# ADHERENCE TO ANTIRETROVIRAL THERAPY AND MENTAL HEALTH OF HIV-DIAGNOSED PATIENTS IN VHEMBE DISTRICT, LIMPOPO PROVINCE

**by**

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# DECLARATION

I, **Tovhowani Manenzhe**, declare that this research report is my original work and has not been submitted for any degree at this or any other university or institution. The report does not contain other persons' writings unless specifically acknowledged and referenced accordingly.

Signature: ......................................................... Date: ..............................

# DEDICATION

I dedicate this research to my mother, father, sisters and my grandparents for their inspiration, love and support; and to my Lord Jesus Christ for making everything possible for me.

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My most profound gratitude goes to my supervisors, Dr A. Maphula and Prof. P. O. Bessong, for their guidance. Firstly, they made it possible for my proposal to be accepted by the Graduate Studies Committee in the School of Human and Social Sciences at the University of Venda. They read my work in its most unpolished form, made sense out of it and helped me to professionally shape it to the final state. Their critical comments provided a very valid perspective on my thoughts, ideas and arguments. The success of this study was possible due to their support, encouragement and suggestions. Thank you very much.

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**Manenzhe Tovhowani**

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## LIST OF ACRONYMS

AIDS- Acquired Immune Deficiency Syndrome

ART- Antiretroviral Therapy

ARV- Antiretroviral

CBT- Cognitive behavioural Theory

CV- Construct Validity

CVR- Content Validity Ratio

DABDA- Denial, Anger, Bargaining & Acceptance

DOH- Departement of Health

HBM- Health Belief Model

HIV- Human Immune Virus

HIV- Human Immunodeficiency Virus

HIV/AIDS- Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome

HTC- HIV Testing & Counselling

ICC- Intra-class Coefiicient

MDD- Major Depression Disorder

PHC- Primary Health Care

PITC- Provider-Initiated Testing & Counselling

PLWHA- People Living With HIV & AIDS

PMTC- Prevention of Mother to Child

REC- Research Ethical Clearance

SA- South Africa

SADA- South African Depression and Anxiety Support Group

SBAAQ - Sexaul, Behavioural, Abstenance and Aviodance Questionnaire

SCT- Social Cognitive Theory

SPSS- Stastical Package of Social Sciences.

TB- Tuberclosis

UHDC- University Higher Degree Commity

UNAIDS- Uinted Nations Programme on HIV/AIDS

US - United State

USA - United State of America

VCT- Voluntary Counselling Testing

WHO- World Health Organization

# ABSTRACT

**Background:** Given that there is 57.7 million HIV-diagnosed people living in South Africa and the government has established the largest public antiretroviral programme in the whole world but only 53% are adhering. Adherence remains a challenge, due to presence of mental health issues among HIV diagnosed. **Aim:** The aim of this study was to investigate adherence to antiretroviral therapy and mental health of HIV-diagnosed patients in Vhembe District, Limpopo Province.

**Methods:** This was a mixed method study using a combination of quantitative and qualitative research approaches. In the quantitative approach, triangulation was utilised in the form of a questionnaire and patients records. Simple random sampling was used to select 134, descriptive analysis using SPSS version 25. For the qualitative approach, a phenomenological research designs was considered and convenience sampling was used to select fifteen participants (15). Data was collected using semi-structured interview; responses were analysed using a computer-aided program called, ATLAS ti. **Results:** The self-report of adherence was 94.8 %, objectively 39.6% of CD4 count <200c/mm3 at baseline and 34.3% CD4 count after six months was found. 16.5% of females and 2% of males defaulted treatment and 14.9% of missed medical appointments 1-6 times. This study also revealed the mental health issues that HIV-diagnosed patients are struggling with after the diagnosis include the stages of grief, stress, depression, anxiety, mistrust, shame, stigma and discrimination. **Recommendation:** Effective strategies need to be enhanced and tailor made in effort to encourage patients to take ART diligently. The healthcare providers, community members and the government should be made aware of mental health issues.

***Keywords:*** *Acquired Immune Deficiency Syndrome, Adherence, Anti-retroviral, Human Immunodeficiency Virus, (HIV) Diagnosed Patients, Mental Health.*

# CHAPTER ONE: INTRODUCTION

Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) is one of the most destructive epidemics the world has ever encountered, for decades. HIV has become a burden both in developed and developing countries and since the beginning of this epidemic, more than 70 million people have been infected with HIV, while 35 million people have died due to the virus (Global HIV and AIDS statistics, 2016). It was estimated that 33.4 million people live with HIV worldwide, in 2009 and it is those living in Africa who constitutes the largest number of people infected with HIV, as nearly two-thirds of these people live in South Africa (SA) (WHO, 2009; UNAIDS, 2010). According to the 2016 statistics collected by Global HIV and AIDS, new figures revealed that it is 36. 7 million people who are living with HIV. The initiation of Antiretroviral Therapy (ART) brought a dramatic revolution for those infected, around the globe (UNAIDS, 2011; Global HIV & AIDS statistics, 2018). Lester, Ritvo, Mills, Kariri, Karanja and Chung (2010) have shown that to delay therapy results in the disease's progression to AIDS. Presently, South Africa is leading the biggest antiretroviral therapy (ART) programme globally, hence, above 80% of patients diagnosed with HIV/AIDS are receiving medications (Simelela, Venter, Pillay & Barron, 2015) although an uncompromising obligation is required from diagnosed patients in taking ART as instructed without fail, for satisfactory results. Research confirms that the 95% ideal adherence is rarely attained due to interlinked innumerable factors (Johnson, Dilworth, Taylor, Darbes, Comfort & Neilands, 2012).

South Africa has introduced a universal access to treatment for HIV/AIDS, HIV diagnosis has led the government to introduce the 90-90-90 strategy to target HIV epidemic from 2015 (UNAIDS, 2014; UBain, Nkoke & Noubiap, 2017). This strategy serve as a way of laying foundation for, that is the reason why a powerful and achievable target has been set that by 2020, 90% of HIV-diagnosis, 90% of all those diagnosed with HIV will receive sustained ARV's and lastly 90% of all HIV-diagnosed people will receive ARV's and have viral load suppression (UBain, Nkoke & Noubiap, 2017; UNAIDS, 2016).

The effective use of ART has huge benefits among HIV-diagnosed patients who start ART early; adherence reduces the chances of AIDS-related events by 32% (CDC, 2017; UNAIDS, 2011). Optimal adherence is hindered by many factors, including the presence of mental health issues among HIV-diagnosed patients (Johnson, Dilworth, Taylor, Darbes, Comfort & Neilands, 2012). Mental healthcare has been integrated into Human Immune Virus (HIV) programs in many countries, for many years (John, Dan & Alan, 2008). North American and European studies suggest that people with HIV often suffer from depression, anxiety disorders when adjusting to the diagnosis; they struggle with the meaning of a positive HIV test result, adapting to life with a chronic life-threatening illness, anticipating and receiving news of the disease's advance, and witnessing the death of similarly-diagnosed friends and family (Cielsa & Roberts, 2001; Kevin, 2014).

This chapter addresses the background, problem statement, rationale of the study, aims, objectives, hypothesis, research questions, delimitations of the study, significance of the study as well as definition of key concepts.

## 1.1 BACKGROUND OF THE STUDY

According to the World Health Organisation (WHO), (2007) HIV is a retrovirus that infects cells of the immune system, destroying or impairing their function. As the infection progresses, the immune system becomes weaker, and the person becomes more vulnerable to any form of infections. Even though ART does not completely cure HIV/AIDS, evidence shows that it decreases the viral load and thus contributes to lessening the disease's burden (Murphy *et al.,* 2010; Azia, Mukumnang & Van Wyk, 2016).

ART is globally known and it is a formalised way to treat HIV and prevent it from progressing rapidly.

ART has sustained a lot of people who have been diagnosed and are living with HIV/AIDS, hence, it has given millions of people living with HIV new life and hope. According to the United Nations Programme on HIV/AIDS (UNAIDS) Report on the Global Aids Epidemic (2010), by the end of 2009 more than 5 million people were receiving ART for the very first time worldwide, with an increase of 30% in number of people receiving the ARVs in a single year. The number of people receiving therapy has increased by 13-fold from 2004, with more than 5 million of these people living in low- and middle-income countries. South Africa has the largest number of people infected with HIV, worldwide (WHO, 2010). South Africa has got one of the most successful ARV roll-outs in the entire world; more than half of people living with HIV & AIDS (PLWHA) in the world receive ARV's. Accessibility to ARVs has contributed 19% in decreasing deaths among people living with HIV, between 2004 and 2009; recently, the mortality rate of HIV-related diseases has decreased by 94% (UNAIDS, 2010; Maswikiti, 2011; Eyawo *et al.,* 2017).

Mental health is one of the reasons for poor adherence among HIV-diagnosed patients (AIDS Care, 2004). As the rate of ARVs users among PLWHA continues to increase in South Africa, so too does the need to integrate mental health services into HIV care (John, Dan & Alan, 2008). Incorporating these services into routine ARV care, with support from dedicated HIV mental-healthcare providers would benefit patients who suffer from different mental health issues. Adherence to ART is a compound and difficult exercise. Numerous obstructions to optimal adherence to ART have already been recognised by various studies in both high, low and middle-income countries (Mills *et al.,* 2006). Studies expressed different findings with regard to biographical variables envisaging optimal adherence to ART (Simoni, Amico, Pearson & Malow, 2008), however, findings are consistent regarding the impact of socio-economic status on ART adherence (Weiser *et* *al.,* 2010); psychosocial factors have also been identified as having an adverse effect on adherence (Gilbert & Walker, 2010; Ncama *et al.,* 2008). In addition, HIV-diagnosed patients often suffer from stress, anxiety and depression as a result of processing the news for the very first time (Green & Smith, 2004).

## 1.2 PROBLEM STATEMENT

HIV/AIDS continue to be a major problem in the public- health sectors and those diagnosed experience enormous stress (Brown & Vanable, 2011). Low ART adherence rates among HIV-diagnosed patients increases the detrimental effects on physical health, increases drug resistance and as a result leads to high mortality rates among HIV/AIDS people (Murphy *et al.,* 2010; DOH, 2010). Without a 95% optimal ART adherence, antiretroviral agents are incapable of subduing HIV duplication because the medication absorption in the blood will not be sufficient and may lead to complications with regards to subduing plasma viral load (Phelps, Hathcoc, Werdenberg & Schultze, 2010). Consequently, ascertaining and alleviating the elements that decrease optimal adherence combined with ART are essential to achieve long-term recovery outcomes among HIV-diagnosed patients (Phelps *et al.,* 2010).

There is no health without mental health. Mental health issues are highly prevalent among people living with HIV/AIDS, with major depressive disorder (MDD) occurring almost twice as frequently among this group, than in the general population (Cielsa & Roberts, 2001; Collins, Holman, Freeman & Patel, 2006). Depression reduces the motivation of HIV-diagnosed patients to seek health care, impairs adherence to therapy, decreases quality of life, and increases mortality. The most difficult aspect patients struggle with is taking strictly the medication as prescribed (WHO, 2004). Globally, people seem to struggle with adherence and consequently the public health system bears the burden (UNAIDS, 2011).

