NON-ADHERENCE TO ANTIRETROVIRAL THERAPY AMONGST ADULTS LIVING WITH HIV AND AIDS IN MAKHADO MUNICIPALITY IN VHEMBE DISTRICT, LIMPOPO PROVINCE.

BY

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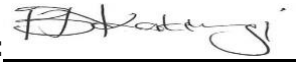
DECLARATION

I **Nkatingi BridgetNhlongolwane** (16010594), declare that the content in this mini dissertation titled: **"*Non-adherence to Antiretroviral therapy amongst adults living with HIV and AIDS in Makhado municipality in Vhembe District, Limpopo Province*"** is my own work and has never been done or presented in any university before. All sources used in this study have been fully acknowledged.

Signature: 

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DEDICATION

This dissertation is dedicated to my supervisors and my family who provided support throughout the study period. Their support gave me strength and courage to complete my task.

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LIST OF ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ARV	Anti-Retroviral Therapy
DOH	Department of Health
HIV	Human Immune Virus
HTS	HIV Testing Services
LTFU	Lost to follow up
NPAEs	Neuropsychiatric Adverse Events
TB	Tuberculosis
UNAIDS	United Nations on Human Immune Virus / Acquired Immunodeficiency Syndrome
SPSS	Statistical Package for Social Sciences
UTT	Universal Test and Treat
WHO	World Health Organization

ABSTRACT

South African HIV epidemic remains the largest in the world with an estimated 7.7 million people living with HIV in 2018. It accounts for a third of all new HIV infections in southern Africa. In 2018, there were 240,000 new HIV infections and about 71,000 South Africans died from AIDS-related illnesses. To meet the 90 90 90 targets by the end of 2020, patients are subject to uncompromising and long-term commitments of taking at least 95% of their treatment as prescribed. Evidence shows that patients are not adhering to treatment regardless of the systems that the government has initiated. The purpose of this study was to identify factors contributing to non-adherence levels to antiretroviral therapy amongst adults living with HIV and AIDS in Makhado Municipality. A quantitative, descriptive approach was adopted. Data was collected using a questionnaire with closed ended questions. The targeted population was made up of males and females between the ages of 18 to 59. Validity and reliability were ensured in the study. Pretesting was done in Kulani Gateway clinic and 10 respondents were selected. A sample of 225 respondents was selected from the targeted population using convenience sampling. Data analysis was done using statistical package for social sciences (SPSS) version 25.0.The analysed data were presented in tables/percentages and charts. The findings revealed that most respondents(80%) who have been on treatment for less than six months adhere more to treatment than respondents who have been on treatment for more than 24 months (57%). The studies also revealed that about 57.9% of respondents forget to take treatment when they have taken alcohol and 42.1% took their treatment even when they have taken alcohol. Side effects were identified as barriers to adherence. The study indicated most respondents (73.3%) experienced side effects especially in the first few months of commencing treatment. and about 26.7% did not report any side effects. In conclusion, Non-adherence to ART poses a major challenge in most regions of the world and in all stages of HIV infection. When patients adhere to treatment the virus will suppress, quality of life will improve and patients will also prevent cross infections. The study revealed factors contributing to non-adherence to ART that includes alcohol intake and side effects. The study also indicates a strong association between waiting times as a factor to improve on adherence. Therefore the study recommends that an intervention to address alcohol intake and side effects should be carried in Makhado Local Municipality.

Key words: Alcohol intake, Forgetfulness, HIV infections, Non-adherence, Side effects

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CHAPTER 1: INTRODUCTION

1.1 Introduction and Background

Antiretroviral Therapy refers to the combination of three or more drugs in treating HIV (World Health Organization, 2016).It requires that the patient must take the prescribed medication everyday (International Training and Education Centre on HIV, 2015).The Department of Health (2016) defines adherence as an extent on how a patient takes medication, follows a diet, executing behavioural modifications and agrees with the recommendations from a health care provider. For patients to be virally suppressed, they must adhere to treatment (Eyassu, Mothiba and Mbambo-Kekana, 2016). Viral load suppression is an important component as it reduces risks for secondary transmission as well as improving the quality of life in patients with HIV infection (Haider et al, 2019).

Poor adherence to ART poses a major challenge in most regions of the world and in all stages of HIV infection. There are many factors that can contribute to non-adherence to ART e.g. forgetfulness, depression, changes in daily routine, substance and alcohol abuse and lack of interest to take medication; social support because of HIV related stigma and discrimination; medication related factors including adverse events and dietary restrictions and health system related factors like distance to clinic, long waiting times (World Health Organization, 2015).

Globally, it was estimatedthat36.7 million people were living with HIV in 2014 (United Nations on HIV/AIDS, 2016). The incidence of HIV continues to decline worldwide. An estimation of 2.1 million people was infected with HIV in 2015 which was fewer when compared to 3.2 million in 2010 (UNAIDS, 2016). In 2018, around 770 000 people died from AIDS-related illnesses worldwide when compared to 1.7 million in 2004 and 1.2 million [860 000–1.6 million] in 2010 (UNAIDS, 2019). Regardless of the decline in HIV related deaths, around 33% to 38% of HIV infected adults globally do not adhere to treatment regimens of ART (Rai, et al 2013).Poor adherence leads to an increased morbidity and compromised quality of life in HIV patients (Ayalew et al, 2016).

In 2013, it was estimated that2.1 million people were infected with HIV in fifteen countries which are South Africa 16%, Nigeria 10%, Uganda 7%, India 6%, Mozambique 5%, Kenya 5%, Russian Federation 4%, Indonesia 4%, United Republic of Tanzania 3%, Zimbabwe 3%, China 3%, Zambia 3%, United States 2%, Cameroon 2% and Brazil 2% representing 75% of new HIV infections globally (United Nations on HIV/AIDS, 2014).

In low and middle income countries, around 9.7 million people living with HIV were receiving ART in 2012 (WHO, 2014). The decline was caused by increased access to ART, care and support to people living with HIV and fewer new infections. The global decline in deaths from

AIDS-related illness has largely been driven by progress in sub-Saharan Africa, particularly eastern and southern Africa, with 53% of the world's people living with HIV (UNAIDS, 2019). Sub-Saharan Africa accounted for 74% of the 1.5 million AIDS related deaths in 2013 (Kharsany and Karim, 2016). Ojwang et al (2016) indicated that 57% patients were documented as lost to follow up (LTFU), of whom 26% were LTFU immediately after enrolment.

South Africa HIV epidemic remains the largest in the world with an estimated 7.7 million people living with HIV in 2018. It accounts for a third of all new HIV infections in southern Africa. In 2018, there were 240,000 new HIV infections and about 71,000 South Africans died from AIDS-related illnesses (Avert, 2018).

Statistics South Africa (2015) estimated that in 2015 AIDS related deaths was 162 445 showing a decline when compared to 2002 (271 419). In South Africa, it was estimated that the population in 2002 was 45 860 000 with the HIV prevalence of 4.02 million (8.8%). In 2015, South Africa had a population of 54 956 900 with a prevalence of 6.19 million (11.2%) showing an increase when compared 2002 (Statistics South Africa, 2015). Around 74% of adult patients in Africa are retained in ART two years after starting treatment. In South Africa, there are signs that adult retention on ART is deteriorating over calendar time, and patients who started ART more recently likely to be lost than those who initiated in earlier years (Rosen and Fox, 2014).

For the period of 2014/2015 in Limpopo Province, 79 524 patients were initiated on ART which exceeded the target of 46 000. Again, for the very same period, the total number of patients who were on ART reached 236506(4.1%) and the population was at 5726800, which was an increase of 12506 (5.3%) from the previous financial year 2013/2014. The prevalence of HIV in Limpopo in 2008 was estimated at 9.2% which was below the national estimate of 29.5%. Limpopo Province ranges the third lowest province with HIV prevalence (Limpopo Annual Progress report, 2016). Mberi et al (2015) indicate that there is high lost to follow up of patients after ART initiation with a retention of 82% in the first 2 years and 55% in 5 years.

The prevalence of HIV in 2014 was at 6.2% in Vhembe (Vhembe District Municipality, 2017). Poor adherence to ART may accelerate the development of drug resistant HIV. It is important to identify factors that reduce adherence to ART for patients to have prolonged viral load suppression and to live longer (Eyassu et al, 2016).

1.2 Problem statement

Burns and Groove (2010) define a research problem as an area of concern, where there is a gap in the knowledge base needed for practice. Rai et al (2013) indicate that the rate of mortality fourfold higher amongst patients who were not adhering to ART. Poor adherence to medication has negative outcomes such as medication failure, viral mutations and the development of drug resistance, which further complicate the already limited second- and third-line treatment options available for patients (Azia, Mukumbang & Van Wyk 2016; Murphy et al 2010). When patients adhere to ART, they will live longer, their health will improve, drug resistance will be reduced and there will be a decrease in HIV transmission ((Eyassu et al, 2016).

Ending the AIDS epidemic by 2030 requires that patients must not interrupt their lifelong treatment. Countries must meet the 90 90 90 targets by 2020 (90% of people living with HIV know their status, 90% of people diagnosed with HIV are on ART and 90% of people on ART must have their viral load suppressed) (UNAIDS, 2014).

In her place of work, the researcher has noticed that patients are not adhering to treatment. About one third of the patients are lost to follow up and out of 344 patients who are active on ART, 28 patients viral load is not suppressing and 6 patients were switched to second line regimen (Department of Health Vhembe district, 2016). During presentations in HIV and AIDS meetings in Makhado Municipality, the researcher has also noticed that many patients are lost to follow up. Based on observations, the researcher wants to investigate further reasons for patients not adhering to treatment.

1.3 Rationale of the study

Non-adherence to ART treatment impacts negatively on the quality of life of the individual patients. The roles of adult HIV/AIDS patients as breadwinners of their families and as a productive part of the Vhembe District's labour force may also be severely affected with untoward consequences. Studies have been done to investigate factors that influence adherence to ART internationally and nationally. However, no study has been conducted specifically in Makhado Municipality. Azia, Mukumbang & Van Wyk, (2016) suggests that further quantitative investigations should be carried out to quantify the extent to which known factors impede adherence in the community.

It is therefore necessary to assess factors responsible for non-adherence to ARV treatment in adult HIV/AIDS patients in clinics.

1.4 Significance of the study

The findings of this study may facilitate the understanding of the factors associated with non-adherence with ART therapy in adult patients in Makhado Municipality. In addition, the

knowledge gained from this study may aid the district's health policy makers in reviewing the policy guideline on adherence. Finally, the results of this study will also add to the existing body of knowledge on factors contributing to non-adherence of ARV treatment in adult patients in the Vhembe District.

1.5 Aim of the study

This section addresses the research purpose and objectives

1.5.1 Purpose

To identify factors contributing to non-adherence levels to antiretroviral therapy amongst adults living with HIV and AIDS in Makhado Municipality in Vhembe District, Limpopo Province, South Africa.

1.5.2 Objectives

The objectives of the study were to:

- Determine patient related factors contributing to non-adherence to ART
- Identify the socio-cultural factors leading to non-adherence to ART
- Discuss health related factors to improve on adherence to ART

1.6 Operational definition of terms

Adherence – Department of Health (2016) defines adherence as an extent on how a patient takes medication, follows a diet, executing behavioural modifications and agrees with the recommendations from a health care provider. In this study, adherence refers to a patient who is using antiretroviral therapy, honours appointment, takes medication as prescribed and follows the recommendations made by a health care worker.

Antiretroviral therapy–it refers to the combination of at least three antiretroviral (ARV) drugs to maximally suppress the HIV virus and stop the progression of HIV (WHO, 2013). In this study, antiretroviral therapy refers to the drugs that are given to an HIV positive patient.

Factors – The Oxford Dictionary (2015) defines factors as circumstances, facts or influences that contribute to a result. In this study, it refers to the drivers that make or affect a client to adhere to ART.

Patient related factors -According to Nduaguba, Soremekun, Olugbake, and Barner (2017), it includes socio-economic, health care team and system-related, condition-related, therapy-related, and patient-related factors. In this study, patient related factors are socio demographic, socioeconomic, and psychosocial, knowledge and side effects.

Non-adherence –Non-adherence to treatment may be defined as the extent to which the patient's history of therapeutic drug-taking does not coincide with the prescribed treatment

(WHO,2003). In this study, non-adherence means a patient is not honouring appointments and is failing to follow prescribed treatment instructions.

Patient - WHO (2011) defines a patient as a person who receives health care services. In this study, patient refers to a person who is HIV positive and in need of care from the health care provider.

Viral load suppression – refers to an undetectable viral load to a person who is using ART (AIDSinfo, 2015). In this study, it refers to a viral load that is less than 100copies/ml to a patient who is on ART.

1.7 Conclusion

This chapter discusses the background of the study, problem statement, rationale and significance, purpose and objectives of the study. Definitions of terms were also outlined.

1.8 Structure of the study

Chapter 1: introduction and background of the study

This chapter provides the background of the study, problem statement, rationale and significance, purpose and objectives of the study as well as the definitions of terms.

Chapter 2: Literature review

This chapter presents literature review related to the topic.

Chapter 3: Research design and methodology

This chapter provides a blue print of how the study was conducted. It includes research design, study area, study population, inclusion and exclusion criteria, sampling, research instrument, data collection, data analysis, ethical consideration and dissemination of results.

Chapter 4: Data analysis and presentation of data

This chapter comprises of the presentation and analysis of collected data.

