd.limpopo.gov.za)

**MASHELE VICTORIA**

### PERMISSION TO CONDUCT RESEARCH IN DEPARTMENTAL FACILITIES

Your Study Topic as indicated below;

#### **FACTORS INFLUENCING ADHERENCE TO ANTIRETROVIRAL THERAPY AMONG YOUNG ADULTS ATTENDING WELLNESS CLINIC AT MANKWENG HOSPITAL, LIMPOPO PROVINCE, SOUTH AFRICA**

1. Permission to conduct research study as per your research proposal is hereby Granted.
2. Kindly note the following:
  - a. Present this letter of permission to the Office of Clinical Executive Director a week before the study is conducted.
  - b. This permission is **ONLY for Mankweng Hospital**
  - c. In the course of your study, there should be no action that disrupts the routine services or incur any cost on the Department.
  - d. After completion of study, it is mandatory that the findings should be submitted to the Department to serve as a resource.
  - e. The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.
  - f. **The approval is only valid for a 1-year period.**
  - g. If the proposal has been amended, a new approval should be sought from the Department of Health
  - h. Kindly note that, the Department can withdraw the approval at any time.

Your cooperation will be highly appreciated.

pp Head of Department

14/07/2023

Date

Private Bag X9302, Polokwane 0700  
Fidel Castro Ruz House, 18 College Street, Polokwane 0700  
Tel: 015 293 6000. Fax: 015 293 6211. Website: [www.doh.limpopo.gov.za](http://www.doh.limpopo.gov.za)

**The heartland of Southern Africa - *development is about people!***

## Annexure 3: Letter of Approval: Mankweng hospital CEO



**LIMPOPO**  
PROVINCIAL GOVERNMENT  
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH  
MANKWENG HOSPITAL

Enq: Matloa MC  
Ref: S/3/1/7/2  
Ext: 1022  
Date: 2023.07.24

Dr V Mashele  
Department of Family Medicine  
Faculty of Health Sciences  
University of Limpopo

**RE: PERMISSION TO CONDUCT RESEARCH AT MANKWENG HOSPITAL: Dr V MASHELE**

1. The above matter refers.
2. Your request to conduct research on **"Factors Influencing Adherence to Antiretroviral Therapy among Young Adults Attending Wellness Clinic at Mankweng Hospital, Limpopo Province, South Africa"** in Mankweng has been granted.
3. The permission is as per attached Provincial approval dated 14.07.2023.
4. Hope you will find this information in order.

  
ACTING CHIEF EXECUTIVE OFFICER  
DR MULA SL

27/07/2023  
DATE

Private Bag X1117, SOVENGA, 0727 Tel: 015 286 1000 Fax: 015 287 0206  
Houtbos Road, Sovenga  
0727

The heartland of Southern Africa – *development is about people*

## **Annexure 4A: Information Letter to Participants (English Version)**

My name is Victoria Mashele; I am a registrar in Master of Family Medicine from the University of Limpopo. I would like to invite you to participate in a research study titled **“Factors influencing adherence to antiretroviral therapy among young adults attending clinics around Mankweng Hospital, Limpopo Province, South Africa”**.

### **Purpose of the study**

To investigate the factors that enhance and those that hinder adherence to antiretroviral therapy among the young adults attending clinics around Mankweng Hospital.

The study will assist in promoting and improving ART adherence for people living with HIV and therefore improve their quality of life and reduce their chances of transmitting HIV to their partners and others and also reduce treatment failure.

### **Who is included in this study?**

Young adults aged 18 to 35 who are on ART attending the clinics around Mankweng Hospital.

### **What does it involve?**

The study involves individual unstructured interviews for approximately 40min that will be recorded on audiotape. Your interviews and identity will be kept confidential.

### **Benefits and risks of the study**

There are no incentives to participate in this study. The study poses no risks for you as a participant. Your treatment at the clinic will not be affected by the answers you give during the interviews. If we publish the study, you will be assigned a unique identity code to ensure that you remain anonymous.

### **If you agree to participate in this study, you will:**

Be requested to sign the consent form below and participate in the interviews.

### **Any questions or problems related to this study contact.**

**The researcher:** V Mashele at 0761925557

**Supervisor:** Prof JO Marinowitz at 083 231 2011

**Email address:** nemakhavhanivictoria@gmail.com

This study has been approved by the Turfloop Research Ethics Committee and the Provincial Department of Health Ethics Committee. Thank you for considering the invitation to participate in the study. Please find the consent form below and complete it.