The most common basis of high mortality rates among HIV/AIDS diagnosed patients in South Africa is linked to low adherence to ART (DOH, 2009). In addition, the infection rate is increasing rapidly despite efforts made by government, with 2.1 million new infections in 2016 (UNIAIDS Fact Sheet, 2017).  South Africa has the fastest growing rates of new HIV infection in the whole world (Maswikiti, 2011) with Limpopo Province in the seventh position with 9.2% prevalence rate (Stats SA, 2017).

Donald Fraser Hospital is one of the public provincial hospitals situated in Vhufuli, Vhembe District, Limpopo Province where many individuals are being diagnosed with HIV/AIDS daily, and the number is increasing daily (Info4africa, 2017).  The researcher went to the Clinical Manager of the hospital to explore the prevalence of HIV as measured by people's consultation at Fulufhelo clinic. Donald Fraser hospital has 700+ people who are diagnosed with HIV and evidence suggests that there are many factors contributing to these people relapsing once they have started their therapy (Bhat, Ramburuth, Singh, Titi, Anthony & Chiya, 2010). Given the fact that in South Africa mental health is not given the same priority that is afforded to physical health, the researcher saw a need to explore on mental health issues associated with adherence to ART (Kleintjes, Lund, Fisher & MHaPP Research Programme Consortium, 2010).

Often, individuals who struggle with adherence face multiple barriers that would impact on the success of any single modality intervention; this decrease life expectancy and the quality of life (Rudy, 2009). Mental health and adherent behaviour among HIV-diagnosed patients has not been sufficiently researched, especially in the Limpopo Province. A gap exists between the diagnosis and identification of those who suffer from mental health issues and their therapy status, as the health system is overburdened and overwhelmed.

There is a paucity of behavioural research on adherence to ART and mental health in the rural settings of the Limpopo Province. This information should be relevant in planning and implementing tailored programmes and strategies to address problems faced by patients receiving ART in Limpopo and similar settings. In the context of this background, this study seeks to investigate adherence to antiretroviral therapy and mental health of HIV-diagnosed patients in Vhembe District, Limpopo Province.

## 1.3 RATIONALE

The researcher was motivated to conduct this study because of her background training in Psychology, from the acknowledgment that adherence is a complex concept and that mental health status play a role in some ways. Studies have been conducted in South Africa, but none of them has been conducted specifically at Donald Fraser in Limpopo Province. The focus of other studies was on the experiences towards ARV's and HIV diagnosis, perceptions of care and adherence level among stigmatised patients (Ndou, Maputle, & Risenga, 2013; Ndou, Maputle, & Risenga, 2016). This study will incorporate almost all the covered areas from other studies, but it will clearly bring into light tremendous issues affecting adherence.

Low adherence to ART is associated with the presence of mental health issues and higher hospitalization rates, due to disease progression (Melissa *et al.,* 2010). Contemporary medicine has brought about major breakthroughs in the prevention of HIV spreading widely. A major breakthrough is the introduction of ART and its increasing availability worldwide. Between the year 2003 and 2008, access to antiretroviral medication in the low and middle-income countries rose by 10-fold (Maswikiti, 2011; UNAIDS Fact Sheet, 2017). The AIDS Epidemic Update, (2009) reports that South Africa has the largest ART programme in the world, the consequence of which is significant public health benefits and improved access for HIV-positive people. Implementation of the 90-90-90 strategy that is helping to implement HIV programmes within Institutions of Higher Learning such as Universities, Technical and Vocational Education and Training (TVET) Colleges and

Technicon's, that each quarter HIV testing awareness or campaign should be conducted (UNAIDS, 2016). With the increase awareness of mental health issues comes the benefits of healthy mental wellbeing among HIV-diagnosed patients (Maswikiti, 2011).

A major concern, however, is that not much research has been done in Limpopo to explore and understand the relation between mental health and adherence of the HIV-diagnosed patients. Several researchers have highlighted the importance of doing research on various aspects such as the status of people living with HIV/AIDS and their ART adherence, factors and barriers to ART adherence and what interventions can be tailor-made and be efficient in this context (Dlomo, 2010; Kotzé, 2013; Sendagala, 2010). The researcher is of the idea that this study will shed light about facts that sustain adherence which can then serve as a catalyst for curbing the HIV pandemic by tapping into adherence to ART and mental health.

## 1.4 THE AIM

The aim of the study is to investigate adherence to antiretroviral therapy and mental health of HIV-diagnosed patients in Vhembe District, Limpopo Province.

## 1.5 OBJECTIVES

### Phase 1: Quantitative

- To determine the prevalence rate of adherence to ART among HIV patients at Fulufhelo Clinic in Limpopo Province.

### Phase 2: Qualitative

- To explore the mental health of patients diagnosed with HIV.

## 1.6 RESEARCH QUESTIONS

### Phase 1: Quantitative

- What is the prevalence rate of adherence to ART among HIV patients at Fulufhelo Clinic in Limpopo Province?

### Phase 2: Qualitative

- What are the mental health issues that patients diagnosed with HIV face?

## 1.7 DELIMITATIONS OF THE STUDY

The study focused on investigating adherence to antiretroviral therapy and mental health of HIV-diagnosed patients in Vhembe District, Limpopo Province. The population comprised of Tshivenda-speaking males and females, who are taking ARVs, whose ages ranged between 18-65, who consulted at Fhulufhelo Clinic at Donald Fraser Hospital.

## 1.8 SIGNIFICANCE OF THE STUDY

**Patients** -The outcomes of this study might be of benefit to HIV-diagnosed patients. Findings might bring awareness of mental health issues that hinder them, from either accepting their status and to adhere to therapy, accordingly.

**Community** -Throughout this study, an assumption is made that the community may also become aware of the mental health issues faced by HIV-diagnosed patients during feedback sessions, hence, the community of Vhembe District could also contribute by supporting the HIV-diagnosed patients.

**Healthcare Providers -** From the findings of this study, health-care providers will become more aware of the reality of mental health issues that occur after an HIV diagnosis;

therefore they will continue to refer HIV-diagnosed patients with their deeper understanding, to get relevant professional help.

**Government** -The findings of this research it is anticipated will promote effective implementation of ARVs adherence in South Africa, by further improving the knowledge and understanding on mental health of HIV-diagnosed patients and challenges to adherent behaviours that follows after diagnosis. The findings will enhance and strengthen intervention programmes that relate to mental health for HIV-diagnosed patients and consequently will improve adherence rates, for the benefit of patients.

**Government Policies** -The current findings might enhance existing policies and contribute to future review of the HIV/AIDS protocols, regulations relating to healthcare providers and health education programs for HIV-diagnosed patients in South Africa.

## 1.10 DEFINITIONS OF CONCEPTS

Adherence- Taking any medication or any form of as prescribed or instructed by a healthcare provider; this could be a doctor or a nurse (HIV/AIDS Glossary, 2018:4). In this study, adherence its ability to follow prescription as dictated by healthcare providers when on ART, without failing and also meeting the golden standard of 95% adherence

**Anti-retroviral Therapy (ART) -** Is the use of HIV-combination medicines, daily, in order to treat HIV infection (HIV/AIDS Glossary, 2018:10). In this study ART are the drugs that HIV-diagnosed patients take to treat HIV/AIDS.

**Behaviour-** Is the repeated and typical way of behaving or repeating the same action over and over again (Sinclair, 2006:117). In relation to this study, behaviour is the range of actions repeated over and over as a way of being.

**HIV-** The WHO (2007:8), defines HIV as a retrovirus that infects cells of the immune system, destroying or impairing their function. Operational definition for this study explains HIV as a virus that affects and weakens the immune system impacting on the individual‘s ability to function.

**HIV-Diagnosed Patients-** In this study HIV-diagnosed patients are the individuals who have been diagnosed with HIV, on whom two HIV tests have been done - preliminary and confirmatory – and they have both come back positive.

**Mental Health-** From the perspective of positive psychology or holism, mental health may include an individual's ability to enjoy life (WHO, 2014; WHO 2007:7). In the study, mental health is referred to as the ability to function efficiently, effectively regardless of what is happening around an individual’s environment.

**Treatment-** Any form of medicines that act to prevent the progression of HIV/AIDS and lowers persons viral load to undetectable levels (HIV/AIDS Glossary, 2018:172). For this study, this refers to any western medication taken by a patient that is meant to reduce symptoms, or to attempt to cure or mitigate HIV & AIDS, such as the ARVs.

## 1.10 STUDY OUTLINE

The study followed a mixed method approach - a combination of Quantitative Phase 01 and Qualitative Phase 02. The chapters of the study are as follows**:**

### Chapter 1: Introduction

The emphasis in this chapter is on the background, problem statement, research aim and objectives, hypothesis, delimitations, significance of the study and lastly definitions of concepts.

## Chapter 2: Theoretical Framework

This chapter gives an introduction and detailed overview of three theoretical frameworks, during this adherence and mental health is applied in the theories discussed. Two theories were considered social cognitive theory and health belief model.

## Chapter 3: Literature Review

The chapter provides an in-depth review of different literatures in order to understand the mental health and adherence in HIV-diagnosed patients. Also deliberated are HIV status in relation to adherence and mental health in relation to status of adherence, the prevalence of HIV, mental health and adherence internationally, in three African countries, in South Africa and in Limpopo province. Lastly, in the chapter, is identified the mental health issues that HIV-diagnosed patients are faced with after diagnosis.

## Chapter 4: Methodology

In this chapter there is an outline of the research methods and research designs including the location of the study, background, population setting and population characteristics. The two phases - Phase 1: Qualitative and Phase 2: Quantitative - both entail different research design, sampling, sampling method, research instruments, reliability and validity/trustworthiness, pretesting, data collection and analysis; these are discussed here. The ethical considerations that were relevant for the current study are detailed here.

## Chapter 5: Results

This section gives a detailed presentation and description of the analysis and research findings. Phase 1 is where the statistical findings presented, and phase 2 presents the themes and quotations from the participants who participated in the study. The results were presented in the following format demographic information, objective one and then objective two findings.

### Chapter 6: Discussion

In this chapter are detailed discussion of the research results and integration of the results, incorporating the findings of other researchers and theoretical explanation based on the objectives of the study.

### Chapter 7: Introduction, Summation, Strength, Limitations, Recommendations, Contribution and Conclusion

This section has an introduction, the summary of the chapters, things that had limited the study and its strength. Then the recommendations that were made, its contributions and the conclusion made based on the results of the study.

## 1.11 CHAPTER SUMMARY

In this chapter the researcher had provided detailed information regarding the topic of the study, the background, problem statement and rationale. Details were also provided on the study's aim, objectives, research question and hypothesis, delimitations, significance, definition of the concepts and the research outline.

# CHAPTER TWO: THEORETICAL FRAMEWORK

## 2.1 Introduction

The theoretical framework is defined as the structure that holds the supporting theories that can be used to support the rationale of the study (Welman, Kruger & Mitchell, 2005). This chapter addresses the theories that were considered relevant and appropriate in the current study. The theories which will be discussed in detail in relation to this study are Social Cognitive theory and Health belief model.