Chapter 5: Discussion, summary of findings, conclusion and recommendations

This chapter provides a discussion of findings, summary, conclusion and recommendation.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

AIDS info (2014) reveals that some patients may fail to fill up the prescription. Even when the treatment is filled, the patient may take treatment incorrectly or forget. Patients may forget a dose completely or prematurely terminate treatment. If the regimen fails, it will result in poor health outcome for the patient impacting morbidity and mortality. It may also lead to increased health care costs due to compromised treatment as the patient will be switched to regimen two. The long-term risks of developing drug resistance to first line regimens due to poor adherence is a major public health concern (Department of Health, 2016).

The researcher reviewed, analysed and scrutinized some of the studies that have been conducted about the reasons for non-adherence by patients who are using ART and examined factors that will improve adherence to ART.

2.2 Patient related factors contributing to non-adherence

Patient-related factors can negatively affect adherence to treatment e.g. alcohol abuse and smoking, emotional distress, forgetfulness, confusion, fatigue and hard labour (Azia et al, 2016).

2.2.1 Socio demographic factors

Socio demographic factors like age, gender, race, income, education and literacy may impact on adherence (Silva, Dourado, Brito and Silva, 2015). USAID (2018) stated that globally, there were almost 90 000 more new HIV infections among men than women in 2017.

Mukui et al (2016) found that age was also significantly associated with adherence. Non-adherence was associated with being aged 15–29 years when compared to being 30–64 years. Older people do not think like young ones resulting in decrease to treatment adherence (Letta, Demissie, Oljira, and Dessie 2015). Higher odds of virological failure was observed among patients aged <35 years and were on treatment for a longer period (Bayu et al, 2017).

2.2.2 Socioeconomic factors

Socioeconomic status like poor living conditions, poverty, unemployment and financial problems are associated with poor adherence to ART (Mahlalela, 2014).

Patients with an average income were more likely to adhere to treatment than those who earned less average income. This may indicate that lower level income is exposed to psychological issues that may interfere with adherence. Even patients with higher level income might not adhere to treatment because of busy work and not being at home

periodically (Letta et al, 2015). Semvusa et al (2017) state that non-adherence was associated with younger age and unemployment.

Financial constraints by patients pose a great challenge to adherence of ART. Patients may miss appointment dates because of not having money for transport (Dekeda, 2014).Patients within 0–1 km distance to the health facility were more likely to miss a visit, due to stigma of attending clinic within one's community. These results suggest that Community Based Accompaniment may resolve the impact of long distances on outcomes (Munyanedza et al, 2018). Unemployment can lead to depression hence making it difficult for patients to adhere to treatment (Tsega, Srikanth and Shewamene, 2015).

2.2.3 Knowledge on ART adherence

Martiana, Waluyo and Yona, (2019), discovered that ART knowledge correlated positively with adherence (p = 0.010; α = 0.05). Regression analysis also showed that ART knowledge is an important factor in influencing ART adherence (OR = 2.817). Patients had information on ART from listening to radios, watching television, reading newspapers, through family members, from health care facilities and awareness campaigns. Information has helped them to improve their attitudes and perceptions towards ART (Ehiemua, 2014).

2.2.4 Psychosocial factors

Siefried et al (2019) found that in Australia, psychosocial factors are associated with poor HIV outcomes in adults.

2.2.4.1 Confusion and forgetfulness

Confusion and forgetfulness can compromise patients' adherence to a treatment. It has been reported that other patients have difficulties in understanding instructions leading to treatment not being correctly taken. Misunderstanding can happen because of a complex regimen or poor instruction from the health care provider (Mitiku, Abdosh, and Teklemariam, 2013). Other patients just fall asleep and the time for taking treatment passes (Asmare, Aychiluhem, Ayana and Jara, 2014).

Tsega et al (2015) indicates that forgetfulness was one reasons for poor adherence to medications. Patients can forget or become confused due to stress. Remembering can be improved by good behaviours like physical exercise, good sleep habits, and avoidance of substance use/abuse, medication adherence, and intellectual stimulation as they are essential to the maintenance of good health.

2.2.4.2 Depression

Depressed patients usually experience hopelessness and demoralization that can expose them to forgetting their treatment. Poor adherence to medication has also been linked with

depressive symptoms, abuse of alcohol and the use of intravenous drugs (Betancur, Lins, de Oliveira and Brites 2017; Gary et al, 2015; Letta et al, 2015).

2.2.4.3 Substance abuse

Consumption of alcohol and the use of drugs are associated with treatment non-adherence (Weitzman, Ziemnik, Huang &Levy, 2015). Other patients on ART are discouraged by their partners not to take treatment when they have taken alcohol as they believe that treatment and alcohol are not supposed to be mixed (Conroy et al, 2017). Kader et al, (2015) finds that there is a prediction of missing and stopping ARVs inpatients that used alcohol and drugs. There was an association of decreasedCD4 counts and more rapid HIV-disease progression and poorer health outcomes in patients who used alcohol (Kader et al, 2015). Non-adherence results were observed by Schensul et al (2017) indicated that patients skipped medication for fear of disclosure of HIV status when drinking with friends.

2.2.5 Side effects

Fonsah et al, (2017) demonstrated that drug side-effects are associated with increased risk of non-adherence, and when compared to females, males were more likely to forget ART because of side effects ($p<0.05$). The incidence of Neuropsychiatric Adverse Events (NPAEs) is high in patients who are initiated on efavirenz-containing medications, exceeding 50% in most studies. NPAEs tend to decrease after the first month in many patients, and they can persist for long periods in others (Dalwadi et al, 2018).Clients discontinue therapy or request for a change in medication. Another reason for non-adherence was that patients felt that the drugs were poisonous and they wanted to avoid the side effects (Asmare et al 2014).

2.3 Socio-cultural factors

Weaver et al (2016) found that social support was independently associated with adherence to ART.

2.3.1Stigma and discrimination

UNAIDS (2014) describes HIV related stigma as a negative belief, feelings and attitude towards patients living with HIV, group of people who are associated with HIV/AIDS and other key populations at higher risks of HIV infection. HIV related discrimination refers to the unfair and unjust treatment of an individual based on how he or she is perceived (UNAIDS, 2014). Experiencing discrimination in healthcare settings may contribute to internalization of HIV-related stigma, which in turn may lead to depressive symptoms and poor adherence among HIV positive patients (Turan et al, 2017).Datta, Bhattacherjee, SherPa, and Banik (2016) discovered that in their study population there was moderate to low stigma and regression analysis. This shows that being on ART treatment contributes towards stigma.

Many patients experienced HIV-related stigma in school, at work, within their communities, and in their inter-personal relationships (Mathew, Boonsuk, Dandu, & Sohn, 2019).

2.3.1.1 Disclosure of HIV status

Disclosure of HIV status to other family members is essential to successful adherence. This supported by Cluver et al (2015) who states that early and full disclosure is associated with improved adherence amongst ART initiated adolescents. Tsega, (2015) says that patients who tell their family members about their HIV status get more support and help. Similarly, Buregyeya et al, (2017) observes that HIV status disclosure to partners by pregnant women on lifelong antiretroviral therapy was associated with increased spousal support. Clearly, disclosure of HIV status may be linked to improved health outcomes for people living with HIV. However, Daskalopoulou et al (2017) indicates that non-disclosure of HIV status is not associated with non-adherence to ART.

2.3.2 Family and social support

Family support plays a vital role in patients' adherence to treatment. This is a point made by Letta et al, (2015) who states that patients who disclose their HIV status to family and friends receive support resulting in long term positive influence in their adherence.

On the other hand, Dejman et al (2015) found that family and social support have a great potential impact on adherence. It seems that the identification and focusing on social and family problems of affected people not only is it an important factor for disease prevention and control, but it also allows patients to have a better response to complications caused by HIV/AIDS.

2.3.4 Religious and cultural beliefs

Ketema and Weret (2015) indicate that most patients participate in spiritual activities on a weekly basis or at least occasionally. Patients had problems of taking medication while attending spiritual services. Other patients did not take their medication at all because they were afraid of taking ARV drugs at a religious place. Arrey, Bilsen, Lacor, and Deschepper, (2016) found that some respondents strongly believed that God would help them cope with their illness without adhering to the treatment schedule. They found that many women believed that God heals in different ways and using antiretroviral therapy is another way God uses to heal them through the wisdom of the care providers.

Patients practicing fasting said that the medication schedule was not compatible with the fasting period which then led them to skip treatment. Other patients said that they cannot use ARVs while using holy water. For example, Kebede and Shewangizaw, (2015) indicate that 73 (25.9%) respondents in their study reported that it is not convenient to take

medication while using holy water.51 (69.9%) of the respondents feared using ARV drugs and holy water at the same time. Regarding spiritual belief some patients believed that prayer can cure HIV and reasoned that HIV is a result of sin or punishment from God (Ketema & Weret, 2015).

2.4 Health care system factors to improve on ART adherence

These are factors that can impact positively to patients for them to take the prescribed medication including patient provider relationship and the operation of the clinic (Department of Health, 2016).

2.4.1 Patient provider relationship

Brion (2014) argues that patient provider relationship, overall satisfaction and trust by the patient to the health care providers, health care providers' willingness to include the patient in the decision-making process, patients' opinion on the health care providers and health care providers' competency, can affect adherence to ART. Similarly, Graham et al (2015) says that patients with higher trust are more likely to be retained in HIV care.

2.4.2 Waiting time

Long waiting time at a health facility has a negative impact on both attendances at the clinic and treatment adherence. Ehiemua (2014) observes that patients spend many hours at the health care facilities and argues that this practice is unacceptable. Patients also stated that the long hours are keeping them away from school and work. David et al (2016) indicates that long queues at clinics pose a major challenge among adolescents who want to access ART.

It is reported that the Department of Health has introduced adherence clubs to address the lengthy waiting times for chronic patients at facilities (Department of Health, 2016). Patients, with a stable condition were grouped together for routine check-ups and to collect their medications. The clubs are managed by a lay health care worker either in a health facility or in the community. Group members emotionally support one another.

Repeat prescription collection was also introduced whereby stable patients received treatment for 2 months. Fast lane appointments and Chronic Medication Delivery is also part of the strategy. It allows stable patients to collect their medication at the pharmacy without waiting for long hours thus reducing patients' waiting times. This also helps to reduce the overcrowding at health facilities. Clients who are eligible must be stable on treatment and qualify for fast lane appointment and/or medication delivery. Many facilities make use of Central Chronic Medicine Dispensing and Distribution which is a private service provider

responsible for the delivery of chronic medications to clients whose conditions are controlled in the community (Department of Health, 2016).

2.4.3 Pill reminder system

The use of a pill reminder system like cell phones, watches and TV can assist patients to take their treatment resulting in treatment adherence. Stankievich, Malanca, Foradori, Ivalo, and Losso, (2018), support this view stating that the use of mobile devices is a valid tool to improve ART adherence in HIV positive paediatric and young adults.

2.4.4 M-Health

Abdulrahman et al (2017) argue that the use of cost-effective and acceptable solutions like mobile phone text messaging can be a reminder tool to keep patients engaged, thereby promoting their adherence to ART. The Department of Health (2016) adherence guideline states that WhatsApp adherence support to clients who are stable on treatment can be started for the newly diagnosed who want repeat prescription collection strategies like spaced and fast lane appointment system, adherence clubs and decentralised medicine delivery. WhatsApp adherence support has a power of supporting patients in their treatment journey and can keep them connected to clinicians, non-clinicians and peer support. This strategy works if patients have cell phones. Finitsis, Pellowski & Johnson (2014) are of the opinion that text messaging can also support patients to adhere to treatment when dates match with the patients' schedule.

2.5 Theoretical framework

Nziva (2013) argues that the aim of a theoretical framework is to make scientific findings more meaningful and generalizable.