## **Annexure 4B: Information Letter to Participants (Sepedi version)**

Leina la ka ke Victoria Mashela; Ke ngaka ya moithuti wa Masetase wa Kalafi ya tša Lapa go la Yunibesithi ya Limpopo. Ke rata go go mema go ka tšea karolo ka go thuto ya dinyakišišo yeo e bitšwago “**Mabaka ao a dirago gore baswa ba magareng bao ba etelago Kliniki ya Lephelo ya Bookelo bja Mankweng, Profense ya Limpopo, Afrika Borwa, ba obamele phekolo ya di Antiretroviral (ART) magareng ga bona**”.

### **Morero wa Nyakišišo**

Go nyakišiša mabaka ao a nolofatšago le go thatafatša kobamelo ya phekolo ya antiretroviral magareng ga baswa ba magareng bao ba etelago kliniki ya Lephelo ya Bookelo bja Mankweng.

Nyakišišo ye etla thuša go godiša le go kaonafatša kobamelo ya ART go batho bao ba phelago ka HIV le gona ya kaonafatša seemo sa bona sa lephelo le go fokotša mabaka a go ka fetetša HIV go balekani ba bona le ba bangwe, gape le go thibela go hlolega ga kalafi.

### **Ke mang yo a akaretšwago ka go nyakišišo?**

Baswa ba magareng bao ba nago le mengwaga e 18 go ya go 35 bao ba šomišago ART bao ba etelago kliniki ya Lephelo ya Bookelo bja Mankweng.

### **E ka ba e amana le eng?**

Nyakišišo e amana le dipoledišano tšeo di sa beakanywago tšeo di ka tšeago metsotso e 40 tšeo di tlogo gatišwa ka segatiša mantšu. Dipoledišano tša gago di tla dula e le lekunutu.

### **Dikholego le dikotsi tša nyakišišo**

Ga go ditseka tše di lego gona go ka tšea karolo ka go dinyakišišo tše. Dinyakišišo ga di na kotsi go motho bjalo ka motšeakarolo. Tshwaro ya gago kliniking e ka se ke ya angwa ke dikarabo tšeo o tla bego o di file ka nako ya dipoledišano. Ge re ka phatlalatša diphatišišo tše o tla fiwa nomoro ya ID yeo e e ikgethilego ya dinyakišišo yeo e tlogo netefatša gore o tla dula o le hlokaina.

### **Ge e le gore o dumela go ka tšea karolo mo go dinyakišišo tše, o tla:**

Kgopelwa go saena foromo ya tumelelano ye e lego ka mo fase gomme wa tšea karolo ka go dipoledišano.

**Ge e le gore o na le dipotšišo dife goba dife, goba mathata ao a amanago le phatišišo ye, ikopanye le:**

Monyakišiši mogolo: V Mashele go 0761925557

Aterese ya Emeili: [nemakhavhanivictoria@gmail.com](mailto:nemakhavhanivictoria@gmail.com)

Mookamedi: GJO Marincowitz go 083 231 2011

Nyakišišo e dumeletšwe ke Komiti ya Maitshwaro ya Dinyakišišo ya Turfloop mmogo le Komiti ya Maitshwaro ya Kgoro ya Maphelo ya Profense.

Re leboga ge o re file sebaka sa go tšea karolo ka go dinyakišišo. Ka kgopelo, hwetša foromo ya tumelano gomme o e tlatše.

## Annexure 5A: Consent Form (English version)

I have read and have been told about the aims and objectives of the proposed study and was provided with the opportunity to ask questions. The purpose and objectives of the study are sufficiently clear to me. I have not been pressurized to participate in the study in any way.

I understand that even if I decide to participate now, I can withdraw at any time without consequences of any kind. This will not have any influence on the treatment and care that I receive from the doctor.

I understand that participation involves individual interviews and agree to my interview being audio-recorded.

I understand that all information I provide for this study will be treated confidentially, and my identity will remain anonymous.

I know that the study has been approved by the Turfloop Research Ethics Committee and the Provincial Department of Health Ethics Committee.

I am fully aware that the results of this study will be used for scientific purposes and may be published. I agree with this, provided my privacy is guaranteed.

**I hereby give consent to participate in this study.**

<b>Name &amp; surname of participant</b>	<b>Signature</b>	<b>Date and time</b>	<b>Place</b>
.....	.....	.....	.....