## 2.2 SOCIAL COGNITIVE THEORY (SCT)

### 2.2.1 Historical Background of SCT

Social Cognitive Theory (SCT) is a theory that was developed by Edwin B. Holt and Harold Chapman Browns in 1931 when they wrote a book on the behaviour of animals. The theory emphasized that the actions of all animals are aimed at fulfilling the psychological needs of feelings, emotions and desires (Holt & Brown, 1931; Lennerling & Forsberg, 2012). In later years, in 1941, the book written by Holt was revised by Neal E. Miller and John Dollard and it dwelt on social cognitive theory and imitation with an addition of four factors arguing on how behaviour is influenced. Albert Bandura, a Canadian psychologist, is the one who expanded SCT so that it can be more informational and applicable to many situations. Bandura, along with his colleagues and students conducted the Bobo doll experiment in 1961 and 1963 in an attempt to understand how children behave over certain aggressive situation’s when growing (McAlister, Perry & Parcel, 2008; Pajares, Prestin, Chen & Robin, 2009). The experiment helped in developing a good sense of how adults behave in contrast and supporting the work of Holts; from then onwards a good understanding of how behaviour is acquired by human being was revealed. The application of SCT in health promotion started with the publication by Bandura in 2011; this theory has been applied to many human areas of functioning, such as career choices, organizational behaviour, understanding classroom interactions, motivation, learning, achievement and lately on has been applied to antiretroviral therapy among HIV-diagnosed patients (Bandura, 2011).

### 2.2.2 Concepts of SCT

Social Cognitive theory describes the behaviour of human beings in terms of dynamics and triadic. The basis of this theory is that behaviour is learned through the cognition's acquisition of what has been observed and has been approved as good behaviour (Lennerling & Forsberg, 2012). So when it comes to living healthy, it is those who have full control over their cognition who will take preventive measures to adhere to ART and those who do not have full control over their cognition and have been learning through a modelled behaviour are more likely to default ART treatment (Bandura, Caprara, Barbaranelli, Pastorelli & Regalia, 2001; Nabi, Clark, 2008). The following are the concepts that were articulated by Bandura:

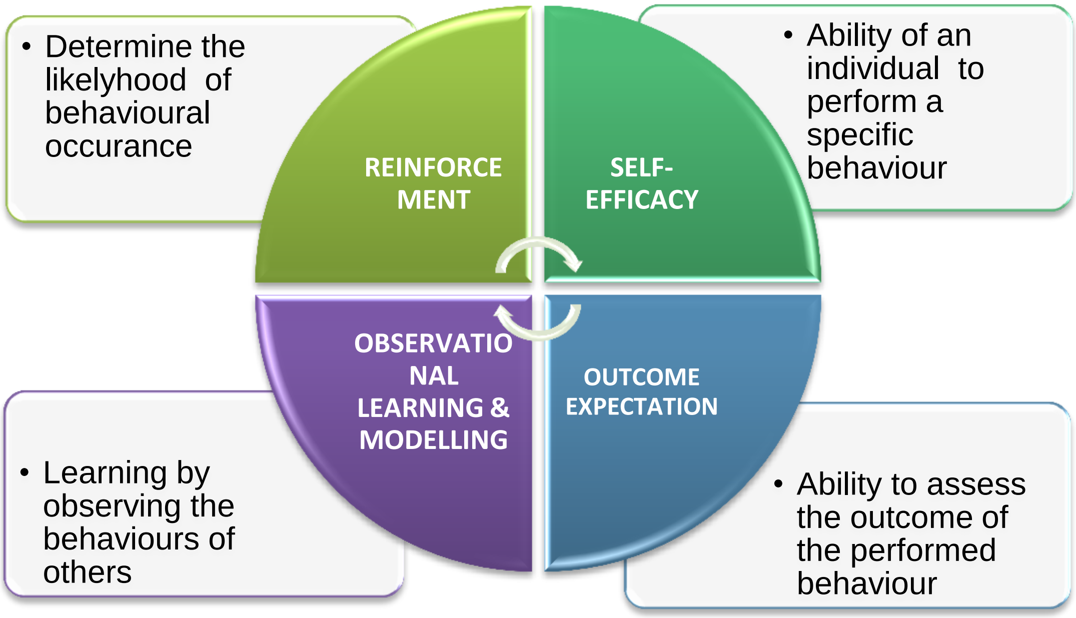


**Figure 2.1: The main concepts within Bandura's Social Cognitive Theory**

### Self-Efficacy

Self-efficacy is the ability within one’s belief of being able to articulate a particular behaviour and the zeal to be able to perform such action. Patients engage in certain behaviour with the desire to produce certain outcomes, such as taking ART for the betterment of their HIV and decreasing the levels of viral loads. In handling ART, self-efficacy is the ability to continue taking ART regardless of the mental health issue and other predicament or obstacles that may rise when doing so (Gauchet, Tarquinio & Fischer, 2007).

### Outcome expectation

Outcome expectation is the ability to assess the expected results after behaviour is performed which can be negative or positive. HIV-diagnosed patients know that by defaulting ART they increase the chances of being ill and consequently minimizing their lifespan and when they take their ART, they decrease the chances of HIV progressing to AIDS rapidly (Lennerling & Forsberg, 2012; Nabi, Clark, 2008).

### Observational learning or modelling

Observational learning or modelling is the process of following the behaviours and actions from other people who are desired and seen as role model in our lives. Through observing other people, HIV-diagnosed patients learn to take their ART as prescribed, if those they associate with are also taking it as instructed by healthcare providers. Social influence impacts on how patients behave after modelling behaviour from those who are highly-regarded (Bandura, 2011; Lennerling & Forsberg, 2012). An understanding is granted to the self to perform the learned and further developing other traits to add on to the desired behaviour based on what the patients is thinking when it comes to their diagnosis.

### Reinforcement

Reinforcement is a concept that explain more about how behaviour works when rewards are apparent at the end; outcomes will elicit response to behaviour determining whether the behaviour will be likely repeated in the future or not. When the reinforcement is positive, the behaviour will be repeated but when it is negative the behaviour is likely to be avoided in the future (Gauchet, Tarquinio & Fischer, 2007; Lennerling & Forsberg, 2012). Adapting the theory to HIV diagnosed patients on ART, it can be concluded that HIV-diagnosed patients are more likely to continue with therapy when they get internal (when they feel better after adhering, when they see improvement in their health as compared to the time when they were not taking ART) and external reinforcement. This is apparent when significant others reinforce their persistence in adhering to ART and comments from healthcare providers.

### 2.2.3 Application of the theory to the study

Albert Bandura defines human behaviour as a triadic, dynamic, and reciprocal interaction of personal factors, behaviour and the environment (Pajares, Prestin, Chen & Robin, 2009). According to Bandura, (2001) an individual's behaviour is uniquely determined by each of these three factors. Behaviour is regulated antecedently through cognitive processes; by the way individuals perceive their conditions. Behaviours are regulated through consistent cognitive processes and the response to the consequences of behaviour is used to form expectations of behavioural outcomes (Bandura et al., 2001; Nabi, Clark, 2008). Each behaviour can consequently change a person’s thinking (cognition). Emphasis is placed on one’s cognition as the mind is active in constructing individual reality through selecting useful information and performing behaviours that are valued and appreciated by an individual.

Consistent with the current study, through feedback and reciprocity, a patient's own reality is formed by the interaction with the environment and one's cognitions. According to Bandura, (2001) it is the ability to form these expectations that will give HIV-diagnosed patients the ability to predict the outcomes of not taking ART, by allowing various mental health issues to incapacitate them, which is the capability to predict the outcomes of behaviour before the behaviour is performed. In addition, Social Cognitive Theory posits that most behaviour is learned vicariously (Bandura *et al.,* 2001), therefore, patients must have a sense of personal agency or self-efficacy with respect to performing preventive behaviour of taking anti-retroviral medication regardless of what is happening around them (Pajares, Prestin, Chen & Robin, 2009; Tuldra, Fumaz, Ferrer, Bayes, Arno & Balague, 2000). HIV-diagnosed patients must also believe in themselves, and develop the skills and abilities necessary for performing acceptable behaviour under an HIV diagnosis.

## 2.3 HEALTH BELIEF MODEL (HBM)

### 2.3.1 History of HBM

This is the first developed theory for health behaviour and it was the first one to be used to explain the change in relation to health behaviour. Health Belief Model (HBM) was established late in the 1950s by Irwin M. Rosenstock, Godfrey M. Hochbaum, S. Stephen Kegeles and Howard L. (Dennill, King, Lock & Swanepoel, 1999; Tarkang & Zotor, 2015). It was used first to measure and understand the widespread failure and screening programs for tuberculosis (TB) in the United State (US), within the public health services (Tarkang & Zotor, 2015). It can, however, also be used on a wide variety of health-related behaviours, like understanding and screening for the symptoms and immunization against underlying diseases. This model has been widely used to show the perception of people, of the consequences and self-efficacy in medical, financial and social settings. It aims at promoting effective behaviours and reducing the perceived barriers, mostly (Preacher, Rucker & Hayes, 2007; Mikhail, 2006). According to Dennill, King, Lock & Swanepoel, (1999) and Tarkang & Zotor, (2015) in health-promoting behaviours, HBM it is specifically productive when providing training for the cues and action for reminding and encouraging patients in engaging fully in health-promoting behaviours, regardless of the barriers that are present.

### 2.3.2 Concepts within HBM and its Application in the study

This model posits that people's beliefs, health problems, perceived benefits, actual effects, and self-efficacy, basically help in explaining the engagement actions of health-promoting behaviours for their health conditions (Tarkang & Zotor, 2015; Mikhail, 2006). HBM can best be explained through the following six concepts that are regarded as being the core of this theory:

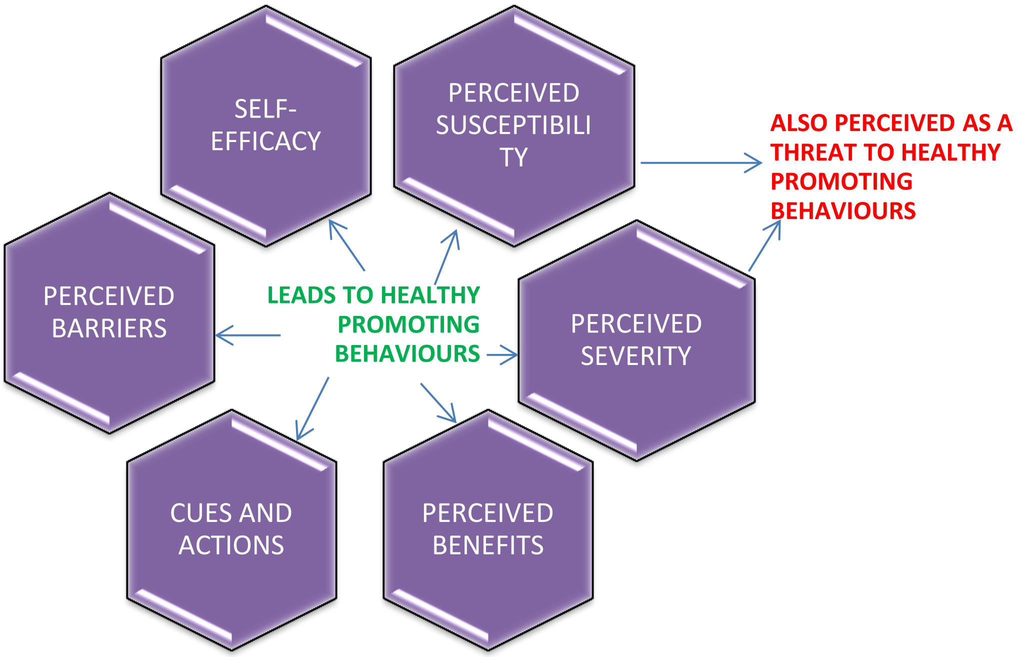


**Figure 2.2: The Health Belief Model**

### Perceived Susceptibility

Perceived susceptibility refers to the ability of an individual to take preventive measures on the chances of them contracting different diseases that will be difficult to cure and mitigate.