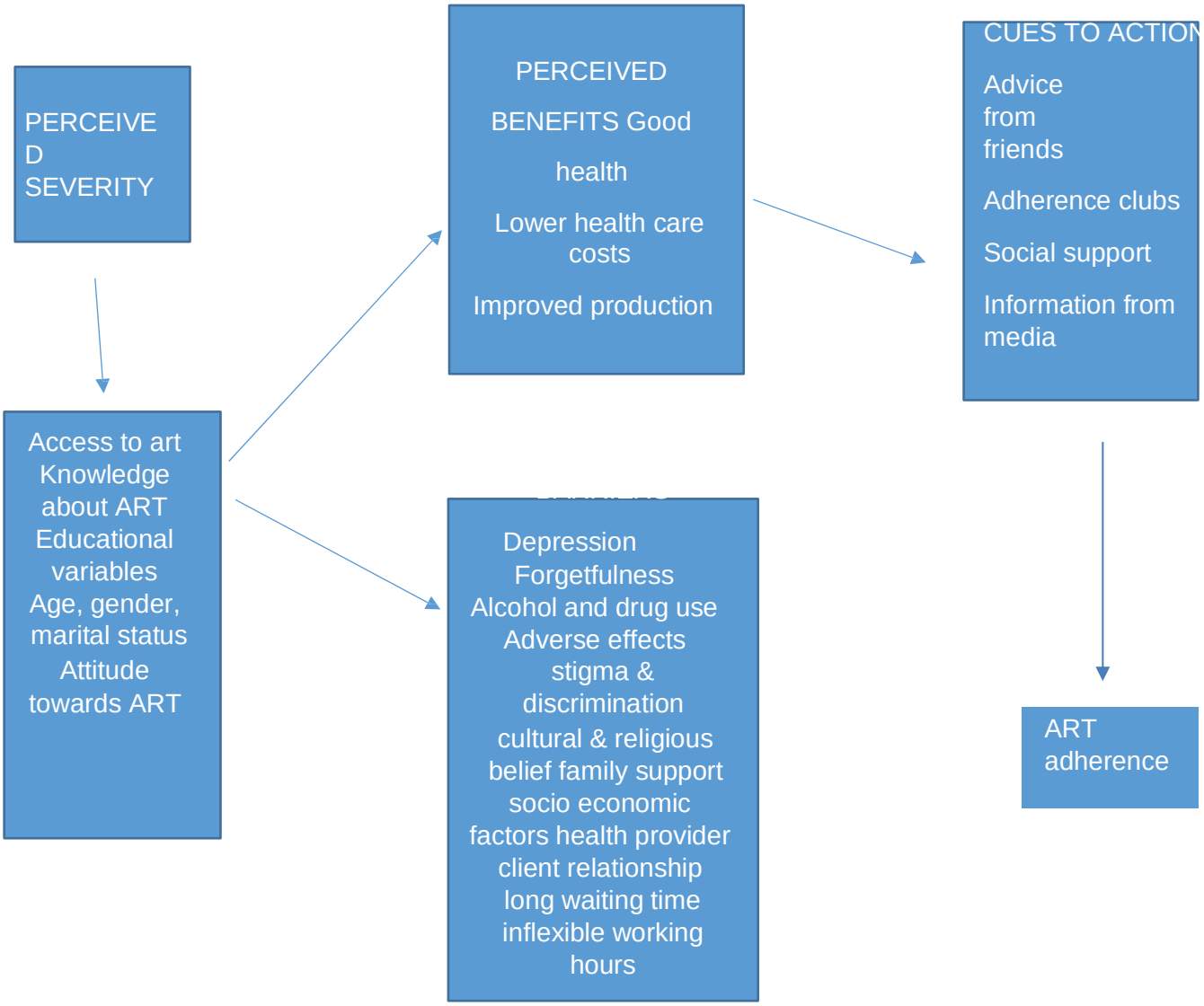
Nziva (2013) further defines a Health Belief Model (HBM) as a psychosocial model that attempts to explain and predict individual health behaviour by focusing on the attitude and beliefs of individuals. The Health Belief Model was originally developed as a systematic method to explain and predict preventive health behaviour in the early 1950s by the United States public health researchers (Skinner, Tiro and Champion 2015).The HBM focuses on the relationship of health behaviours, practices and utilization of health services. The HBM was revised to include general health motivation for distinguishing illness and sick-role behaviour from health behaviour (Ayers et al, 2014).

The Health Belief Model focuses on two aspects of individuals' representations of health and health behaviour, that is, threat perception and behavioural evaluation. Threat perception can be explained by two sets of beliefs which are perceived susceptibility to illness or health problems, and anticipated severity of the consequences of illnesses. The second aspect, behavioural evaluation also consist of two distinct sets of beliefs that include those

concerning the benefits or efficacy of a recommended health behaviour, and those concerning the costs of, or barriers to change the behaviour. In addition, the model proposed that when appropriate beliefs are held, health behaviour can be activated by cues to action. Cues to action can include individual perceptions of symptoms, social influence, and health education campaigns (Abraham and Sheeran, 2015).

The HBM has been applied in the prediction of health behaviours among a wide range of populations. Three areas of behaviour have been identified: the first one is preventive health behaviours that include health promotion like diet, exercise and health-risk (e.g. smoking) behaviours and vaccination and contraceptives practices. The second health behaviour is sick role/adherence behaviours e.g. use of chronic medication. The third health behaviour clinics use, include physician visits for a variety of reasons (Abraham and Sheeran, 2015). The sick role/adherence behaviour can also be influenced by perceptions, attitudes and beliefs of an individual. Nziva (2013) observes that if these factors are not addressed or reinforced, they may lead to non-adherence.

Figure. 1. Conceptual framework based on the Health Belief Model and Literature Review



Source*: Literature Review and Health Belief Model.* Skinner*, Tiro and Champion (2015) (modified by the author*

2.6 Conclusion

In this chapter literature related to the study topic was reviewed and the objectives of the study were presented. This includes patient related factors and the socio-cultural factors leading to non-adherence to ART and health related factors to improve on adherence to ART and the conceptual framework.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses how the study was conducted. It includes research design, study area, study population, inclusion and exclusion criteria, sampling, research instrument, data collection, data analysis, ethical consideration and dissemination of results.

3.2 Study design

The study used cross sectional descriptive design to determine factors contributing to non-adherence to antiretroviral. The researcher adopted a quantitative technique as it is more reliable and objective. Achala (2016) states that in quantitative studies, the researcher uses statistics to generalise findings, looks at relationships between variables and establishes cause and effect in highly controlled circumstances.

3.3 Study area

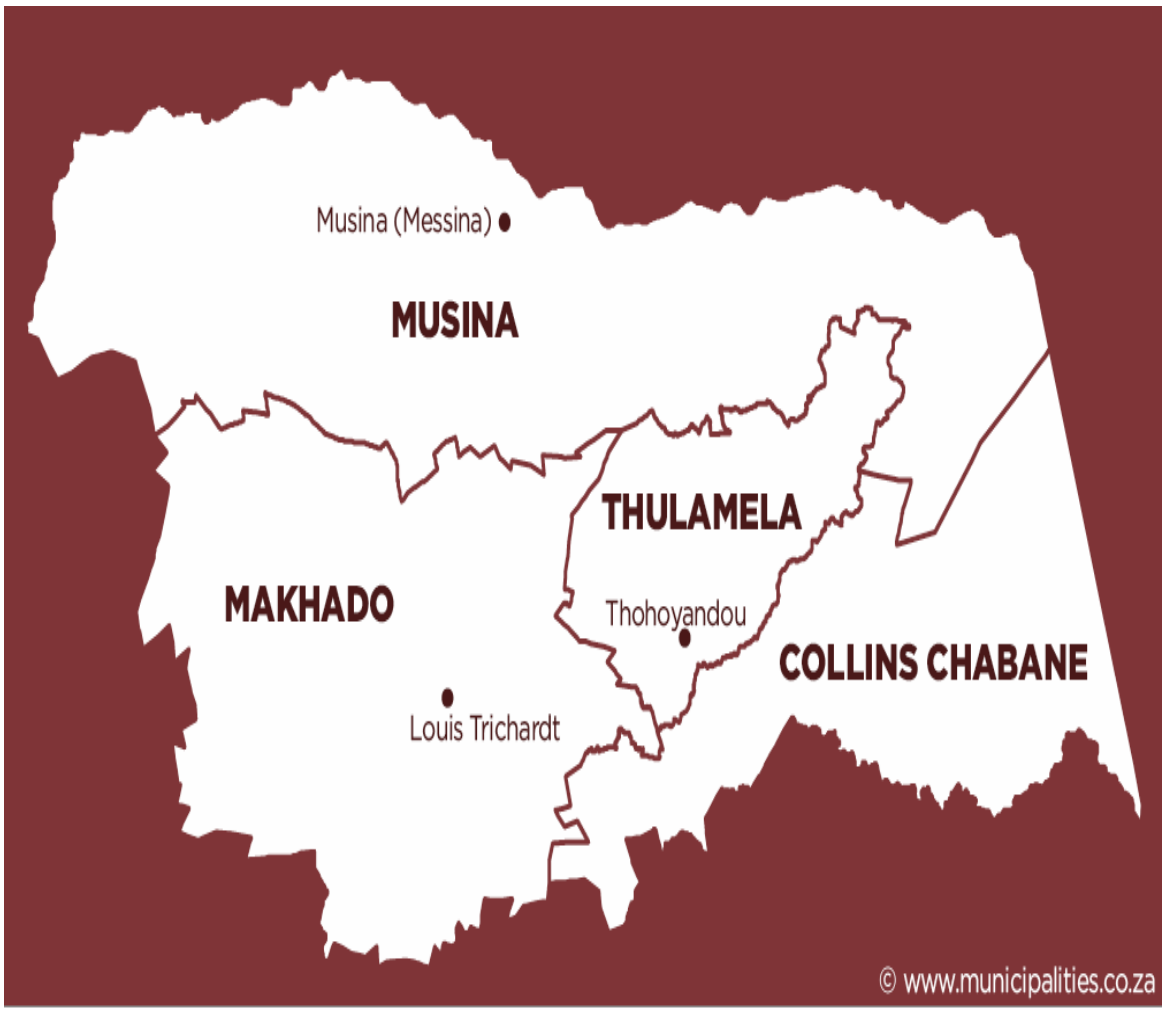
The researcher conducted the study in the Makhado Local Municipality. This is one of the four local municipalities in Vhembe District, Limpopo Province, South Africa. In the north of Makhado there is Musina, Giyani in the South which is part of Mopani District, Thulamela in the east and Molemole in the west which is in Capricorn District (Makhado Local Municipality, 2014). The municipality is divided into seven local areas with 44 clinics, 3 health centres, 3 district hospitals and 16 mobile health facilities as shown in Figure 2.

Makhado Local Municipality (2014) indicates that Makhado Local Municipality has a population of 516 036 people with the female gender constituting 54.11% and it is expected to have a population of 561 343 by 2020.

Unemployment rate in the Makhado Municipality is 36.7%, which is higher than the national of 24.3% in 2011. The number of patients on antiretrovirals has quadrupled from 4 013 to 15 108 between 2010 and 2013 (Massyn et al, 2015).

There are four languages that are commonly used in Makhado, which are English, Afrikaans, Tshivenda and Xitsonga. However, for the purpose of the study I used English and Xitsonga as most of the respondents were able to read and write in both languages.

Figure 2. Map of Vhembe District



Source: Wikipedia, the free encyclopedia. Accessed 25/01/2016

3.4 Study population

Burns and Groove (2010) state that study population refers to the entire group of individuals or subjects that the researcher is interested to conduct a study. In this study, the population of interest was 1329 patients who were on ART aged between 18 and 59 years at the three hospitals ARV clinics in Siloam, Elim and Louis Trichardt Memorial (DOH, 2017). The total number of patients from Elim Hospital were 581, Siloam hospital 379 and Louis Trichardt Memorial 369. The researcher divided the total by 3 to get the mean. The mean was 1329/3 = 443 and this was the population size. From my observation, most of these patients were working class and active and therefore with a possibility of not adhering to treatment unlike the younger ones who were given treatment by parents or caregivers.

3.5 Sample size

Singh and Masuku (2014) indicate that Slovins formula has been formulated to determine the sample size if there is uncertainty about the population. N is the population size, n is the sample size, and e is the level of error. In this study, e is 0.05: $n = N/1+ (N (e)^2)$

$n = N/1+ (N (e)^2)$

$=443 / 1 + (443 (0.05)^2)$

$=443 / 2.5$

$=210.2 = 210$

n(sample size) = 210

The table below indicates the sample size per hospital

Table 1: Sample size per hospital

Hospital	Population in each hospital	Sample size in each hospital	Percentage
Elim hospital	581 / 1329 X100	210 X 43.7 / 100 = 92	43.7%
Siloam hospital	379 / 1329 X100	210 X 28.5 / 100 = 60	28.5%
Louis Trichardt Memorial hospital	369 / 1329 X100	210 X 27.8 /100 = 58	27.8%
Total	1329	210	100%

3.6 Sampling method

The researcher used convenience sampling to select subjects from the population to avoid visiting the hospital for many days. The total number of patients for the day was requested to participate in the study. Thirty to forty respondents attended each day. The researcher visited each hospital for two days. The sample size was increased by 15 to cover non-responses, making the sample size to be 225.

3.7 Criteria of inclusion

Patients aged between 18 and 59 years accessing care at ART sites at Elim, Louis Trichardt Memorial and Siloam hospitals were requested to participate in the study.

3.8 Exclusion criteria

Respondents who were not ready to participate due to fear of stigmatization despite ethical considerations were not included in the study. All patients who were unable to read and write English and Xitsonga were excluded from the study.

3.9 Measurement instrument

The researcher used a questionnaire as it is one of the instruments for data collection. A structured questionnaire was used. General rules on completing the questionnaire and the importance of filling-in all questions were written on it. Each questionnaire was accompanied by an information sheet explaining the purpose of the study. The questionnaire was divided into three sections: patient related factors, sociocultural factors and health care system factors that will improve adherence to ART. The questionnaires were printed in English version as well as the local version to accommodate those who might not understand English. For those who couldn't read and write, they were assisted by the researcher. The researcher developed the questionnaire in English based on various literature reviews. A structured questionnaire was used. The data collection instrument for this study is attached in both English and Xitsonga (Annexure 1).

3.10 Validity and Reliability

The researcher ensured validity and reliability in selecting there search instrument because an instrument that cannot yield reliable results cannot be valid. LoBiondo-Wood and Haber (2014) define validity as the ability of an instrument to accurately measure what is supposed to measure. According to Babbie (2010) reliability is the accuracy and consistency of a measurement, a matter of whether a particular technique applied repeatedly to the same object will yield the same result each time. The researcher selected Kulani Gateway clinic as a pilot site and administered the questionnaire to ten respondents before commencing with the actual project. The ten respondents of the pilot study did not form part of the main study.

3.10.1 Validity

The researcher ensured validity by means of face and content validity.

3.10.1.1 Face validity

The researcher presented the questionnaire to the supervisors, departmental seminars, and higher degrees' committee to ensure face validity. The feedback that she received assisted her in modifying the instrument.