<b>Witness</b>	<b>Signature</b>	<b>Date and time</b>	<b>Place</b>
.....	.....	.....	.....

### Statement by the Researcher

- I provided verbal/ written information regarding this Study.
- I agree to answer any future questions concerning the Study as best as I can.
- I will adhere to the approved protocol.

<b>Name &amp; surname of researcher</b>	<b>Signature</b>	<b>Date and time</b>	<b>Place</b>
.....	.....	.....	.....

## Annexure 5B: Consent Form (Sepedi version)

Ke badile, e bile ke hlalositšwe ka maikemišetšo le dinepo tša dinyakišišo tše di šišintšwego gape ke ile ka fiwa sebaka sa go ka botšiša dipotšišo. Morero le dinepo tša dinyakišišo, di tloga di hlakile e le gabotse mo go nna. Ga se nke ka bewa ka tlase ga kgatelelo go ka tšea karolo go dinyakišišo tše bjang goba bjang. Ke kwešiša gabotse gore le ge nka dumela go tšea karolo, nka no ikogogela morago nako e nngwe le e nngwe ge ke nyaka ntle le ditlamorago tše dingwe le tše dingwe. Se se ka se be le khuetšo efe goba efe go kalafo yeo ke e hwetšago go tšwa go ngaka.

Ke kwešiša gore go tšea karolo ga ka go akaretša dipoledišano le nna gomme ke dumela gore mantšu a dipoledišano tša a ka gatišwa.

Ke kwešiša gore tshedimošo kamoka yeo ke fanago ka yona e tla dula e le lekunutu, le gona ke tla dula ke le hlokaina.

Ke a tseba gore nyakišišo e dumeletšwe ke Komiti ya Maitshwaro ya Dinyakišišo ya Turfloop mmogo le Komiti ya Maitshwaro ya Kgoro ya Maphelo ya Profense. Ke tloga ke tseba ka botlalo gore dipoelo tša dinyakišišo tše di tla šomišwa bakeng sa merero ya saense le gona di ka phatlalatšwa. Ke dumelelana le se ge feela polokego ya ka e tiišeditšwe.

**Ke fa go tsenela kwano ya go ka tšea karolo ka go dinyakišišo tše.**

**Leina le Sefane sa motšeakarolo    Mosaeno    Tšatšikgwedi le nako    Lefelo**

.....

**Hlatse    Mosaeno    Tšatšikgwedi le Nako    Lefelo**

.....

### **Setatamente sa Monyakišiši**

- Ke fane ka tshedimošo ya molomo/go ngwalwa mabapi le Nyakišišo ye.
- Ke dumela go ka araba dipotšišo tše di ka bago gona kamoso mabapi le Nyakišišo ye ka tshwanelo ka mokgwa woo nka kgonago.
- Ke tla latela magato ao a dumeletšwego kamoka.

**Leina la Monyakišiši    Mosaeno    Tšatšikgwedi le Nako    Lefelo**

.....

## **Annexure 6: Exploratory interview guide questions**

### **Exploratory question ( english)**

What has helped you to take your ART medication as prescribed since you have been started on ARVs?

What challenges have you faced that hindered you from taking your ART medication as prescribed?

### **(sepedi)**

Ke eng seo se go thušitšego go tšea dihlare tša ART bjale ka ge di laeditšwe go tloga mola e sa lego o thoma ka di ARV?

Ke ditlhotlo dife tšeo o gahlanego le tšona tšeo di go paledišitšego go tšea dihlare tša gago tša ART bjale ka ge di laeditšwe.

### **Interview guide with probing questions**

What has made it possible for you to take your ARVs as you have been advised by the doctor and the nurses here at the clinic?

What has hindered you from taking your ART medication as you have been advised by the doctor and the nurses here at the clinic?

Have you disclosed your status to anyone? Do you think it may help you to take your medication easily if your close family knows?

What influence does your fear that other people will know your status have on adherence to your medication?

Do you believe that the medication you are taking helps you?

Do you sometimes feel the medicine is hard for you to take / burden?

Have you ever experienced any side effects of the treatment? What were they and how did you deal with the side effects?

Is there anyone who reminds you or supports you to take your medication or you do it on your own?

How is the treatment at the clinic? Is there anything that hindered or helped you take your treatment well at the clinic from the health care providers?

Do you feel the distance you stay from the clinic has had an influence on your adherence to treatment? How?