It can also be referred to as individual's perceptions that a health problem is important and should be treated with immediate effect, regardless of its presenting symptoms and signs (Groenewold, Bruijn & Bilsborrow, 2006; Zimmerman, Nowalk, Raymund, Tabbarah, Hall, Wahrenberger & Ricci, 2003). For an immediate step to take place, there should be action that needs to be acted upon, in order to increase the vulnerability of that specific health condition that requires treatment (Mikhail, 2006; Tarkang & Zotor, 2015; Jones & Bartlett, 2010). So people who view themselves as susceptible to HIV diagnosis will be more willing to go for HIV testing, especially, voluntary testing and they will be more likely to take their ART treatment adherently if they find out that they are HIV positive; but those who view themselves as unsusceptible will be more unlikely to go for HIV testing and even when they find out that they are HIV-positive in another way, they are most likely not going to take ART treatment.

**Perceived Severity**

Perceived severity is the individual's assessment of the seriousness of a health problem that is occurring and its severity after considering its consequences. So if the patients perceive their health condition as being - serious and life threatening, causing damage within themselves or causing disability and as well as having other effects in their functioning regarding their school, work and financial life (Zimmerman, Nowalk, Raymund, Tabbarah, Hall, Wahrenberger & Ricci, 2003) - they are more likely to take any preventive measures that are possible to prevent the occurrences of such consequences in their lives (Tarkang & Zotor, 2015; Pender, Murdaugh & Parsons, 2011). So it is among those HIV-diagnosed patients who will evaluate the effects of not taking their ART treatment, who will be willing to take ART adherently to avoid HIV progressing to AIDS rapidly. It is, hence, the seriousness regarding a health condition that will influence taking preventive measures, however, those patients who do not perceive such, with their health conditions, will be more likely not to take preventive actions.

### Perceived Benefits

The focus in perceived benefits reside mainly on the value or efficacy for taking the relevant and required steps to reduce the danger, seriousness and consequences of the health condition that patients are encountered with (Pender, Murdaugh & Parsons, 2011). Patients evaluate the actions to be taken and on how to perform them and if these are beneficial in return and there is evidence based on the success of its application in their lives and in other people’s lives, then they will take the therapy (Scarinci, Bandura, Hidalgo & Cherrington, 2012; Jones & Bartlett, 2010.  So, in the current study it will be that, if an HIV-diagnosed patient has witnessed someone who has been living healthily using the ART for a certain period of time and it was effective, they will be more likely to take the ART treatment as prescribed by the healthcare providers.

### Perceived Barriers

Perceived barriers refer to individual assessment of the effects and obstacles around the health condition while following the preventative measures (Scarinci, Bandura, Hidalgo & Cherrington, 2012; Jones & Bartlett, 2010). The obstacles and effects may be the phobia, side effects of the medication and psychological effects (Tarkang & Zotor, 2015; Pender, Murdaugh & Parsons, 2011).  Relating to our study, HIV-diagnosed patients will look at the stigma, discrimination, mental health issues that may develop while living with the diagnosis and the side effects while using ART treatment. If the perceived barriers assessed through the use of ART are not dangerous, it will influence patients in taking their ART treatment adherently.

### Cues to Action

Cues to action refer to action and events that can help the patients to be more knowledgeable and informative regarding the health condition; it can be external or internal. Internal cues are specifically the physiological symptoms that are linked with health condition; when they occur, they will remind a patient to take his or her treatment (Glanz & Bishop; 2010; Tarkang & Zotor, 2015). External cues are the reminders that can be made on our patient's personal gazette such as alarm set on phones to remind patients about the time to take their treatment (Zimmerman, Nowalk, Raymund, Tabbarah, Hall, Wahrenberger & Ricci, 2003). These cues are also the support from our loved ones, announcement on radios and magazine articles with information regarding HIV treatment; these can all help. When considering the current study, HIV-diagnosed patients who perceive that they are in need of help, will disclose their status to their loved ones so that they can get necessary help from them to deal with their diagnosis. In cases where they will not be reluctant in taking their ART through the symptoms that are brought about by HIV, they will be definitely forced to adhere.

### Self- Efficacy

Self-efficacy is the last concept of HBM which is mostly about individuals believing in themselves to be able to perform a specific action that has good results within their health condition (Tarkang & Zotor, 2015). Patients should feel capable and able of taking the preventive measures to alleviate their health conditions; it is a belief in themselves that will make them succeed in performing the necessary action that is expected (Mikhail, 2006; Tarkang & Zotor, 2015; Jones & Bartlett, 2010). It is basically about individual perception in completing necessary and important actions to better proceed with an acceptable behaviour; HIV-diagnosed patients need to attend their medical appointments with healthcare providers to succeed with their ART treatment and take their ART medication regardless of the presence of mental health issues that can hinder them and suppress them in taking them adherently is necessary (Pender, Murdaugh & Parsons, 2011).

## 2.3 Chapter Summary

The researcher has discussed in details SCT and HBM theories with regard to their history, how they developed, by who and when, main concepts and their application in the current study**.**

# CHAPTER THREE: LITERATURE REVIEW

## 3.1 Introduction

Literature review is defined as an evaluative and analysed report of information that has already been collected by other researchers in their studies. It describes, summarises and gives a theoretical base for the current study (Lawrence, 2011; Literature Review Tutorial, 2015).

HIV continue to be a major disease in all countries, therefore, it is not surprising that HIV-diagnosed patients do require support in order to stimulate their emotional, cognitive and psychological wellbeing (mental health). Mental health is affected mostly by any trauma that is experienced and with HIV, after patients becomes aware of their diagnosis for the very first time, from the stigma attached to HIV and the fact of living with an incurable disease (Castro, 2005; Moore & Posada, 2013). It has been recognised that HIV-diagnosed patients face a number of mental health issues that interfere with their ability to adhere to medication properly. In this chapter, the researcher reviewed relevant literatures such as books, journals and articles in relation to the topic of the study. The literatures helped in widening the study and giving deep sense and understanding of the objectives formulated in the study. The researcher will discuss HIV status in relation to adherence and mental health including the status of adherence and mental health internationally; in three African countries and engage in more detailed look at South Africa, narrowing the discussions to Limpopo province and Vhembe District. Lastly, the mental health issues that HIV-diagnosed patients are faced with will be elaborated upon.

## 3.2 HIV AND ART ADHERENCE

Adherence is defined as taking any medicines correctly, timely and at the right dose as prescribed by the doctor, nurse and any professional healthcare provider (Maskew et al., 2007). Strict adherence is required among HIV-diagnosed patients and taking ART daily helps to achieve therapeutic successes in HIV management. Adherence is a highly recognised clinical factor that is influenced and aimed at worldwide, especially when it comes to HIV (Sunpath *et al.,* 2011; Nachega, 2004). It is those who are living healthily and adhering to ART who improve their wellbeing and mental health capacity (Wang *et al.,* 2008).

### 3.2.1 Overview of the CD4 count and Viral load

CD4 count is the results that come afterwards of administering HIV test, showing the levels and number of CD4counts cells presence within an individual's blood (Yeni, *et al.,* 2002). This test helps the healthcare providers in determining the strength and weakness of the immune system. And determining the damages that had occurred in the immune system and what can possible happen in future if the antiretrovirals are not taken at all or not adherently (Ford *et al.,* 2017; Johnson *et al.,* 2013). After HIV diagnosis is a must that all patients who are HIV positive should take the ART in order to attain a normal range of CD4 starting from 500c/mm3 to 1,400c/mm3 (Govender, *et al.,* 2014; Yeni, *et al.,* 2002). Above 350c/mm3 patients are advised to take their ART treatement and adherently so, while between 200c/mm3 and 350c/mm3 is risky and patients are advised to take their ART (Dybul, Fauci, Bartlett, Kaplan & Pau, 2002; Yeni, et al., 2002). Whereas below 200c/mm3 is highly risky and patients are recommended to take their ARV's as in this state they will be vulnerable to many infectious diseases and HIV is advanced to can easily progress to AIDS (Govender, *et al.,* 2014; Yeni, et al., 2002).

CD4 counts goes hand in hand with the viral load. Viral load is the concentration or amount of the virus in the blood as a way of showing how sick the patient is. The higher the level of viral load the higher the chances of HIV progressing from one state to another and the possibilities of the patients becoming more weaker and sick (Dybul, Fauci, Bartlett, Kaplan & Pau, 2002; Yu *et al.,* 2018; Tang *et al.,* 2017). When the viral load is over 1000 copies/ml HIV is considered to be high, between 50-1000 copies/ml shows that there is actually no change in HIV status and ART is needed while adherence must be addressed with the patients (Dybul, Fauci, Bartlett, Kaplan & Pau, 2002, Johnson *et al.,* 2013; Govender, *et al.,* 2014). Lastly below 50copies/ml it's in undetectable/suppressed and it indicates that ART are taken adherently and they are successfully controlling the virus. The CD4 count should increases when taking ART adherently and whiles the viral load should decreases overtime when patients takes ART (Dybul, Fauci, Bartlett, Kaplan & Pau, 2002; Govender, *et al.,* 2014).

### 3.2.2 Overview of the importance of ART adherence

Optimal ART of 95% is important to attaining the best outcomes when managing HIV/AIDS. ART is a long-term plan for HIV/ AIDS and requires the patient to have at least 95% adherence to prevent the emergence of drug resistance (WHO, 2006; Collins, Holman, Freeman & Patel, 2006). High levels of adherence are essential for optimal benefit of ART. ARV medication has to be taken every single day at the same time for the rest of the patient's life for the simple fact that the disease process is chronic and ARVs manage and suppress the virus (Maswikiti, 2011; Wang *et al.,* 2009).