3.10.1.2 Content validity

LoBiondo-Wood & Haber (2014) observes that content validity is an assessment of an instrument, how accurately the instrument represents all the variables to be measured. To test for content validity, the researcher constructed the questionnaire after extensive literature review. The researcher consulted a panel of experts, among the panel; there were managers from HIV/AIDS, supervisors and lecturers from the Department of Public Health and fellow students who had access to the questionnaire during Departmental Seminar Presentations. The feedback that the researcher received assisted her in modifying the instrument.

3.10.2 Reliability

The instrument was administered to the pre-tested group (10 respondents). The ten respondents did not form part of the main study. The researcher tested the instrument to ensure that it measures what it supposed to measure. The instrument had missing information and some other questions were not necessary and they were removed. The researcher did a retest with the same respondents. They were given the questionnaire to measure its accuracy and consistency. The statistical test of the instrument was tested using test re-test method of reliability testing. The questionnaire was distributed among respondents after two weeks to ensure reliability. The main aim in administering the questionnaire after 2weeks was to avoid repetition of answers already given. This was to ensure that respondents did not memorize the questionnaire.

3.11 Pre-test

The instrument was pre-tested at Kulani Gateway clinic at Elim Hospital. It is a gateway clinic inside the hospital. The clinic is next to the researcher's study area and it offers treatment to HIV positive patients. The researcher selected 10 respondents on whom a pre-test was done. Subsequently, these did not form part of the final study. The aim of the pre-test was to adjust the questionnaire so that the researcher could make corrections where necessary as guided by the comments of the participants.

3.12 Method of data collection

The researcher visited the hospitals for 6 working days to collect data; two days per hospital. The patients who came for treatment and follow up were requested to participate in the study. The researcher grouped them in a hall and distributed the questionnaires. The nature, purpose and ethical considerations were explained in full to the respondents.

The respondents filled in the questionnaires while the researcher was on standby to clarify matters for respondents. The researcher helped the illiterate by recording their responses in the questionnaire. After completion, the respondents handed over the questionnaire to the researcher.

3.13 Data analysis

The data was collected, captured, edited, cleaned, and coded by the researcher. All questionnaires were coded. The Chi-squared test was used to test for association and comparison of proportions. The Statistical Package for Social Sciences (SPSS) version 25.0 software was used to analyse data. Statistical significance level was set at $P>0.05$. Cross tabulations were done to analyse relationships between independent variables (Age, gender, marital status and attitude towards ART, socioeconomic and psychosocial factors) and dependent variable (non-adherence to antiretroviral). Analysed results were presented in the form of tables/percentages, bar graphs and pie charts.

3.14 Ethical considerations

Ethical considerations were ensured throughout the study to protect the rights of the respondents. The researcher sought permission to conduct the study. Informed consent, voluntary participation, confidentiality, privacy and protection of the respondents from any harm were considered.

3.14.1 Permission to conduct the study

The researcher presented the proposal to the School of Public Health and to the University of Venda Higher Degrees Committee for quality assurance and approval. Approval was granted. An application was made to the Research Ethics Committee of the University of Venda for ethical clearance to conduct the study (Annexure 4). Request for permission to conduct the study was sent to the Provincial Department of Health (Annexure 5). Another request for permission to conduct the study was sent to the Vhembe district (Annexure 6).

3.14.2 Informed consent

The respondents were required to sign a consent form before taking part in the study to indicate that they understood the nature and process of the study (Annexure 3). Before obtaining written consent forms, respondents were provided with information regarding the purpose and objectives of the study, the time it will take to fill out the questionnaire and that participating was voluntary (Annexure 2). Respondents who participated were given the consent forms to complete.

3.14.3 Voluntary participation

Respondents were informed that participation was voluntary. The researcher ensured that they knew that participating in the study was being done on their own free will. Respondents were told that they had a right to withdraw from being part of the study at any time should they feel uncomfortable or threatened during the research process.

3.14.4 Confidentiality and Privacy

To ensure confidentiality, respondents were informed that the consent form would be put separately from the questionnaire to ensure that their names were not traced back to their questionnaires. They were assured that the information they provided would only be accessed by the researcher and the supervisors, and that questionnaires would be kept in a lockable cupboard where no other person would access them.

To ensure privacy, respondents were given consent forms, a questionnaire and two envelopes. After completing the documents, they put them in separate envelopes, sealed them and handed them back to the researcher. They were advised not to write their names on the questionnaires. The researcher explained to the respondents who could not write that

their names would not be written in the questionnaire. They were also told that the completed consent forms on their behalf would be put in a separate envelope.

3.14.5 Protection of participants from any harm

Doody & Noony (2016) state that when using humans as research subjects, respondents have a right to be free from any harm, whether physical, emotional, spiritual, economic, social or legal. Any ethnic, religious, political, social, gender or other differences in a research population should be sensitively and properly handled by researcher during all stages of the research. The researcher ensured that questions were non-judgmental. The researcher was on guard against any possible danger by ensuring that respondents were in a closed hall while completing the questionnaires and treated them with respect.

3.15 Dissemination of the results

The final copy of the dissertation will be submitted to the University of Venda library for access by other researchers. Another copy will be handed over to Vhembe District offices. The results of the study will be presented at workshops and seminars, provincial, national, and international conferences. The researcher will also present the results to Vhembe District HIV/AIDS, STI and TB forums.

3.16 Conclusion

The methodology of this study was discussed in this chapter. The following chapter presents the results of the study.

CHAPTER 4: RESULTS

4.1 Introduction

This chapter presents the results of the study. The results are presented under the following sections: patient related factors to adherence, sociocultural factors and factors to improve on adherence.

4.2 Patient related factors contributing to non-adherence to ART

4.2.1 Demographic characteristics

The descriptive characteristics of the entire sample (n=225) are presented in Table 4.1. Out of the 225 respondents, more than two-thirds, 153 (68%) of the respondents were females and 72 (32%) respondents were males. Thus, the survey respondents were mainly females. The majority of respondents, 82 (36.4%) their age range from was between 25 to 35. One hundred and eighteen (52.4%) of the respondents were single and 83 (36.9%) were married. In relation to educational qualification, 138 respondents (61.3%) had high school education and 11 (4.9%) had never attended school. At 164 (79.2%), most respondents were unemployed, and only 56 (21.8%) were employed.

The study indicates that 88 (39.1%) of the respondents were diagnosed with HIV more than 24 months ago whilst 37 (16.4%) were diagnosed less than 6 months ago. Many respondents were diagnosed with HIV when they felt sick 136 (60.4%). Respondents who initiated ART for more than 24 months were 78 (34.7%). Most respondents, 179 (79.6%), expressed a desire to be completely healed and be free from ART treatment. Only 27 (12%) of the respondents indicated that they had no problem in taking treatment for the rest of their lives.

Table 4.1: Demographic characteristics (n=225)

Variable	**Category**	**Frequency**	**Percentages**
Sex	Male	72	32
	Female	153	68
Age	18 – 24	22	9.8
	25 – 35	82	36.4
	36 – 45	70	31.1
	45 – 59	51	22.7
Marital status	Single	118	52.4
	Married	83	36.9
	Divorced	4	1.8
	Separated	9	4
	Other	6	2.7
Level of education	Never attended school	11	4.9
	Primary school	57	25.3
	High school	138	61.3
	College/ University	15	6.7
Employment status	Employed	56	24.9
	Unemployed	164	72.9
Average income per month	Less than 5000	34	15.1
	5000 – 9999	13	5.8
	10000 to 15000	6	2.7
	More than 15000	3	1.3
Year diagnosed with HIV	Less than 6 months ago	37	16.4
	6 months to 12 months ago	48	21.3
	13 months to 24 months ago	52	23.1
	More than 24 months ago	88	39.1
What made you decide to go for testing	Was sick/undergoing treatment	136	60.4
	Partner positive	15	6.7
	Pregnant	51	22.7
	Wanted to know your HIV Status	22	9.8
ART start period	Less than 6 months ago	37	16.4
	6 months to 12 months ago	49	21.8
	12 months to 24months ago	60	26.7
	More than 24 months ago	78	34.7
Desire in stopping ART treatment	Yes	179	79.6
	No	27	12

Table 4.2 shows the association of demographic characteristics with non-adherence to ART. Out of the 37 respondents who had started treatment in less than six months, 28 (75.6%) respondents were adhering to treatment and 9 (24.4%) respondents were not adhering to treatment. Fifty eight respondents (74.3%) who were on treatment for more than 24 months were not adhering to treatment, only 20 (25.6%) respondents indicated that they were adhering to treatment. It is noted that there is a significant relationship between the treatment start date and non-adherence to ART (P=0.000).

Table 4.2 Association of demographic characteristics and non-adherence

			Non-adherence		
Variables	Category	Total	Yes	No	chi square P value
Age	• 18-24 • 25-35 • 36-45 • 46-59	22 (9.8%) 82 (36.4%) 70 (31.1%) 51 (22.7%)	16 (7.1%) 48 (21.3%) 44 (19.5%) 33 (14.7%)	6 (2.7%) 34 15.1%) 26 (11.6%) 18 (8%)	0.650
Sex	• Male • Female	72 (32%) 153 (68%)	44 (19.6%) 97 (43.1%)	28 (12.4%) 56 (24.9%)	0.741
Educational qualification	• Never attended school • Primary school • High school • College/university	11 (5%) 57(25.8%) 138(62.4%) 15 (6.8%)	8 (3.6%) 41 (18.6%) 83 (37.6%) 6 (2.7%)	3 (1.4%) 16 (7.2%) 55 (24.9%) 9 (4.1%)	0.102
Employment status	• Employed • Unemployed	57 (25.3%) 164 (72.8%)	35 (15.9%) 102 (46.4%)	22(9.7%) 62 (28.2%)	0.968
Reason for test	• Was sick/undergoing treatment • Partner positive • Pregnant • Felt that you wanted to know your HIV status	137(60.8%) 15 (6.7%) 51 (22.7%) 22 (9.8%)	90 (40.2%) 8 (3.6%) 32 (14.3%) 11 (4.9%)	47(20.6%) 7 (3.1%) 19(8.5%) 11 (4.9%)	0.426
Treatment start	• < 6 months • 6 to 12 months • 13 to 24 months • > 24 months	35 (16.4%) 51 (22.6%) 61 (27.1%) 78 (33.7%)	9 (4%) 32 (14.2%) 42 (18.6%) 58(25.6%)	28 (12.4%) 17 (7.5%) 18 (8%) 20(8.8%)	0.000

4.2.2 Psychosocial status

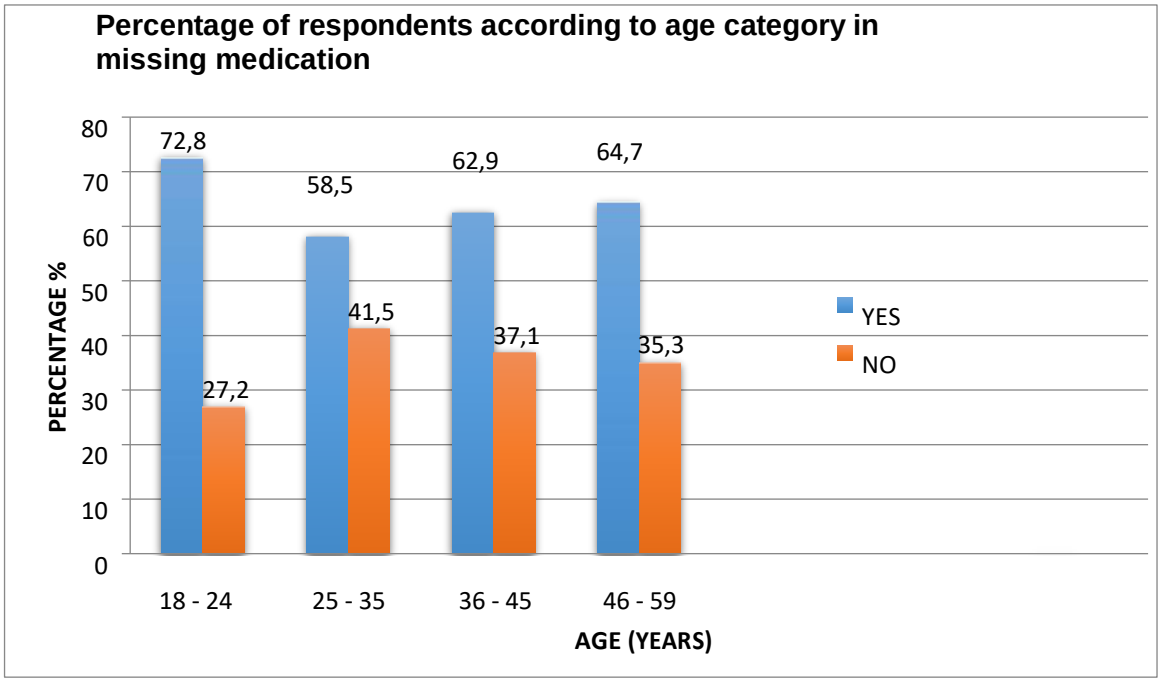
Table 4.3shows that one hundred and forty six respondents (64.9%) have missed their treatment and 79 (33.1%) have never missed treatment. Ninety two (63%) missed their treatment for less than one week. Figure 1, indicates the number of patients who missed treatment according to age category. Across all the age groups, patients missed treatment.