When therapy fails then the disease rapidly progress leading to ill health, dire consequences and more burden to the healthcare resources, world-wide (DOH, 2010). Adherence to ART continues to be a challenge because when patients default it limits their options (Nwokike, 2004). The chronic nature of HIV/AIDS demands commitment from patients to be prepared to take medication (correct dosage, minding the specified time and in a particular way taken concurrently with food or after eating) for the rest of one's life (Peltzer *et al.,* 2010). The Department of Health ensures that there is sufficient pre- and post-testing counselling; given the burden, the process seems overwhelming (Holstad, Pace, De & Ura, 2006). Numerous factors can affect how adherent a patient is and mental health is at the core, including psychosocial, cultural, healthcare provider, and diagnosed person’s own factors. Studies also maintain that the supply of ART in the society may hinder some people from pursuing ART because privacy and confidentiality are not protected and consequently they default (Fredlund & Nash, 2007; Peltzer *et al.,* 2010); too many pills may also lead to relapse (Wang *et al.,* 2008); studies have also identified that social and psychological support serve a critical component in encouraging patients to continue to adhere to their medication (Holstad *et al.,* 2006; Nachega, 2004 ).

Beer et *al.,* (2012) note that a high level of adherence to antiretroviral therapy is essential to achieve sustainable viral suppression and better clinical outcomes in HIV-diagnosed patients. Other studies have supported this idea that higher levels of ART adherence is linked with improved, immunological and good clinical outcomes, and also adherence has been found to be the most attainable way to determine outcomes from HIV-diagnosed patients (WHO, 2006; Matchtinger & Bangsberg 2006). ART adherence is one of the major concerns in the public health sector and it is critical for people living with HIV or AIDS; for its effectiveness, HIV-diagnosed patients has to adhere to prescribed ART medications. Adherence to ART it is far more than just taking the pills, it is a lifestyle of living healthy, exercising and eating healthy food. Adherence is also a form of a process and HIV-diagnosed patients are expected to be an active member in the same process (Nachega, 2004; Sunpath *et al.,* 2011; Mills 2011). Health-care providers also believe that ART adherence is more than taking one’s medication, it also includes diet, and or executing lifestyle changes.

### 3.2.3 HIV and AIDS adherence in South Africa

In South Africa, various studies have been conducted on HIV/AIDS. Bhat *et al.,* (2004) found 37,5% of poor adherence to ART; Nachega, Stein, Lehman, Hlatshwayo, Mothopeng, Chaisson and Karstaedt (2004) has established 95% level of ART adherence in Soweto; Peltzer *et al.,* (2010) they all- got 82.9% level of adherence from newly initiating ART patients at one of the 3 public hospitals in KwaZulu-Natal; Laurent *et al.,* (2002) has established 87.9% level of adherence among HIV-diagnosed patients on high antiretroviral therapy from a 18-months follow-up study; Oyugi *et al.,* (2004) revealed91%-94% of adherence in HIV antiretroviral therapy in a resource-limited setting; Harries *et al.,* (2001) collaboratively emphasised that there is poor adherence to ART treatment in sub-Saharan Africa including, here in SA (Gill *et al.,* 2005). According to Wood *et al.,* (2007) in SA many studies have been conducted pertaining to HIV and adherence to ART, however, results always show a low level of adherence being attained from these previous studies and there are many barriers to ART adherence.

### 3.2.4 Barriers to ART adherence

Being HIV-positive to some people is perceived as some sort of a curse; some patients after discovering their status, prefer to hide it until a later stage, when they are ready to disclose, then they inform their loved ones. Mothers or caregivers who are infected with HIV struggle with the diagnosis alone, in secret (Mellins, Brackis-Cott, Dolezal & Abrams, 2004). Mills *et al*., (2006) conducted a meta-analysis in 72 high-income countries and 12 low- and middle- income counties, comprising of five African countries and found that barriers to ART optimal adherence include fear to admit one’s positive HIV status, complex medication, being absent, and failure to remember to take medication. In addition, social, historical, and geographical contexts have an effect on the level of adherence (Gilbert & Walker, 2009); Socio-economic constraints and interruption in the supply of medication, insufficient knowledge about HIV/AIDS and stigma obstructed optimal adherence (Kempf *et al.,* 2009).

Studies conducted in Zambia looking at the determinants of ART adherence found that lack of social support, depression, discrimination and the inability to speak openly about one’s HIV status, food insecurity, health service- related factors, medication and side effects were acknowledged as barriers to ART adherence (Dahab *et al.,* 2008; Murray *et al.,* 2009; Kip *et al.,* 2009).

Nordqvist, Sodergard, Tully, Sonnerborg & Lindbald (2006) note that in an Australian sample, out of the 270 HIV-infected patients who were not adhering to ART, the most common reason that was provided related to being afraid of the side effects. Defaulting is also as a result of fear of disclosing own status and many miss doses leading to lower rates of adherence (Musheke *et al.,* 2012). Some HIV-diagnosed patients fear being discriminated by other people once they find out that they are HIV positive, however, causes of these fears stem from disclosure and rejection, losing loved ones, death, transmitting HIV to a partner, change in quality of medical care, changes in the manner of obtaining HIV medication and lastly HIV progression (Kylma, Julkunen & Lahdevirta, 2003).

The following are some of the patient-related factors that other researchers have found and agree may lead  HIV-diagnosed patients to stop taking their medication - non-disclosure,  adjustment to the diseases, failure to understand and accept the diagnosis, travelling far away from home maybe due to work or visiting relatives, staying too far from the hospital/clinic, some patients preferring to receive ART far away from  home as a way of hiding their diagnosis; too sick to attend the medical appointment; relocation or transfer to their nearest clinics; running out of ART medicines and patients not seeing that it is problematic, being hospitalized as a result of HIV progressing to AIDS; all these reasons weaken the immune systems (Chesney, 2000; Chesney, Morin & Sherr; Smit *et al.,* 2006; Tweya *et al.,* 2018).

### 3.3 Adherence and Mental Health, Internationally

HIV was originally found in 1930 as mutation virus in a chimpanzee and then it later found its way to the shores to US and was first discovered by the doctors in US as Kaposi's sarcoma and pneumocystis pneumonia in 1960; HIV was specifically identified in human beings in US in 1981 (Wilson, Wright & Isbell, 2008). HIV was thought as affecting gays in a large number and indeed about 70% of HIV-infected people are particularly gay men and other men who have sex with men and bisexuals. Many studies evaluating the prevalence of mental health challenges for HIV-infected individuals have been conducted (Gaughan, Hughes, Oleske, Malee, Gore & Nachman, 2004).

In the US about 1.1 million people are infected and live with HIV, and about one in seven (more than 180,000) are not aware that they are infected with HIV. The United State of America (USA) has an on-going HIV epidemic and around 37,600 new infections occur yearly; in 2016 there was 39,782 new HIV diagnosis, while 692,790 people have died due to AIDS-related illnesses (SAMSA, 2017). The expected level of adherence in the US is =/> 95%; that is regarded as good adherence. There are various studies that had been conducted in the US showing different levels of adherence. In the study by Beer & Skarbinski, (2015) there was 100% of self- reported adherence among the HIV-diagnosed participants; O'Connor *et al.,* (2013) established a 100% rate among 5,295 HIV-diagnosed patients whom were receiving ART; Tedaldi *et al.,* (2012) also found 100% level of adherence among HIV-infected adults in the US. Hogg *et al.,* (2002) found < 75% of patients taking ART for period of 1 year, while de Olalla, Knobel & Carmona, (2002) found <90% level of adherence in Spain in a study of impact of adherence on highly active antiretroviral HIV-diagnosed patients.; Sax *et al.,* (2012) established 95% level of adherence to ART among self-reporting individuals.

The levels of adherence are high in US although there are many people who are living with HIV. The US has introduced an innovation of incooperating mental health and addiction services within HIV care, which results in the improvements in quality of life and health of PLWHIV (Dodds, Nuehring, Blaney, Blakely, Lizzotte, Lopez & Sullivan, 2004; Nebelkopf & Penagos, 2005). Other studies have indicated that people living with HIV are more likely to be affected by mental health problems than other people in the general population; problems include depression, anxiety, suicidality and substance use (Catalan, Harding, Sibley, & Clucas, 2011; Clucas, Sibley, Harding, Liu, Catalan & Sherr, 2011; Rackstraw, 2011). HIV-related stigma remains a huge barrier in preventing ART, and continues to increase people’s reservations to getting tested, as well as increasing poor adherence to among HIV-diagnosed patients, mostly young people in the US (SAMSA, 2017; UNAIDS report, 2017). Additionally, mental health issues continues to play a major role in preventing HIV-diagnosed patients from accepting and living a healthy life and having plans for their future. HIV appears to be the one disease that comes with many extensive effects on human beings and drains their ability to think and act properly (Clucas *et al.,* 2011; Nebelkopf & Penagos, 2005).

The US has integrated mental health services into HIV programmes after identifying that those diagnosed suffer depression. The following section examines some of the numerous studies that had been conducted, although, their findings are more or less the same. Diliorio, (2009) reported that among the HIV-diagnosed self-efficacy plays a role through its relationship with adherence which may lead to depression and increase the level of stigma and discrimination against HIV-diagnosed patients; Cardarelli, (2008) measured the health status of patients on ART and found that depression and stigma were some of the factors that lead to poor adherence; Crues, (2007) established 12.8% to 75% depression rate among HIV diagnosed adult living in the US; Berg, (2009) reported a 9% rate of depression contributing to the presence of unbearable pain among the HIV-diagnosed patients; Cha, (2008) reported that depression symptoms among HIV-diagnosed patients predicts ART adherence. It is also evident that except for the adherence level decreasing there are some form of mental health issues that are playing a role. Stigma and discrimination among PLWHIV hinders them from taking ART treatment adherently. The self-perceived stigma and external stigma that can be experienced are directed at HIV-diagnosed patients from the society and this is occurring in countries such as US, United Kingdom, Brazil, Botswana, and China (Nam *et al.,* 2008; Sabina *et al.,* 2008; Dlamini *et al.,* 2009; Kip *et al.,* 2009; Naidoo *et al.,* 2009). Brazil also highlighted that it is not only HIV-diagnosed adults who experiences stigma even children diagnosed with HIV do experience stigma (Abadia-Barrero & Castro, 2006). In the US there was 36% 1-year prevalence of depression and 16% prevalence of anxiety among a large national sample of HIV-positive men and women (Bing *et al.,* 2001). Mental health issues are playing a role in such a way that it discourages HIV-diagnosed patients from taking the ART treatment at the required adherence level.

## 3.4. ADHERENCE AND MENTAL HEALTH AND HIV IN THREE AFRICAN COUNTRIES: BOTSWANA, LESOTHO AND ZIMBABWE

### 3.4.1 Botswana

Located in the centre of southern Africa is Botswana which has the second highest rate of HIV infection worldwide; the first HIV case was reported in 1985 (National ARV project team MoH, 2006; UNAIDS, 2016). It is believed that HIV was firstly diagnosed from people with TB, Pneumonia, meningitis and Kaposi's sarcoma; these are the same mode of HIV diagnosis in most parts of Africa, however there is no actual proof as to how HIV started and in which way (HIV & Aids in Botswana, 2013).

The prevalence and impact of HIV/AIDS is hard to determine, however HIV prevalence is estimated to be around 17.6% for the general population and 24% in adult ranging between 15 and above age group; the prevalence rate of HIV women is 26.3% and for men is 17.6%, while the percentage of HIV people who knows their status is 85%. There has been 3900 people dying of HIV-related illnesses in Botswana (UNAIDS, 2016; Botswana National Vision Council, 2016). In Botswana there are more people on ARV than any other country in sub- Saharan Africa and the only country that provides it free for all, with a coverage of 83% on ART programmes (Gupta *et al.,* 2010).