Table 4.3: Missing of treatment (n=225)

Variable	Category	Frequency	Percentages
Ever missed your medication	Yes	146	64.9
	No	79	33.1
Last time you missed your treatment	Less than 1 week	92	63.0
	1-2 weeks	42	28.7
	2-4 weeks	10	6.8
	More than 1 month	2	1.4

Figure 4.1 indicates the percentage of respondents who missed their treatment according to age category. The highest percentage in missing treatment is in the category of 18 – 24 years with 72.8% (13 respondents). The second age category of respondents who missed their treatment was 45 -59 ages with 67.4% (132 respondents).

Figure 4.1: Respondents who missed their medication according to age category



4.2.2.1Alcohol intake as a factor of non-adherence to ART

Most respondents, 161 (40.9%) did not take alcohol in the past twelve months. Fifty seven (25.3%) of the respondents indicated that they have taken alcohol and only two (0.9%) respondents were taking alcohol every day. Out of those who take alcohol, 33 (57.9%) forget to take treatment when they have taken alcohol and 26 (42.1%) take their treatment every day. It is noted that a significant relationship was observed between taking alcohol and forgetting to take treatment (p=0.000).

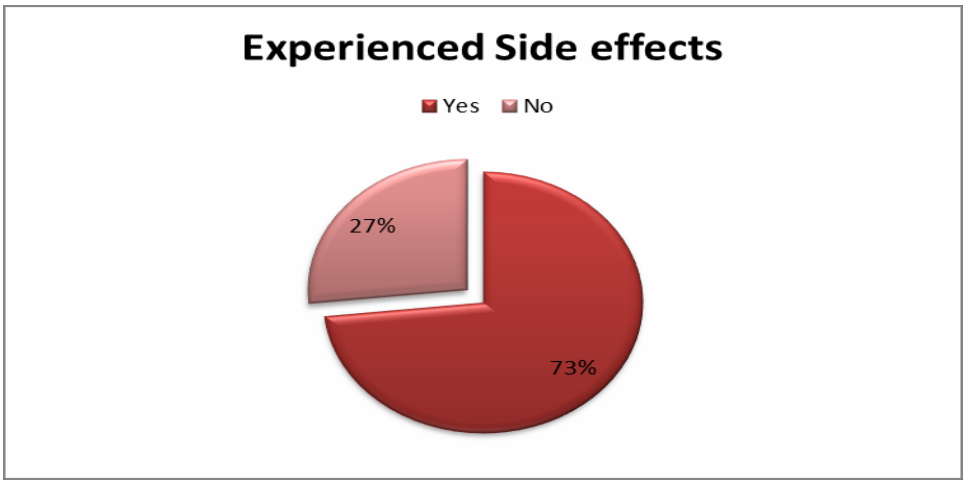
Table 4.4 Alcohol intake as a factor of non-adherence to ART (n=218)

Forgetting to take treatment after taking alcohol					
Variable	Category	Total	Yes	No	p-value
Alcohol intake in the past 12 months	Not at all	161 (71.6%)	14.7%	11.6%	0.000
	Just a sip	12 (21%)			
	Once a week	34(59.6%)			
	Once per month	9(15.8%)			
	Almost everyday	2(3.5%)			

4.2.2.2 Side effects as a factor of non–adherence

The study indicates that 165 (73%) respondents have experienced side effects especially in the first few months of commencing treatment and 60 (27%) did not report any side effects. Figure 4.2 shows the percentages of respondents who experienced side effects versus those who have not.

Figure 4.2: Have you ever experienced side effects



The findings shown in figure 4.3 indicate that amongst 165 (73%) respondents who experienced side effects, 116 (70%) thought of quitting treatment and 49 (30%) did not think of quitting medication.

Figure 4.3: Have you ever thought of quitting medication due to unpleasant effects?

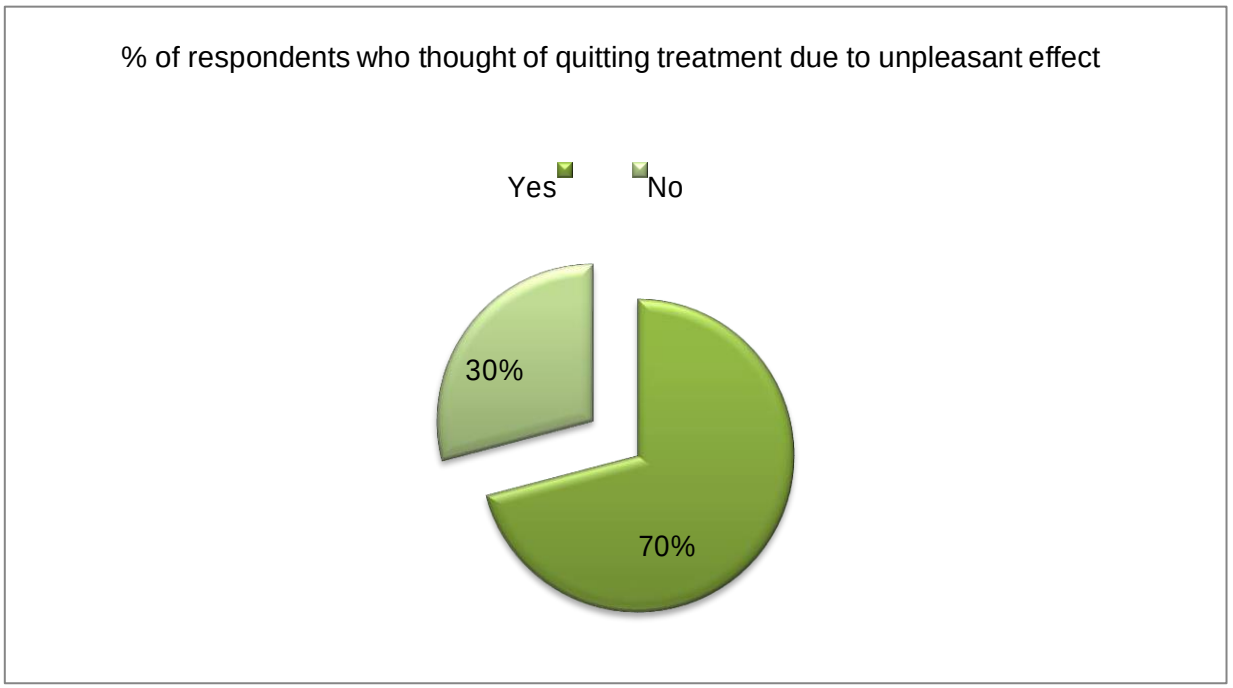


Table4.5.Shows the association between age and side effects. Statistically, there is a relationship between age and side effects (p=0.030).

Table 4.5: Association of age and side effects in non-adherence

Side effects					
Variable	Category	Total	Yes	No	p-value
Age	18 – 24	22 (9.8%)	70.3%	29.6%	0.030
	25 – 35	82(36.4%)			
	36 – 45	70(31.1%)			
	45 – 59	51(22.7%)			

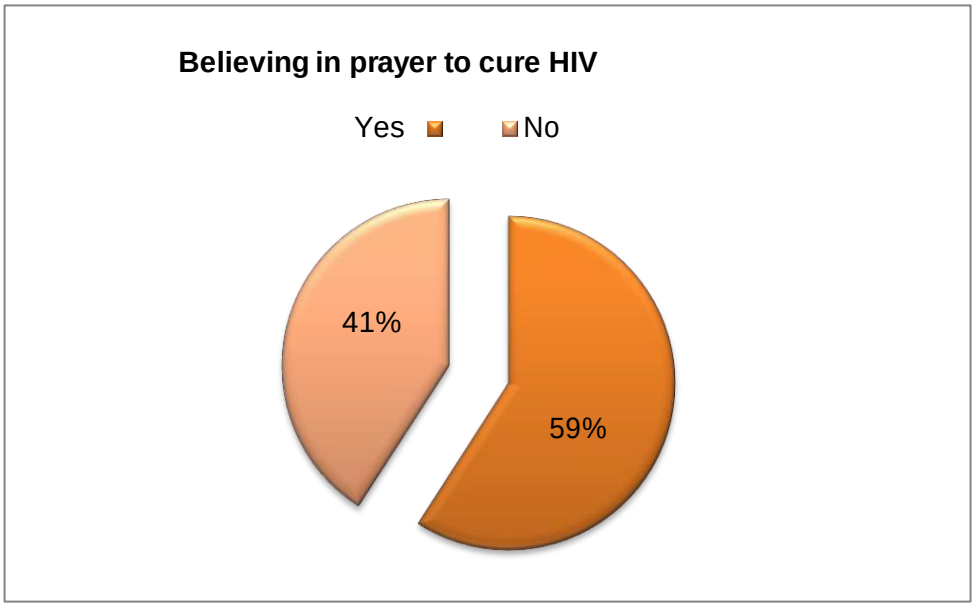
4.3 Socio-cultural factors contributing to non-adherence

Not disclosing one's HIV status and religious background are some sociocultural factors that contribute to non-adherence to a treatment regimen.

4.3.1 Believing in prayer to cure HIV

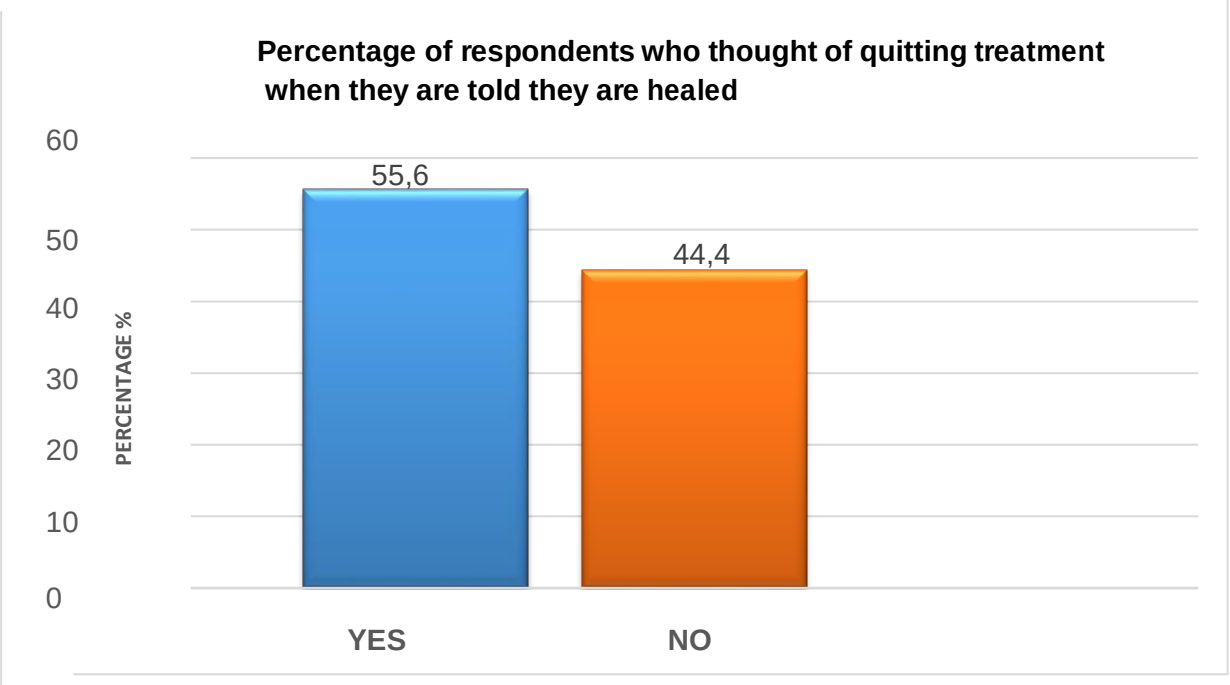
One hundred and thirty three respondents (59%) believe that prayer can cure HIV and 92 (41%) of respondents do not believe that prayer can cure HIV. Results are shown in figure 4.4

Figure 4.4 Do you believe that prayer can cure HIV



Out of the 133 who believed that prayer can cure HIV, only 59 (44.4%) respondents thought of quitting medication when they were told that they were healed and 74 (55.6%) said they will never quit medication as indicated in Figure 4.5.

Figure 4.5 Respondents who thought of quitting medication when they were told that they were healed of HIV



4.3.1 Disclosure of HIV status

One hundred and ninety five (86.7%) respondents had disclosed their HIV status and only 30 (13.3%) had not. A significant relationship was observed between disclosure of HIV status and missing of treatment (p=0.012) in Table 4.6.

Table 4.6 Association of disclosure with non-adherence

	Non-adherence				
Variables	Category	Total	Yes	No	Chi square P value
Disclosure	Yes No	195 30	116 25	79 5	0.012

4.4 Factors to improve adherence to ART

4.4.1 Hours spent at the clinic

Table 3 indicates that most respondents visit health care facilities monthly, 200 (88.9%) with 24 (10.7%) bi-monthly. One hundred and seventy four (77.3%) respondents spend less than an hour in the facility with only five (2.2%) who indicated that they spend 3 to 4 hours in the facility. A significant relationship was noted between hours spent at the clinic and improvement on adherence to ART (p=0.000) table 4.7. Most patients were satisfied with the hours that they spent at the clinic. The study indicated that most patients, 195 (86.7%), use cellular phones as a pill reminder and only eight (3.6%) use T.V.

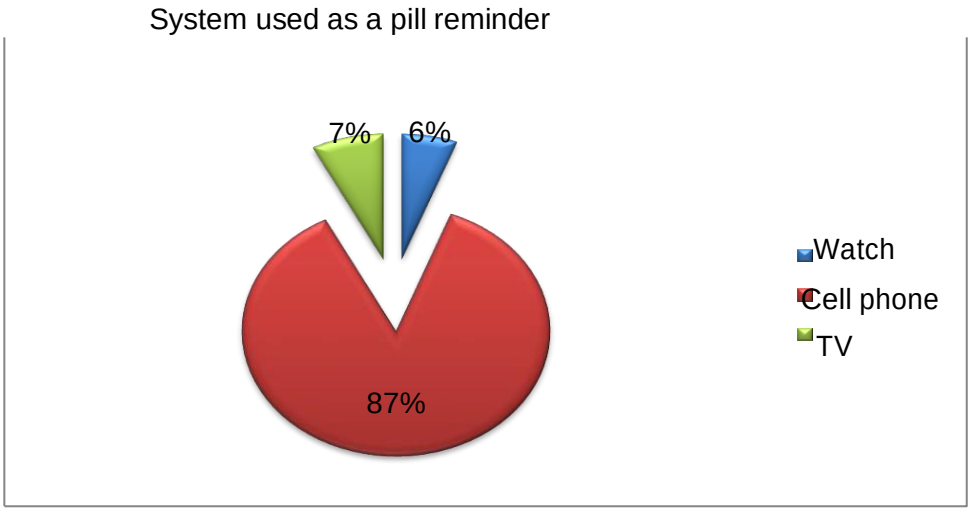
Table 4.7: Hours spent at the clinic and the adherence to ART

		It keeps me away from work	Discourages from continuing with treatment	Other	p-value
How many hours do you spend in the clinic before getting medication?	1 - 2 hours	4	3	90	0.000
	3 - 4 hours	4	2	18	
	More than 4 hours	4	1	0	
Total		12	6	108	

4.4.2 System used as a pill reminder

One hundred and ninety five (87%) respondents indicated that they use cell phones to remind them to take their treatment, 17 (7%) respondents use TV and 13 (6%) respondents use a watch as shown in Figure 4.5

Figure 4.5: What do you use to remind you to take treatment



4.4.3 Counseling received before ART started

Two hundred and seven (92%) respondents indicated that they received counselling before being initiated on treatment. 181 (80.4%) respondents indicated that counselling before treatment is necessary.

4.4.4 Decanting strategies

Most respondents completed on decanting strategies. These are strategies that assist in reducing waiting hours at the clinic leading to improved keeping of appointments in the facility. Fifty three (23.6%) obtained their medication from the Centre for Chronic Medication Distribution and Dispersion, 6 (2.7%) from Spaced Fast Lane and 3 (1.3%) from Adherence Club. One hundred and sixty three (72%) respondents did not complete anything on the decanting strategy.

4.5 Conclusion

This chapter presented and analysed data collected from health care facilities in the Vhembe District, South Africa. The next chapter discusses the results using existing literature and presents the limitations and makes recommendations of the study.

CHAPTER 5: DISCUSSION AND RECOMMENDATION

5.1 Introduction

This chapter presents the discussion of the findings guided by what other researchers have written on the subject. Limitations and recommendations of the study are also presented.

5.2. Demographic characteristics

Demographic data by gender revealed that more females (68%) than males (32%) participated in the study. The difference in sex distribution of respondents might have been due to the sampling approach (convenient) that was used for the study. The difference sex distribution of respondents could also suggest that there are more HIV positive females than males who access health facilities. This finding concurs with USAID's (2018), observation that globally, there were almost 90 000 more new HIV infections among women than men in 2017.

Majority of respondents are aged between 25 – 35 years (36.4). And it might be due to the reason that this age group is more sexually active. It is in line with the study done by Chukwujekwu, David, Eugenia and Greg (2017) they also found majority of the respondents (50.3 %) were between ages 25 to 34 years.

The study indicates that respondents who have been on treatment for more than 24 months (57%) does not adhere to treatment as compared to 80% of the respondents who have been on treatment for less than six months. When the viral load is suppressed the patients is able to perform the daily duties and this might be the reason that they are not adhering to treatment as they consider themselves that they are healed. The virus will start multiplying and the treatment might fail to suppress the virus leading to virological failure. The results concur with a study by Bayu et al (2017), they stated that patients who were on treatment for longer period were not adhering to treatment hence they had virological failure.

5.2.2 Psychosocial factors

The study indicates that 57% of patients who take alcohol forget to take their treatment after drinking alcohol. Weitzman, Ziemnik, Huang & Levy (2015) also found that patients forget to take their treatment after drinking alcohol. Alcohol intake seems to be a barrier to treatment adherence. Drinking alcohol is a serious issue amongst patients on ART as they forget to take their treatment after alcohol consumption. There are patients who even after counseling and being initiated on ART continue to take alcohol and in worse cases in higher volumes as a coping mechanism. With such patients, it is very difficult to adhere to the treatment regimen as they will be in a drunken state or feel guilty to own up to their bad choices. This

observation is in line with Weitzman et al (2015) who argue that consumption of alcohol and the use of drugs are associated with treatment non-adherence.

The study also found that 59% of the respondents indicated that they believe that prayer can cure HIV. Out of the 59% who believed that prayer can cure HIV, 56.6% of the respondents indicated that they would quit treatment if they were told that they had been miraculouslyhealed.Only44.4%of the respondents indicated that they would not quit their treatment if they were told that they had been healed through prayer. This finding differs from what was discovered by Arrey, Bilsen, Lacor, and Deschepper, (2016) where respondents with strong faith and belief in God also believe that God heals in different ways. They therefore viewed antiretroviral therapy as God's way of healing them through the wisdom of care providers. Respondents in the study by Arrey, Bilsen, Lacor, and Deschepper, (2016) perceived religion as an added benefit to be healthier when taking ART. The current study suggests that believing in prayer is a barrier since believing respondents might quit treatment when they are told that they are healed. This would suggest that respondents are not aware that ART only suppress the viral load and does not cure HIV.

Furthermore, the study shows an association between non-adherences to ART with side effects. Most patients (72.1%) thought of quitting medication due to side effects. Similarly, Fonsah et al, (2017), found that drug side-effects were associated with increased risk of non-adherence. Furthermore, Asmare et al (2014) also discovered that patients felt that the drugs were toxic and they wanted to avoid the side effects hence did not take the treatment (2018). This suggests that side effects are a barrier to treatment adherence. The study also revealed that at the younger patients experience lesser side effects than older ones.

5.3 Socio cultural factors contributing to non-adherence

Most respondents (86.7%) have disclosed their HIV status and only13.3%have not. Patients who disclose their HIV status were likely to be supported by family members than those who did not disclose their HIV status. Similar findings were reported by Yonah, Fredrick & Leyna (2014) whereby the rate of disclosure was high. Naigino et al, (2017) also found that spouses supported each other resulting in good adherence to ART by pregnant women. Disclosure of HIV status has benefits as the patient is supported by family members.

5.4 Strategies to improve on adherence

5.4.1 Long waiting time

In the study, most respondents (77.3) were spending lesser time at the clinic and it was acceptable to them. This seemed to be a factor that improved adherence to ART. However, David et al (2016) reported that long queues at clinics which then posed a major challenge among adolescent who wanted to access ART. Lesser waiting time is a benefit to the

respondents and it is likely to lead to better health outcome as patients adhere to the treatment schedule.

Furthermore, most respondents (87%) indicated that they use cell phones as a reminder for taking their treatment, 17 (7%) use TVs and 13 (6%) use watches. Similarly, Stankievich, Malanca, Foradori, Ivalo, and Losso, (2018) observed that the use of mobile devices is a valid tool to improve ART adherence in HIV positive paediatric patients and young adults. The reminders help patients take the treatment at the right time resulting in the suppression of the viral load and the living of healthier lives.

Most respondents (23.6%) obtained their medication from the Centre for Chronic Medication Distribution and Dispersion, 2.7%fromSpaced Fast Lane and 1.3% from Adherence Club. Most respondents (72.4%) did not complete anything on decanting strategy. Patients did not have adequate information on the available decanting strategies hence most of them did not attend to it. Adherence strategies will promote cues for action as patients would be well informed by sharing information with other patients in the clubs. The Department of Health (2016) introduced Adherence Clubs to address the lengthy waiting times for chronic patients at facilities. Patients who are stable in treatment were voluntarily grouped together for routine check-ups and to collect their repeat medications.

Repeat prescription collection was also introduced whereby stable patients received treatment for 2 months. Fast lane appointments and Chronic Medication Delivery is also part of the strategy. It allows patients who are stable in treatment to collect their medication at the pharmacy without waiting for long hours thus reducing waiting times and this helps to reduce overflows at health facilities. During the period of the study, the adherence guideline was poorly implemented because respondents did not have adequate information on decanting strategies as stated in the guideline.

5.5 Limitations of the study

Convenience sampling that was used in this study means that the findings of this study can only be used in the population from which the sample was drawn. The results cannot be generalized to all the HIV positive patients accessing ART from hospitals in Vhembe District, Limpopo Province or the rest of South Africa. It is however important to note that most of the findings are in line with those by other researchers elsewhere as discussed above. The findings can therefore be used in other settings like the one in which the study was conducted.

5.6 Conclusion

Factors contributing to non-adherence to ART in this study include alcohol intake and side effects. The study also indicates a strong association between waiting times as a factor to improved treatment adherence. Respondents did not have adequate information about decanting strategies to avoid long waiting hours at the facilities.

Most patients default on ART due to the treatment's side effects. Although symptoms differ, this ultimately leads to patients defaulting on treatment. Upon being initiated to ART, some patients are still too shocked to even take in the precautionary measures that come with ART.

In a more positive way, index testing would have attainable goals and disclosure would soon be a norm. However, much is yet to be achieved in terms of disclosure but it all starts with education, both formal and informal.

5.7 Recommendations

The recommendations below are based on the analysis of the study:

- Pamphlets depicting the dangers of alcohol should be handed out to patients and/or treatment supporters when patients start ART treatment.
- To retain alcoholic patients in care, enhanced adherence counseling should be conducted during every visit to reduce non-adherence.
- it is evident that HIV education is needed in our society as lot of people are testing positive for HIV but are unable to disclose because they fear being stigmatized. HIV education should be included in the basic education syllabus as part of the curriculum. This would simplify matters for primary caregivers to inform infected young patients much earlier in their lives before they become sexually active.
- Further studies should be conducted on treatment that should be taken once a month either in a form of a pill or injection as it would help patients adhere to the treatment schedule. Patients would only be required to take the medication once and have it work for 28 days without having to worry about popping pills every now and then. Furthermore, it would decrease and possibly eliminate the social ill of drug addicts misusing ART.

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ANNEXURE 1: QUESTIONNAIRE

TITLE: NON-ADHERENCE TO ANTIRETROVIRAL THERAPY AMONGST ADULTS LIVING WITH HIV AND AIDS INMAKHADO MUNICIPALITY IN VHEMBE DISTRICT, LIMPOPO PROVINCE

Questionnaire number: | | | |

Participant number | | | |

Date: | | | | | | | | |

INSTRUCTIONS:

Do not write your name in the questionnaire.

Complete the following items by ticking the appropriate response and by writing a short response where necessary.
Do not tear any page
Please answer every question

Give your most honest response to each question.
Complete the questionnaire in a black ballpoint pen.

SECTION A: DEMOGRAPHIC

1	Sex	Male	1
		Female	2
2	Age	18 – 24	1
		25 – 35	2
		36 – 45	3
		46 – 59	4
3	Marital status	Single	1
		Married	2
		Divorced	3

			Separated	4
			Other	5
4	Who do you live with?	Spouse		1
		Children		2
		Parents		3
		Others		4
Socioeconomic information				
5	What is your level of education?		Never attended school	1
			Primary school	2
			High school	3
			College/university	4
6	Employment status		Employed	1
			Unemployed	2
7	If employed, what is your average income in rands per month		Less than 5000	1
			5000 – 9999	2
			10000 to 15000	3
			More than 15000	4
Knowledge of ART				
8	When were you diagnosed with HIV?	Less than 6 months ago		1
		6 months to 12 months ago		2
		13 months to 24 months ago		3
		More than 24 months ago		4
9	What was the reason HIV testing?	Was sick/undergoing treatment		1
		Partner positive		2
		Pregnant		3
		Felt that you wanted to know your HIV status		4
		Others		5
10	When did you start treatment for HIV (ARVs)?		Less than 6 months ago	1
			6 months to 12 months ago	2
			12 months to 24months ago	3
			More than 24 months ago	4
11	How do you feel about your health since you		Better	1

	started with ART?	Same	2
		Worse	3
12	What would you say ARVs are used for?	Treat HIV	1
		Suppresses viral replication	2
		Prolong life	3
		I don't know	4
13	How did you hear about this medicine	Health facility	1
		Community awareness	2
		Radio	3
		Friend(s)	4
		Television	5
		Newspaper	6
		Posters	7
		Other specify	8
Psychosocial status			
14	Have you ever missed your medication?	Yes	1
		No	2
15	If yes, when was your last time you missed your Treatment	1-2 weeks	1
		2-4 weeks	2
		More than 1 month	3
16	In the past month, have you experienced any of the following? You can tick more than one	Feeling bad about yourself	1
		Poor appetite	2
		Feeling tired	3
		Trouble concentration on Anything	4
17	In the past twelve months, have you ever take an alcohol	Not at all	1
		Just a sip	2
		3 times a week	3
		Once per month	4