Numerous studies have been conducted in relation to adherence. In Botswana 54% level of adherence to ART treatment was reported among patients living with HIV by Weiser, (2003); 77.0% adherence was reported by Kgatlwane *et al.,* (2006); 83.0% adherence among HIV-diagnosed patients by Nwokike, (2003); 95% ART adherence level was established among 300 HIV-diagnosed patient respondents by Ehlers & Tshisuyi, (2015). This gives an assumption that people are not adhering to their ART treatment, due to the mental health issues that their encountered. There are several studies that have been conducted in assessment of different mental health issues. It is reported that 25.3% of women and 31.4% of men are in depression among individuals living with HIV; Elizabeth *et al.,* (2012) established 48% of depression among HIV-diagnosed patients on ART treatment in Gaborone; Setlhare, Wright & Couper, (2014) found HIV infection results on both internal and external stigma which led to emotional disturbances among PLWHIV. Based on the studies that have been found, it is clear that the levels of adherence are low due to the mental health issues that HIV-diagnosed patients are experiencing after the diagnosis. Stigma is also common in Botswana with 38% of adult reporting at least one stigmatizing attitude that they have experienced (Smart T. & AIDS in Practice, 2005). Another study by Lawler *et al.,* (2011) revealed that about 24 to 38% of depression was reported among HIV-diagnosed patients, while they also experienced suicidal ideation at a level of 9 to 12%. The major mental health issues that affect HIV-diagnosed patients in Botswana is stigma; this highly decreases the level of adherence.

In the beginning of 2002, Botswana formalised a national programme providing universal access to ART for HIV-diagnosed patients on the basis of medical necessity, and as from February 2006, 60470 out of 110 000 HIV-diagnosed patients have been enrolled in this programme. The programme helped to reduce denial, stigma and discrimination among HIV-diagnosed patients because before formalising the national programme in Botswana there was strong evidence that HIV stigma was spreading rapidly (Wolfe, Weiser & Bangsberg, 2006; Wolfe *et al.,* 2008). Botswana was the first country in Africa that introduced the provider-initiated testing and counselling for HIV (PITC) in all its public-sector facilities in 2004 (Farahani, Vable, Lebelonyane, Seipone, Anderson, Avalos, 2014). Mental health has been long initiated for HIV in 2004, with the PITC. HIV testing and counselling (HTC) services being provided in all networks in private, public, and non-governmental organizations and guided by comprehensive national guidance (NACA, 2014).

### 3.4.2 Lesotho

Located 29.6100° S, 28.2336° E of South Africa is a small landlocked country enclave, with a population of 2.2 million called Lesotho. The population is facing a serious crisis with regard to HIV as the prevalence rate is rising every day; this has been recognised since 1993 (LENEPWHA, 2014; Axelsson, Hallager & Barfod, 2015).

It has the second highest prevalence of HIV among adult of 25% and it is one of the world’s third highest prevalence rate country which is offering a highly active antiretroviral therapy; 330 000 people living with HIV and 53% of HIV-diagnosed patients are on ART; 21 000 new infections and 9900 deaths which are HIV-related were reported in 2016 (Bureau of Statistics, 2007; NAC, 2011; UNAIDS, 2013; UNAIDS, 2017). HIV was first diagnosed in Lesotho in 1981 when the first case was recorded; the HIV epidemic is increasing rapidly in the small country (Turkon, Himmelgreen, Daza & Noble, 2009).

There is high level of HIV diagnosis so the adherence level is also expected to rise proportionally to the diagnosis; current adherence levels mostly range between 70% to 90% and 74% of people are using ART while 64% of children are also using ART (Axelsson, Hallager & Barfod, 2015; Lesotho Ministry of Health, 2017). Some studies that have been conducted in Lesotho had revealed the levels of 95% adherence among HIV inmate prisoners by Uthman, Oladimeji & Nduka, (2016); 87.7% level of adherence was reported by Fielding *et al.,* (2008), however, another study found 95% defaulting among HIV diagnosed migrant workers and only 15% adherence to ART (Bygrave *et al.,* 2010). It is obvious that HIV-diagnosed patients in Lesotho are adhering to their ART treatment slowly shown by the levels at which adherence is ranging from these different studies.

In Lesotho HIV-related stigma and discrimination also remain a barrier preventing HIV-diagnosed patients from taking their medications, living healthy and getting proper health services, including mental health care. Depression increases the stigma among HIV-diagnosed patients based on the symptoms they present with due to HIV, and it is also associated with social stigma among HIV-diagnosed patients (Forsman, Nyqvist, Schierenbeck, Gustafson, & Wahlbeck, 2012; LENEPWHA, 2014; Meer, Lunau, Oberth, Daskilewicz & Müller, 2017). Another study by Corno & de Walque, (2013) reported 38. 7% respondents who believe that they would not like it if their family members disclosed their HIV diagnosis to other people to avoid being discriminated and stigmatised by the community people. In Lesotho, the Ministry of Health has set a ground for research to be conducted within a period of five years (2013-2018); the initiative has 190 research areas which are classified under three main focus area - health programmes and services, specific health conditions and lastly support services. HIV/AIDS is classified under the category of ‘specific health conditions research; and is seen as a high-level priority need (Government of Lesotho, 2013; Mugomeri *et al.,* 2017). About 50% of patients who consult in hospitals and clinics are HIV-diagnosed patients; approximately 60% plus were hospitalised and very ill (Lesotho Ministry of Health and Social Welfare, 2010; Nyaphisi & Obioha, 2015).

There is a functional care system that assumes community action for HIV-diagnosed patients, and the units of the community which take responsibility for such actions are hospitals, spiritual leaders, traditional healers and professionals such as social workers, counsellors, nurses and volunteers. They work on an integrated perspective in caring for HIV-diagnosed patients in their own home environment (Nyaphisi & Obioha, 2015; Thope, Emeka, Mpheni & Mpheni, 2008).

### 3.4.3 Zimbabwe

Located in between the Zambezi, Limpopo Rivers and bordered by SA in southern Africa is Zimbabwe. HIV/AIDS was first reported in this country in mid-1980s and currently there are many people living with HIV (Alison *et al.,* 2017; MoHCC, 2017). In Zimbabwe the most infected group among the whole population are adults aged between 15 and 49 years. There are 1.3 million people living with HIV which is 13.5% of adults; for those living with HIV, 74% self-reported cases currently use antiretroviral therapy. There were 40 000 new infections and about 30 000 HIV-related deaths in 2016 (UNAIDS, 2017).

Zimbabwe has the sixth highest HIV prevalence in sub-Saharan Africa and 75% of the population know their status and are living with HIV. From 2009 there has been a significant decline in HIV prevalence due to change of behaviour among the people and use of condoms among sex street workers, and the high death rates of HIV-diagnosed patients (National HIV and AIDS Estimates, 2009). Additionally, several studies have indicated the levels of adherence from HIV-diagnosed patients had suddenly decreased. Alison *et al.,* (2017) established a 39.1% adherence from HIV-diagnosed women on ART who were breastfeeding their babies; MoHCC, (2015) found that 67% of HIV-diagnosed patients were adhering; WHO, (2011) reported that 47% adults living in Zimbabwe were adhering and taking ART seriously, therefore high adherence has been recorded in this country.

The impact of discriminatory attitudes towards PLWHIV, HIV/AIDS-related stigma and discrimination has been reported; 65% among PLWHA have experienced stigma and discrimination (Zimbabwe National Network of People PLWH, 2014). Stigma acts as a barrier to Voluntary Counselling and prevents HIV-diagnosed patients form taking ARV adherently (Abadia-Barrero & Castro, 2006). Disclosure among HIV-diagnosed people is limited since in Zimbabwe, patients fear that they will be discriminated and are afraid that they will not get appropriate support from spouses, families and friends as they believe that people are less cooperative when it comes to HIV-related issues, especially, with giving adequate help or support (Kidia *et al.,* 2015; Mucheto *et al.,* 2011). Depression also has impacts on PLWHA as it prevents them from adhering to their ART, as well as other issues like impairing concentration, memory, problem solving, and motivation; these have huge impact on the mental health of HIV-diagnosed patients (Mills *et al.,* 2010; Pearson *et al.,* 2008). These challenges lead to poor mental health for those who are HIV-diagnosed, additionally, poor mental health contributes to the progression of HIV to AIDS faster than it normally does with an HIV patient who is taking ARVs. Pearson *et al.,* (2008) reported that HIV-diagnosed Zimbabwean men live in fear of stigma and it makes them to delay in starting ART treatment. Shubber *et al.,* (2017) established different levels of depression as one of the contributing factor to poor adherence as reported by HIV-diagnosed patients on ART - 15.5% adults, 25.7%, adolescents and 15.1% children. Mental health and HIV comorbidity are rated high in Zimbabwe, as many HIV-diagnosed patients are encountering many mental health issues; however, 94% of facilities are offering mental health care for HIV-diagnosed patients (Chibanda *et al.,* 2011).

## 3.5. SOUTH AFRICA

Located in between the Zimbabwean border, Lesotho, Zambia and Mozambique in northern Africa is SA. Sub-Saharan Africa continues to be the one that has the highest rate of HIV/AIDS and the first two official cases to be recorded about HIV/ AIDS was in 1983 among two people (Ras, Simson, Anderson, Prozesky & Hamersma, 1983; UN Joint Programme on HIV/AIDS, 2010; UNAIDS, 2017). SA is one of the countries that fall within sub-Saharan and it has the largest HIV epidemic in the world (Shisana, Rehle, Simbayi, Zuma, Jooste & Pillay-van-Wyk, 2009). The following are the rates of HIV prevalence's in SA from 2002 to 2018.