		2-4 times in a month	5
		Almost everyday	6
18	Is there any other medication you are taking apart from the ones given at the clinic (tick one)	Yes	1
		No	2
19	If yes, from where did you get the medicine? Tick One	Traditional medicines	1
		Homemade prepared Herbs	2
		Medicines from other Hospitals	3
		From the shops/ Pharmacy)	4
20	Since you started on ART, have you ever experienced any unpleasant effects suspected to have been caused by medication? Tick one	Yes	1
		No	2
21	If yes, when did you last experience the effect? Tick one	Less than 1 month	1
		1-3 months	2
		3-6 months	3
		More than 6 months	4
22	If yes, have you ever thought of stopping? Tick One	Yes	1
		No	2
SECTION B: SOCIOCULTURAL FACTORS			
23	Did you tell anyone that you have HIV?	Yes	1
		No	2
24	Do you have a treatment supporter?	Yes	1
		No	2
25	If yes, how are you related to the treatment supporter?	Spouse	1
		Friend	2
		Colleague	3
		Brother	4
		Sister	5
		Child	6
		Parents	7

		Grandparents	8
		Caregiver	9
26	What is your religious background?	Other – specify	1
		Muslim	2
		Hinduism	3
		African Religion	4
		Other	5
27	Do you believe that prayer can cure HIV?	Yes	1
		No	2
28	If yes, do you think of quitting medication?	Yes	1
		No	2
29	Do you practise fasting?	Yes	1
		No	2
30	If yes, do you take your treatment while on fast?	Yes	1
		No	2
SECTION C: FACTORS TO IMPROVE ADHERENCE TO ART			
31	How often do you visit the clinic?	Monthly	1
		Bi-monthly	2
		Other	3
32	How long do you spend in the clinic before obtaining medication?	Less than an hour	1
		1 – 2 hours	2
		3 – 4 hours	3
		More than 4 hours	4
33	Is it acceptable to you If no, why?	It keeps me away from work	1
		Discourages me from continuing with Treatment	2
		Other	3
34	What helps you to take your pills regularly and on time?	Friends	1
		Relatives	2
		Cell – phone	3

		Other – specify	4
35	Did you receive counseling before you started with ART	Yes	1
		No	2
36	If yes, how many counseling sessions did you have?		1
37	Who attended to you at the counseling sessions?	Nurses	1
		Lay counselors	2
		Doctors	3
		Social workers	4
38	Do you think counseling is necessary for patients on ART?	Yes	1
		No	2
39	Were you told about the side effects and Interaction of those drugs during counseling sessions?	Yes	1
		No	2
40	What system are you using as a pill reminder?	Watch	1
		Cell phone	2
		TV	3
41	Do you have any information about the following?	Adherence club	1
		Centre for chronic medication distribution and dispersion	2
		Spaced fast lane	3

ANNEXURE 1: PAPILA RA SWIVUTISO

NHLOKO-MHAKA: NON-ADHERENCE TO ANTIRETROVIRAL THERAPY AMONGST ADULTS LIVING WITH HIV AND AIDS IN MAKHADO MUNICIPALITY IN VHEMBE DISTRICT, LIMPOPO PROVINCE

Papila ra swivutiso: | | | |

Mungheneleri: | | | |

Siku: | | | | | | | | |

SWILERISO:

U nga tsali vito ra wena eka papilla leri.

Hlamula swivutiso leswi hi ku hetisiseka hi ku hlawula nhlamulo leyi faneleke ni ku tsala nhlamuselo yo komanyana laha swi faneleke.
U nga hlomuli papilla.
U komberiwa ku hlamula swivutiso hinkwaswo.

Nyika nhlamulo leyi nga ni ntiyiso wo helela eka xivutiso xin'wana ni xin'wana.
Hlamula swivutiso leswi hi xitsalo xa ntima.

XIYENGE XA A: DEMOGRAPHIC

1	Rimbewu	Wanuna	1
		Wansati	2
2	Malembe	18 – 24	1
		25 – 35	2
		36 – 45	3
		46 – 59	4
3	Xiyimo xa ta vukati	A wu le vukatini	1
		U le vukatini	2
		U thale vukati	3

			Mi hambanile	4
			Swin'wana	5
4	U tshama na mani?	Murhandziwa		1
		Vana		2
		Vatswari		3
		Van'wana		4
Xiyimo xa swa vuhlayiseki ni swa timali				
5	Xana u dyondze ku fikela kwihi?		A wu dyondzanga	4
			Tidyondzo ta le hansi	5
			Tidyondzo ta le henhla	1
			Kholichi / Yunivhesithi	2
6	Xiyimo xa ku thoriwa entirhweni		U thoriwile	3
			A wu thoriwanga	4
7	Loko u hola, xana u hola mali muni hi mpimo wa ti Rhandi		Ku hundza 5000	1
			5000 – 9999	2
			10000 ku fikela 15000	3
			Ku hundzisa 15000	4
Vutivi bya ART				
8	U tive rini hi ta xiyimo xa wena xa HIV?	Hansi ka tinweti ta 6		1
		6 ku fika ka 12 leti hundzeke		2
		13 ku fika ka 24 leti hundzeke		3
		Ku tlula tinhweti ta 24		4
9	I yini xi nga endla leswaku u kamberiwa	A wu vabya		1
		Muhlekisani a ri na xitsongwatsogwana		2
		Ku biha emirini		3
		U lava ku tiva xiyimo mayelana na HIV		4
		Swinwana		5
10	U sungule rini tiphilisi ta HIV (ARVs)?	Hansi ka tinweti ta 6		1
		6 ku fika ka 12 leti hundzeke		2
		13 ku fika ka 24 leti hundzeke		3
		Ku tlula tinhweti ta 24		4
11	Xana u ti twa njhani hi mpfhuka u sugula tiphilisi?		Ku antswa	1

		Ku fana	2
		Ku nyanya	3
12	Xana u tiva leswaku tiARVs ti tirha yini?	Ku tshungula HIV	1
		Ku hungutana ka Xitsongwatsongwana	2
		Ku hanya nkarhi wa ku leha	3
		A wu swi tivi	4
13	Xana tiphilisi leti u tit we kwihi?	Eklililiniki	1
		Hlangano hi swa rihanyo	2
		Radio	3
		Vanghana	4
		Thelevhixini	5
		Papilla ra mahungu	6
		Phositara	7
		Swinwana	8
Xiyimo xa ta miehleketo			
14	Xana u tshame u tlula ku nwa mapilisi?	Ina E-e	1
15	Loko swi ri tano, xana u hupe hi nkarhi wo tanihi kwihi?	1-2 wa mavhiki	2
		2-4 wa mavhiki	1
		Ku tlula nhweti	2
16	Eka nhweti leyi yi nga hela, xana aku vanga na swikombiso leswi swi landzelaka?	Ku ka u nga ti tsakeli	3
		Ku ka unga tsakeli Swakudya	1
		Ku karhala	2
		Ku tikeriwa ku landzelela	3
17	Eka tinhweti ta khuma mbirhi leti ti hundzeke, a wu se nwa byala?	Na kanwe	4
		Swintsongo	1
		Kanharhu hi vhiki	2

		Kanwe hi nhweti	3
		Kambirhi kumbe kanharhu hinhweti	4
		Masiku hinkwawo	5
18	A kun a mirhi yinwana u yi tekaka handle ka ti ARVs (hlawula xinwe)	Ina	6
		E-e	1
19	Xana mirhi leyi u yi teka kwihi tiphilisi? (hlawula xinwe)	N"anga ya xintu	2
		Tmintsu ta ku virisiwa ekaya	1
		Mirhi ya le xibedhlele	2
		Ku suka ekhemisini	3
20	Hi mpfhuka u sungula tiphilisi ta ART, a wu vanga na switandzhaku leswi vangiweke hi tiphilisi. (hlawula xinwe)	Ina	4
		E-e	1
21	Loko swi vile kona, xana swi vile kona rini? (hlawula xinwe)	Hansi ka nhweti yinwe	2
		1 ku fika ka 3 wa tinhweti	1
		3 ku fika ka 6 wa tinhweti	2
		Ku tlula tinhweti ta 6	3
22	Xana switandzhaku swi endlile leswaku u ehleketa ku tshika tiphilisi? (hlawula xinwe)	Ina	4
		E-e	1
		E-e	2
24	U na museketeri hi tlhelo ro nwa mapilisi?	Ina	1
		E-e	2
25	Loko a ri kona, mi xakelana njhani na munhu loyi?	Murhandzani	1
		Munghana	2
		Mutirhi-kuloni	3
		Makwenu wa xinuna	4
		Makwenu wa xisati	5
		N'wana	6

		Vatswari	7
		Vakokwana	8
		Muhlayisi wa swa rihanyo	9
26	U na ripfumelo muni ra swa vukhongeri?	Swin'wana – Hlamusela	1
		Muslim	2
		Hinduism	3
		Ripfumelo ra xintima	4
		Swin'wana	5
27	Wa pfumela leswaku xikhongelo xi nga tshungula HIV?	Ina	1
		E-e	2
28	Loko u pfumela, xana u kunguta ku tshika tipilisi ke?	Ina	1
		E-e	2
29	Wa nghenelela eka timhaka to titsona swakudya?	Ina	1
		E-e	2
30	Loko u nghenelela, xana wa nwa tipilisi ke loko u ri ku titsoneni swakudya?	Ina	1
		E-e	2
XIYENGE XA C: LESWI NGA ANTSWISAKA LESWAKU VANHU VA KHOMELELA EKA KU NWA ART			
31	U ya kangani ekililiniki?	Nhweti	1
		Tinhweti timbirhi	2
		Swin'wana	3
32	U teka nkarhi wo tanihi hi kwihi eklililiniki u nga se kuma tipilisi ta wena?	Hansi ka awara	1
		Tiawara 1 – 2	2
		Tiawara 3 – 4	3
		Ku hundzisa 4 wa ti awara	4
33	Swa mukeleka eka wena, loko swi nga mukeleki hikokwalaho ka yini?	A ndzi koti ku ya entirhweni	1
		A ni hlohloteleki ku ya mahlweni ndzi nwa maphilisi	2
		Swin'wana	3

34	I yini xi ku pfunaka ku nwa tiphilisik hi nkarhi?	Vanghana	1
Maxaka			2
Rinqingho ra le nyongeni			3
Swin'wana – hlamusela			4
35	Xana u kumile ku hlamuseriwa hi vuendzi u nga si sungula tiphilisi?	Ina	1
		E-e	2
36	Loko u byi kumile, xana u hlamuseriwe kangani?		1
37	A wu famba na mani timhaka to tsundzuxana na nseketelo?	Vaongori	1
		Lay counsellors	2
Madokodela			3
Social workers			4
38	Xana u vona onge ku tsundzuxana na nseketelo awi na nkoka eka vanwi va ART?	Ina	1
		E-e	2
39	U byeriwile xana hi swita-ndzhaku na ku hlangana ka mirhi leyi hi nkarhi wo tsundzuxana na nseketelo?	Ina	1
		E-e	2
40	U tirhisa yini tanihi xitsundzuxo xo teka mapilisi?	Xikomba-nkarhi	1
Rinqingho ra le nyongeni			2
Mavonela-kule			3
41	U na vuxokoxoko bya leswi landzelaka?	Adherence club	1
		Centre for chronic medication distributioni and dispersion	2
Spaced fast lane			3

ANNEXURE 2: CONSENT FORM

PART 1: INFORMATION SHEET

My name is Bridget Nhlongolwane Nkatingi, a Masters student in Department of Public Health at the University of Venda. I am conducting a research study titled: **NON-ADHERENCE TO ANTIRETROVIRAL THERAPY AMONGST ADULTS LIVING WITH HIV AND AIDS INMAKHADO MUNICIPALITY IN VHEMBE DISTRICT, LIMPOPO PROVINCE** in partial fulfillment of the requirements of my studies. I am requesting you to be one of my respondents. The purpose of the study is to identify factors leading to non-adherence to antiretroviral therapy in people aged 18 – 59 years.

You are invited to participate in this study because you fall within the age range for this study. Your participation is purely voluntary you are under no obligation to participate. If you choose not to participate, all the services you receive at this clinic will continue and nothing will change. You are free or have a right to withdraw from the study at any time and the care of your family member or your relationship with health care team will not be compromised. I will request you to fill the questionnaire which may take 30-40 minutes of your time. The completed questionnaire will be put in a lockable mounted box at the entrance of the clinic. No names are required in the consent form to ensure confidentiality and anonymity.

There will be no direct benefit to you, but your participation will provide relevant information that might assist in developing strategies that can assist people leaving with HIV to adhere to treatment so that their viral load remains suppressed leading to good health.

Contact person

You are free to ask any questions pertaining to the study or about being a research subject and you may call Mrs Bridget Nhlogolwane Nkatingi, University of Venda, Department of Public health, and cell number 0833801687, email address nhlongolwane@gmail.com

ANNEXURE 3: RESPONDENT CONSENT

Statement of Agreement to Participate in the Study:

I hereby confirm that I have been informed by the researcher, Nkatingi Bridget Nhlongolwane, about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: **SHS/18/PH/14/1211.**

I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.

I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.

In view of the requirements of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.

I may, at any stage, without prejudice, withdraw my consent and participation in the study.

I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.

I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

Full Name of Participant	Date	Time	Signature
……	……	……	……..