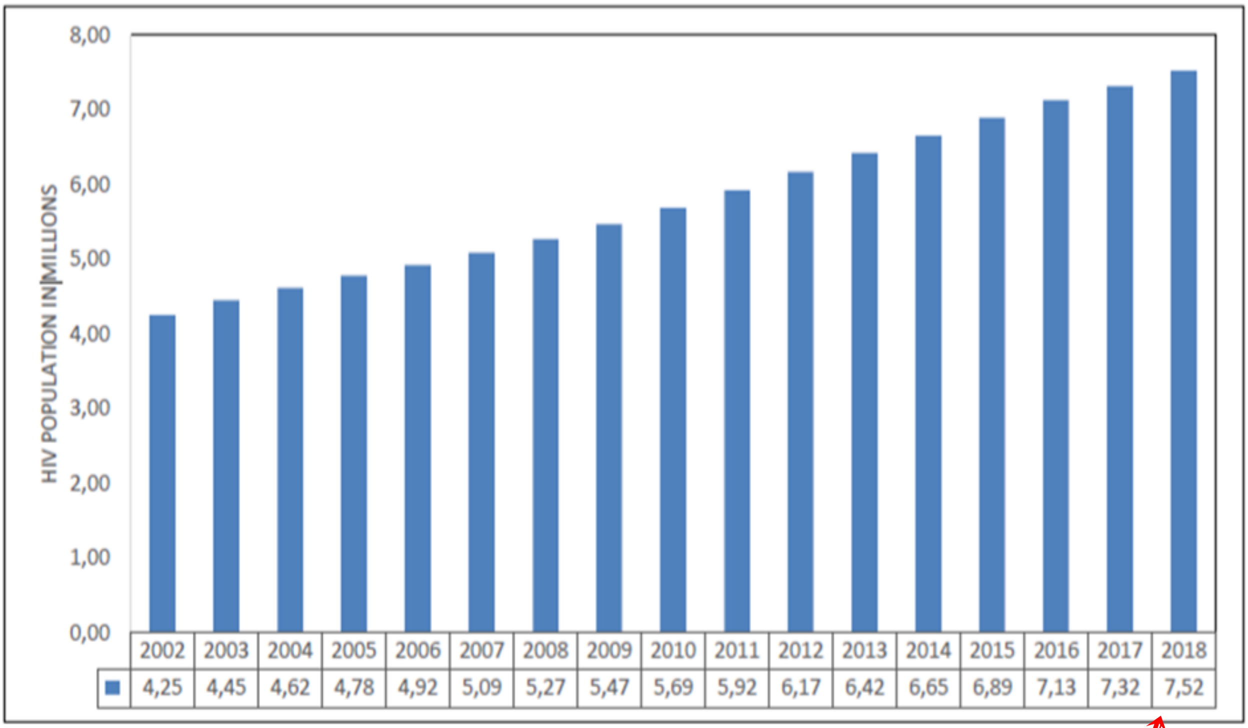


**Figure 3.1 HIV Population over time, 2002–2018 (Mid-year SA statics, 2018)**

**Table 3.1 HIV prevalence (%) estimates and the number of people living with HIV in South Africa, 2011- 2017.** (2016 Mid-year SA statics; UNAIDS, 2017)

| **Years** | **Women 15-49** | **Adults 15-49** | **Youth 15-24** | **Total Population(millions)** |
|---|---|---|---|---|
| **2011** | 21.2 | 18.1 | 6.3 | 11.8 |
| **2012** | 21.5 | 18.3 | 6.2 | 12.0 |
| **2013** | 21.8 | 18.5 | 6.1 | 12.2 |
| **2014** | 22.0 | 18.7 | 5.9 | 12.4 |
| **2015** | 22.2 | 18.8 | 5.8 | 12.5 |
| **2016** | 22.3 | 18.9 | 5.6 | 12.7 |
| **2017** | 21.17 | 18.9 | 4.64 | 12.57 |

The Table shows increases in HIV prevalence from 2002 up until 2017. The total number of people living with HIV in 2017 was 7.1 million which is 12.57%, and the prevalence of death caused by AIDS is 25.03 % which is approximately 110 000 people in number; the prevalence of women (15-49) living with HIV is 21.17%, adults (15-49) is 18.9% and lastly youth (15-24) is 4.64%; there were also 270 000 new HIV infection (Simelela & Venter, 2014; UNAIDS, 2017).

In SA an accepted level of HIV adherence is 95% but there is 80% adherence among HIV-diagnosed patients living in SA (Simelela *et al.,* 2015), however, there is 93% overall level of adherence among HIV diagnosed patients among the adolescents (Kim, Sung-Heea, Gerver, Sarahc & Helen, 2014). The Health system and patient factors play a huge role, however, SA still is confronted with a burden heightened by limited resources; there is 54% coverage of ART in SA (Myer *et al.,* 2008; UNAIDS, 2017). In an effort to achieve optimal adherence, most provincial services endorse the importance of integrating mental health into Primary Health Care (PHC), and some training initiatives have been undertaken for PHC nurses. There have been several studies that have been conducted in view of the level of adherence among HIV-diagnosed people. Evans *et al.,* (2013) elaborated that there is 87.40 % adherence among adolescents from an HIV clinic in Mpumalanga; Mutevedzi *et al.,* (2011) established a 81.68% level of adherence among adults on ART in rural South Africa; Eyassu, Mothiba & Mbambo-Kekana, (2016) found 77% adherence among HIV/AIDS patients form Kwa-Thema clinic in Gauteng; Nachega *et al.,* (2009) found 63. 04% of adherence among adults and adolescent living with an HIV diagnosis; Nglazi *et al.,* (2012) established 90.07% level of adherence among adolescents from a community-based ART clinic in South Africa, whiles Van Cutsem *et al.,* (2010) found that among the youth and adolescents on ART at Khayelitsha, there was 94.76% adherence. There is, however, low levels of adherence among HIV-diagnosed patients in SA.

Studies done in SA revealed that HIV-diagnosed patients are faced with stigma at high levels which affect their mental health and lead to a decline in adherence behaviours. Stigma and discrimination also lead to a heighted degree of depressed mood which can also compromise the functioning of the immune system among HIV-diagnosed patients

(Colombini, James & Ndwiga, 2016; Woollett & Hatcher, 2016; Petersen & Lund, 2011). In addition, stigma seems to cause people to avoid Voluntary Counselling Testing (VCT), many feel that it is better to live without knowing one's status so as to avoid suffering emotionally. HIV was also found to lead to violence and conflicts within couples as the disclosure of one can lead to arguments and blaming of one another for bringing the diseases into the marriage (Colombini, James & Ndwiga, 2016; Pitpitan, Kalichman & Eaton, 2012).

Myer *et al.,* 2008; Cluver, Orkin, Gardner & Boyes, (2012) suggest that there is a lot of loss of trust as spouses struggle with disclosure; this aggravates the situation of 2. 4 million children being left orphaned due to HIV/AIDS in SA (HIV nursing matters, 2014, Pitpitan, Kalichman & Eaton, 2012; Woollett & Hatcher, 2016; Cluver & Gardner, 2007; Cluver & Gardner, 2006). Depression, suicidal ideation, unsatisfactory behavioural including social difficulties and anxiety account for negative mental health (Freeman, Nkomo, Ntlabati & Kleintjies, 2005; Myer *et al.,* 2008; Smit, Myer, Middelkoop, Seedat, Wood, Bekker & Stein, 2006).

Unsatisfactory mental health in SA as a whole is 22,7% and among HIV-diagnosed patients on ART, 25.4% to 30.6% as HIV-diagnosed patients on ART have shown some symptoms of anxiety and depression (Campos, Guimarães, & Remien, 2010; Pappin, Wouters, & Booysen, 2012). A small percentage of a medical doctors training is devoted to mental health, while 21% of undergraduate nursing training is devoted to mental health (Day, Gray, & Budgell, 2011; Pitpitan, Kalichman & Eaton, 2012). Department of Health, (2009) estimated that in May 2009 in SA, there were approximately 4624 government-run VCT sites, 96% of those were being operated in public facilities, such as hospitals, health centres and clinics. There are organisations that provide educational workshops for mental health problems for both HIV-positive and HIV-negative people. For example, the South

African Depression and Anxiety Support Group (SADAG) help people in identifying symptoms of depression. In South Africa, client-initiated VCT is one of the most relied means of implementing HIV/AIDS- related care, like ART (Haffejee, Groeneveld, Fine, Patel & Bowman, 2010; Seedat, 2012).

Various studies have been conducted in SA to measure the level of depression among HIV-diagnosed patients. Myer *et al.,* (2008) established that there is 14% level of major depression; Brandt *et al.,* (2007) found an increase of 12.3 % level of depression; *Thom et al.*, (2008) found 21% level of major depression among HIV-diagnosed patients; Freeman *et al.,* (2008) established that there is 35% of major depression; Shishana *et al.,* (2005) found 41.6 % level of depression and Moosa *et al.,* (2005) and Moosa & Jeenah, (2012) established 40%-56% level of depression among HIV-diagnosed patients. These are only some of the studies that have measured the level of depression and have identified it as one of the mental health issues among HIV-diagnosed patients.

### 3.5.1 Limpopo Province

Limpopo is a province illustrating the low adherence rates of South Africa. It is one of the poorest provinces in the country; it has poor infrastructure, public services and health including mental health; it has many hospitals, clinics and health centre (DHIS, 2016). In Limpopo province, the government has measured the availability of assessment and protocols, for key mental health conditions, in primary health care clinics; it was found that there is 0% of Physician-based PHC clinics and 81-100% of Non-physician-based PHC clinics (WHO, 2010).

The prevalence of HIV in Limpopo province is 9.2% for both men and women aged between 15 and 49, and 1105987 individuals were infected with HIV in 2015 and 2016 (DHIS, 2016). There is 31.4% level of adherence among HIV-diagnosed patients (WHO, 2016). Mulelu, (2016) in a study on “Knowledge, attitudes and experiences of people living with HIV who are on ART at a public health clinic in Limpopo, South Africa” found that there is suboptimal level of adherence. Ledwaba, (2016) studied the Outcomes of the ART intervention in Mankweng and found that failure to achieve good viral load lead to low adherence. The need to integrate proper services for the HIV diagnosed patients must be given attention to address mental health needs of the patients (Mabunda, Ramalivhana & Dambisya, 2014; Mashau & Davhana, 2009).

### 3.5.2 Vhembe District

Vhembe District is located in the northern part of Limpopo Province. It comprises four sub-districts, namely, Musina, Mutale, Thulamela and Makhado. The district has a population of 1 367 186, with a population density of 53.4 people per km2. From April 2015 to March 2016, 259 227 of the 1 516 487 people in Limpopo were HIV-positive, while 52 408 people were found to be HIV positive out of 387667 in Vhembe district (Erasumus, 2016). There are 116 clinics, 07 hospitals that are helpful and in these health facilities, there are 74, 3% of HIV-diagnosed patients who are engaged on ART programmes (Info4Africa, 2016; WHO, 2016). There are 11, 48 % deaths which were HIV-related that had occurred in all these facilities (Mid-year SA statics, 2016). In overall, in the Vhembe district, there is 5.4% of ART adherence among people living with HIV (WHO, 2016).

Ndou, Maputle, & Risenga, (2013) focused on HIV-diagnosed patients’ experiences towards ARV treatment; Ndou, Maputle, & Risenga, (2016) conducted a study of perceptions of care at selected ART clinic located in Vhembe district, however, their studies did not reveal the adherence level. One study found that there was 68.9% of adherence while 55.8% of adherence among HIV diagnosed patient from Nzhelele who were experiencing stigma (Mathivha, 2012). The majority of the adhering participants, 55, 8% and 68.9% of the non- adhering group never experienced any negative reaction from their families after disclosure. According to Mashau and Davhana, (2009) HIV continue to be a major problem as there are issues of disclosure among the HIV-diagnosed patients, therefore they find it difficult to disclose and many only speak when they are very sick. Not many studies have been conducted in Vhembe district specifically for ART adherence and mental health among HIV- diagnosed patients.