I (Bridget Nhlongolwane Nkatingi) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Full Name of Researcher: Bridget Nhlongolwane Nkatingi

Date : 12. 10. 2018

Signature : 

ANNEXURE 2: PAPILA RA MPFUMELELO

XIPHEMU XO SUNGULA: PAPILA RA VUXOKOXOKO

Vito ra mina i Bridget Nhlongolwane Nkatingi, mudyondzi wa tidyondzo ta le henhla ta Masters in Department of Public Health eYunivhesithi ya Venda. Ndzi endla ndzavisiso wa swa tidyondzo lowu thyiweke: **NON-ADHERENCE TO ANTIRETROVIRAL THERAPY AMONGST ADULTS LIVING WITH HIV AND AIDS INMAKHADO MUNICIPALITY IN VHEMBE DISTRICT, LIMPOPO PROVINCE** tanihu xiphemu xa ku hetisisa swilavekiso swa tidyondzo leti. Ndzi kombela leswaku u va wun'we vangheneleli va vulavisisi lebyi. Xikongomelo xa vulavisisi lebyi i ku kumisisa swivangelo leswi endlaka vanhu va malembe ma 18 - 59 va nga landzeleli swipimelo ni swileriso swa vutshunguri bya antiretroviral.

U rhambiwa ku nghenelela eka vulavisisi lebyi hikuva u wela eka nhlayo leyi ya malembe leyi ku lavisisiwaka yona. Vunghenelerí bya wena a byi boheleriwi, byi suka eka wena nwinyi. Loko u hlawula ku ka u nga nghenelelí, vukorhokeri hinkwabyo lebyi u byi kumaka eklilinikiall byi ta ya emahlweniyou na kona a ku nge cinci nchumu. U ntshunxekile kumbe u ni mfanelo yo kombela ku tshika vunghenelerí bya dyondzo leyi nkarhi wun'wana ni wun'wana na kona nhlayiseko wa vandyangu wa wena kumbe vuxaka bya wena ni xipano xa vahlayisi va wena va swa rihanyo a byi nge tsekatseki. Ndzi ta kombela leswaku u hlamula swivutiso eka papila ra swivitiso leri nga tekaka 30-40 wa timinetse ta nkarhi wa wena. Swivutiso leswi hlamuriweke hi ku hetiseka swi ta vekiwa eka bokisi leri nga beleriwa leri khiyaka enyangweni wa kliliniki.

Mavito a ma laveki eka papila ra mpfumelelo ku kota ku tiyisisa xihundla na ku tumbeta mavito.

A ku nge vi na mbuyelo lowu kongomeke wena, kambe ku nghenelela ka wena ku ta tisa vuxokoxoko lebyi nga pfunaka eka ku hluvukisa matirhelo lama nga pfunaka vanhu lava hanyana na xitsongwatsongwana xa HIV ku nwa tipilisi hi ku tinyiketela leswaku xitsongwatsongwana xa vona xi tshama xi tshikeleriwile leswi yisaka eka rihanyo lerinene.

Munhu wo ti hlanganisa na yena:

U ntshunxekile ku vutisa xivutiso xihi kumbe xihi mayelana na dyondzo leyi kumbe hi ku va mungheneleli wa ndzavisiso lowu, na kona u nga tihlanganisa eriqinghweni na Manana Bridget Nhlongolwane Nkatingi, University of Venda, Department of Public Health, eka nomboro leyi landzelaka **0833801687,** email address nhlongolwane@gmail.com

ANNEXURE 3: MPFUMELELO WA MUNGHENELERI

Ntwanano wa mpfumelelo wo nghenelela vulavisisi:

Ndzi tiyisisa leswaku ndzi tivisiwile hi mulavisisi, Nkatingi Bridget Nhlongolwane, hi ntumbuluko, mafambiselo, mbuyelo ni swita-ndzhaku swa dyondzo leyi – Research Ethics Clearance Number: **SHS/18/PH/14/1211.**

Ndzi mukerile, ndzi hlayile no twisisa vuxokoxoko lebyi tsariweke laha henhla (papila ra vuxokoxoko ra mungheneleri) mayelana ni dyondzo leyi. Ndzi lemukisiwile leswaku mbuyelo wa ndzavisiso lowu, ku katsa vuxokoxoko bya mina mayelana ni rimbewu, malembe, siku ra ku velekiwa, letere ro sungula ra vito ra mina, ni mbuyelo wa vukamberi bya mina byi ta katsiwa byi nga ndzi paluxi eka mbuyelo wa dyondzo leyi.
Hi ku languta swilaveko swa swa ndzavisiso, ndza pfumela leswaku vuxokoxoko lebyi hlengeletiweke hi nkarhi wa dyondzo leyi wu nga hoxiwa eka khompuyuta hi mulavisisi. Eka nkarhi wun'wana ni wun'wana ndzi nga voniwi nandzu kumbe ku soriwa, ndzi nga tsan'wa mpfumelelo ni ku nghenelela ka mina eka dyondzo leyi.

Ndzi vile na nkarhi wo ringanela ku vutisa swivutiso ni ku (ndzi nga koxiwanga) ndzi hlambanya leswaku ndzi lulamile ku nghenelela dyondzo leyi. Ndzi twisisa leswaku leswi nga ta kumiwa swa nkoka hi nkharhi wa ndzavisiso lowu leswi nga khumbhanaka ni ku nghenelela ka mina ndzi ta tivisiwa swona.

Vito ra mungheneleri	Siku	Nkarhi	Nsayino
.....	.....	.....	.....

Mina (Bridget Nhlongolwane Nkatingi) ndzi tiyisisa leswaku mungheneleri u hlamuseriwile hi vuxokoxoko bya maendlelo na swikanganyisi leswi swi nga vaka kona mayelana na dyondzo leyi.

Vito ra mulavisisi : Bridget Nhlongolwane Nkatingi
Siku : 12. 10. 2018
Nsayino : 

ANNEXURE 4: ETHICAL CLEARANCE

RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

NAME OF RESEARCHER/INVESTIGATOR:
Mrs BN Nkatingi

Student No:
16010594

PROJECT TITLE: **Non-adherence to Antiretroviral therapy amongst adults living with HIV and AIDS at Makhado municipality in Vhembe District, Limpopo Province.**

PROJECT NO: **SHS/18/PH/14/1211**

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

NAME	INSTITUTION & DEPARTMENT	ROLE
Prof LH Nemathaga	University of Venda	Supervisor
Ms SE Tshivhase	University of Venda	Co – Supervisor
Mrs BN Nkatingi	University of Venda	Investigator – Student

ISSUED BY:
UNIVERSITY OF VENDA, RESEARCH ETHICS COMMITTEE

Date Considered: November 2018
Decision by Ethical Clearance Committee Granted
Signature of Chairperson of the Committee: .....
Name of the Chairperson of the Committee: Senior Prof. G.E. Ekosse

UNIVERSITY OF VENDA
DIRECTOR
RESEARCH AND INNOVATION
2018 -11- 20
Private Bag X5050
Thohoyandou 0950

University of Venda
PRIVATE BAG X5050, THOHOYANDOU, 0950λ LIMPOPO PROVINCEλ SOUTH AFRICA
TELEPHONE (015) 962 8504/8313 **FAX** (015) 962 9060
"A quality driven financially sustainable, rural-based Comprehensive University"

ANNEXURE 5: APPROVAL LETTER FROM LIMPOPO DEPARTMENT OF HEALTH

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH

Enquiries: Stander SS (015 293 6650)

Ref: LP 201811_012

Nkatingi B.N
University of Venda

Greetings,

RE: Non-adherence to antiretroviral therapy amongst adults living with HIV and AIDS at Makhado Municipality in Vhembe District, Limpopo Province

1. Permission to conduct the above mentioned study is hereby granted.
2. Kindly be informed that:-
   - Research must be loaded on the NHRD site (http://nhrd.hst.org.za) by the researcher.
   - Further arrangement should be made with the targeted institutions, after consultation with the District Executive Manager.
   - In the course of your study there should be no action that disrupts the services, or incur any cost on the Department.
   - After completion of the study, it is mandatory that the findings should be submitted to the Department to serve as a resource.
   - The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.
   - The above approval is valid for a 1 year period.
   - If the proposal has been amended, a new approval should be sought from the Department of Health.
   - Kindly note, that the Department can withdraw the approval at any time.

Your cooperation will be highly appreciated.

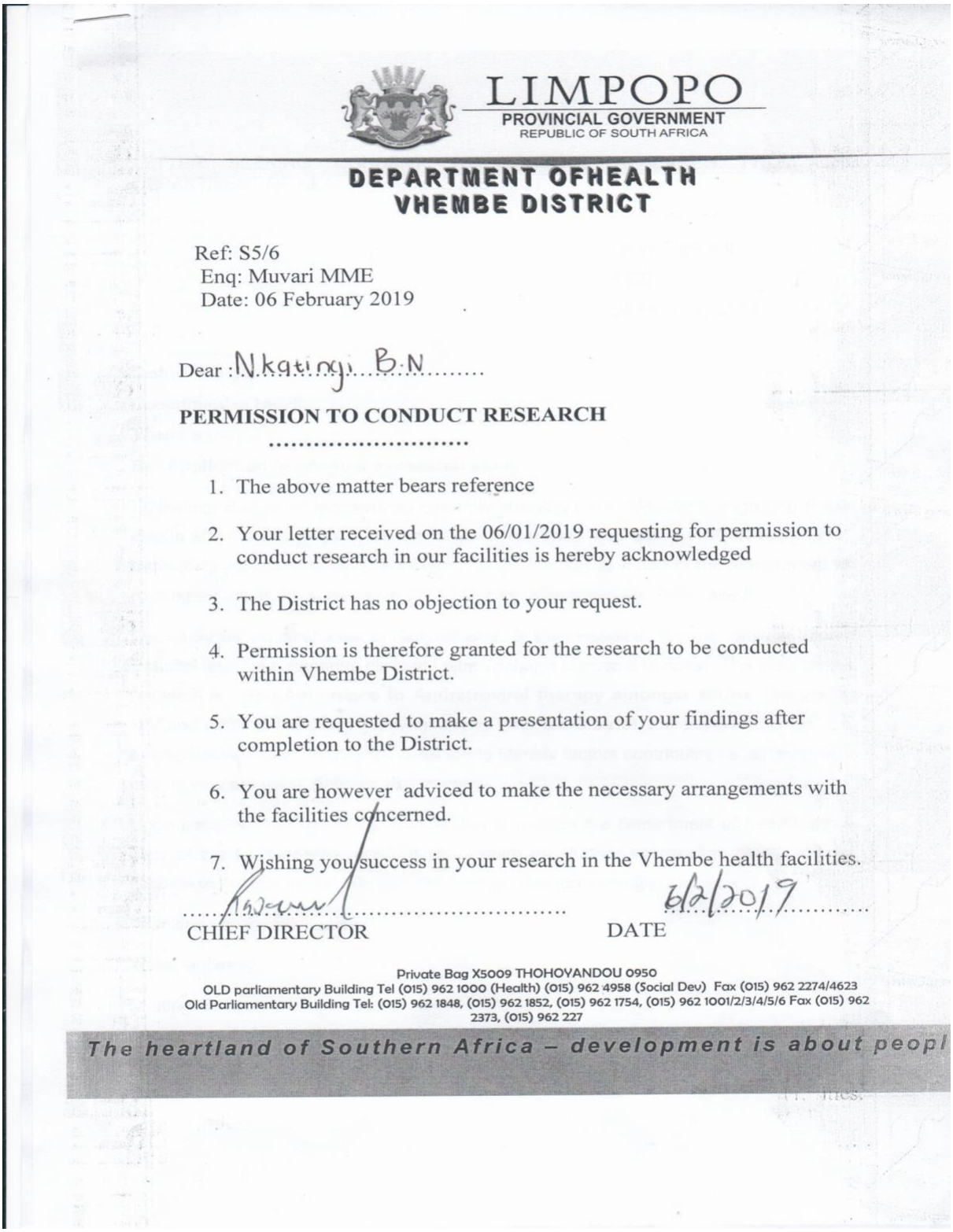
Head of Department

31.01.2019.
Date

Private Bag X9302 Polokwane
Fidel Castro Ruz House, 18 College Street. Polokwane 0700. Tel: 015 293 6000/12. Fax: 015 293 6211.
Website: http/www.limpopo.gov.za

The heartland of Southern Africa – Development is about people!

ANNEXURE 6: APPROVAL LETTER FROM VHEMBE DISTRICT



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OFHEALTH
VHEMBE DISTRICT

Ref: S5/6
Enq: Muvari MME
Date: 06 February 2019

Dear : Nkatingi B.N

PERMISSION TO CONDUCT RESEARCH

1. The above matter bears reference
2. Your letter received on the 06/01/2019 requesting for permission to conduct research in our facilities is hereby acknowledged
3. The District has no objection to your request.
4. Permission is therefore granted for the research to be conducted within Vhembe District.
5. You are requested to make a presentation of your findings after completion to the District.
6. You are however adviced to make the necessary arrangements with the facilities concerned.
7. Wishing you success in your research in the Vhembe health facilities.

CHIEF DIRECTOR — DATE 6/2/2019

Private Bag X5009 THOHOVANDOU 0950
OLD parliamentary Building Tel (015) 962 1000 (Health) (015) 962 4958 (Social Dev) Fax (015) 962 2274/4623
Old Parliamentary Building Tel: (015) 962 1848, (015) 962 1852, (015) 962 1754, (015) 962 1001/2/3/4/5/6 Fax (015) 962 2373, (015) 962 227

The heartland of Southern Africa – development is about peopl