## 3.6 MENTAL HEALTH ISSUES FACED BY HIV -DIGNOSED PATIENTS

When patients are diagnosed with HIV at an early stage, their physical health is not the only issue they have to deal with along with the physical illness, there are mental health issues that may come up, such as grief, distrust, major depression, anxiety and stress (WHO, 2010; Petersen & Lund, 2011). Mental health is referred to as the overall well-being of a person, including a person's mood, emotions, and behaviour and the ability of an individual to function effectively, with the absence of a mental illness (Chege, 2004). Patients become surprised when learning of their HIV status; some feel overwhelmed and the reactions towards the infection differ with patients' perception and personality (DOH, 2007). Some feel overwhelmed by the changes that they will need to make in their lives.

### 3.6.1 STAGES OF GRIEF

Grieving is an unavoidable part of living for all of us. People grieve when they lose loved ones or when diagnosed with chronic illness. HIV-diagnosed patients begin to grieve when they think of the diagnosis as HIV as a life-threatening disease (Kevin, 2014). Being diagnosed with HIV and AIDS has a significant effect in one's life, since it involves huge changes, emotionally, physically and psychologically (Demmer, 2001; Lewis, 2001). When a person finds out that he or she is HIV-positive, that in itself becomes a living nightmare; immediately HIV-diagnosed patients are informed about their diagnosis, their world becomes blurry for a moment, thinking that they will be dead soon; they experience shock, disbelief, anger, numbness, guilt, fear and denial. These and some other emotions occur; they further struggle in accepting their diagnosis, how people will react to their diagnosis, how will they face their diagnosis and how will they disclose their status to their spouses, family and friends. The fear of death is what makes HIV the ultimate feared disease, and this fear destroys relationships and friendships (Tanner, 2016). There are five stages that a person undergoes when diagnosed with a fatal illness. Its acronym is DABDA, which stands for Denial/isolation, Anger, Bargaining, Depression, and Acceptance (Amandia, 2005; Demmer, C. (2001). In this study we will focus on these stages of grief in relation to HIV & AIDS of diagnosed patients.

- **Denial/ Isolation**

Denial is defined as the refusal to accept reality. In the first stage, an HIV-diagnosed patient might refuse to believe what he/she is hearing from the nurse/doctor or any medical professional. HIV-diagnosed patients deny their positive results and isolate themselves and refuse company (Crain, 2012; DABDA Process of HIV/AIDS, 2015; Tanner, 2016). This is a transitory reaction in closing down and isolating themselves; this allows them to endure the initial onslaught of pain (Kevin, 2014). Papadatou, (2000) notes that the patient may think or believe this is a nightmare; that the doctor's diagnosis is inaccurate or that something went wrong during the screening process or that there was a mix-up with their result, even after confirmatory testing shows that it is a true positive result (Anderson, 2005; Papadatou, 2000; Parry, 2007).

Patients feel that it is only a dream, that they will soon wake up from this dream; what is amazing is that this dream takes too long for one to awaken from. It is later, when a few days have passed, that patients will then realize it is indeed true; next they question how they contracted HIV, what led to this position. The stage of denial serves as another way of seeking protecting by HIV-diagnosed patients from facing the reality; once the patients transit from the ‘dreaming world’, reality hits and the patient begins to ask himself/herself many questions (Demmer, 2001; Lewis, 2001; United States Agency for International Development, 2000). According to Anderson, (2005) it is the first natural and normal reaction to such situation; it is a normal response in the sense of the overwhelming emotions and it is a defence mechanism that shields the HIV-diagnosed patients from the immediate shock. Patients continuing with the questions now asks - how many partners they had had, how many they had slept with; could it be Jimmy or Mary who gave me the infection? After these questions, patients then proceed to the anger stage.

- **Anger**

At this stage patients become angry with people. First, they blame partners that they had been involved themselves with sexually or the current spouses who they are in a relationship with. As the stage proceeds, they become angry and dangerous to themselves and other people in general. It is also normal to feel sad when patients learn that they are HIV positive (Cheng, Lo, Chan, Kwan & Woo, 2010). Anger acts as a shield for preventing denial and isolation; it can be directed or aimed at anyone or anything, from close friends or family to inanimate objects. Anderson, (2005) states that anger can be rational or irrational. Rational anger refers to when a patient is blaming the medical profession, the nurse and doctor for perceived incompetence or inaccurate test results. Irrational anger is when an HIV-diagnosed patient’s anger is directed at an elderly person who has outlived loved ones; this feeling makes the patients feel guilty which even turns into more anger on themselves (Amandia, 2005).

Kevin, (2014) explains that anger may also be directed at deceased peoples, like friends, parents, siblings and spouses and other relevant people; rationally the patients know the person is not to be blamed, but emotionally they may resent them for leaving them and causing them pain. In reality the patients knows the person is not to be blamed. Shanthi, Damodharan & Priya, (2007) referred to a report of 2014 wherein a woman aged 19, allegedly admitted to purposely infecting over 300 men after finding out that she was HIV-positive and although the report's authenticity could not be confirmed, it left many people in shock. These leads to the bargaining stage of grieving when diagnosed with HIV.

- **Bargaining**

The third stage is bargaining, usually done on one's knees, hands clasped together, begging for an extended life from a higher power and authorities. Patients often need to regain control and they ask themselves the 'if only' questions in a bid to change the inevitable (Karasz, Dyche, & Selwyn, 2003). Statements, such as, *'If only I had listened more and abstained when there was still time*, *If only I had gone to the doctor sooner, If only I 'did have my test results earlier than this*, or *If only I had not even engaged in sexually activities are some of them*. HIV-diagnosed patients often bargain with God or some other higher powers in an attempt to alter the past, knowing exactly that it cannot happen. It at this stage that HIV-diagnosed patients may pray consistently asking God for second chance and promising and/or swearing to Him that they will change and become better Christians and faithful man or women of God. Again this acts as a defence to shield from a painful, unchangeable reality; some patients even bargain for an extension of their lives from God by fasting daily or avoiding committing a sin at least for a certain period of time (Cheng *et al.,* 2010; Papadatou, 2000; Demmer, 2001; Karasz, Dyche, & Selwyn, 2003; Tanner, 2016). As the time goes on, HIV-diagnosed patients graduate from this stage of bargaining to depression.

- **Depression**

Cheng *et al.,* (2010) reveal that at the fourth stage, patients enter a catatonic state - unresponsive and unusually sleeping. At this stage, HIV-diagnosed patients are more dangerous to themselves than to others; there are two types of depression associated with grief (Karasz, Dyche, & Selwyn, 2003; Tanner, 2016). This is most definitely, a difficult stage to pass through as the HIV-diagnosed patients are now aware that it is true - they are definitely positive and there is nothing they can do to change the diagnosis; it is what it is (Kevin, 2014). Depression is defined as a heterogeneous disorder that affects how the person feels, thinks and acts. A person has to present with at least four symptoms of depression, in order to be diagnosed with depression (APA, 2000). To diagnose depression there has to be four or more of the following symptoms occurring at once within an individual - feeling sad, having depressed mood, loss of interest in pleasurable activities, changes in appetite, insomnia, fatigue or losing energy, increased focus on physical activities; feeling guilty and/ or worthless, feeling helpless, experiencing difficulty in concentrating, wanting to spend time alone and suicide ideation (DSM-5, 2013). The first reaction in depression is reactive depression that is the practical implications of the illness - sadness and regrets - (Parry, 2007). HIV-diagnosed patients worry about how their lives have changed; they further ask themselves how they will cope and also worry that they are not spending time with loved ones (Papadatou, 2000).

In reactive depression, HIV-diagnosed patients withdrew from other people friends and family and spend most of their time indoors, alone, thinking about their diagnosis, and in their work, they will create a distance from their colleagues and spend time working alone and go for lunch alone, creating more time to think about the diagnosis (Demmer, 2001). The second reaction is when the HIV diagnosed patients worry about how their lives will change with additional questions of how to cope with the change socially, psychologically, physically, emotionally and spiritually (Anderson, 2005; Nyambeni, 2009; Parry, 2007). Depression among HIV diagnosed patients leads to patients being sad against themselves, blaming themselves because of the diagnosis, thinking that being HIV-positive is the end of the world, that they will die sooner or later and more focus is placed on the diagnosis rather than taking their ART treatment, adherently (Freeman, Nkomo, Ntlabati & Kleintjies, 2005; Myer *et al.,* 2008; Smit, Myer, Middelkoop, Seedat, Wood, Bekker & Stein, 2006; Freeman *et al.,* 2008; Thom *et al.,* 2008; Meer, Lunau, Oberth, Daskilewicz & Müller, 2017; Berg, 2009).

- **Acceptance**

Cheng *et al.,* (2010) defined 'acceptance' as the final stage in the stages of grief, wherein the patients have accepted their fate; when a soothing calmness takes over and they tell themselves that it is going to be alright. Eventually for most HIV-diagnosed patients at some point, they reach some form of acceptance with regard to their HIV diagnosis. According to Papadatou, (2000) patients now finally are aware of their status and accept that being HIV-positive is life changing and is a status for their whole life. It is internalized and patients can now see beyond the events of the death and perceive their life as a whole. They have normalised and come to the world of living; now able to understand the advantages and disadvantages of taking their ARVs (Anderson, 2005). HIV-diagnosed patients come to terms with their HIV status and disclose their status to their spouses, family and friends. Acceptance is marked with a return to a more normal life when the patient starts to take their medication (Papadatou, 2000; Karasz, Dyche, & Selwyn, 2003; Tanner, 2016).

## 3.6.2 PSYCHOLOGICAL FACTORS

### 3.6.2.1 Stress

In a medical or biological context, according to Merriam-Webster, (2015) stress is defined as a physical, mental, or emotional factor that causes bodily or mental tension. Stressors can be external (from the environment, psychological, or social situations) or internal (illness, or from a medical procedure. It is also a result of encountering traumatic events in life, financial, medically, social and environmental; these are the stressors causing a consistent worry in an individual. According to Brown and Vanable (2011), HIV-diagnosed patients differ in the rate of progression through the following three phases of HIV infection: Acute HIV infection, Chronic HIV infection and AIDS; some remain fixed for extended periods on one phase due to responding well to the ARVs, whereas for other it is very simple for HIV to progress to AIDS even if one is using ARVs as prescribed.

Stress account for the variability of HIV progression among HIV-diagnosed patients who are traumatised by their diagnosis. PLWHA face a number of on-going coping challenges as HIV-diagnosed patients must cope with a number of challenging stressors, ranging from worrying about the issue of disclosing their status to their family members, challenges posed by highly-active antiretroviral therapy, adherence and medication side effects, to navigating decisions about sexual activity and pregnancy desires (Bhavna & Rejani, 2015; Gonzalez et al., 2012). Stress also accounts for the development of anxiety disorders and increases an individual’s risk for the development of drug- and alcohol-use dependence due to the inability to manage stress (Courtenay, Wolitsk, Parsons & Gomez, 2006). Significant proportion of patients report difficulties with coping with stress which are encountered by HIV-diagnosed patients (Olley, Zeier, Seedat & Stein, 2005; Bhavna & Rejani, 2015).

When patients are diagnosed with HIV, they experience trauma due to the fact that they were not expecting to hear that they are HIV positive, hence, HIV and stress go hand in hand. Stress is also accompanied by failure in sexual activities; for example, when engaging in sexual matters, performances may become low or one may have no interest in sexual activities but is forced to engage because the spouse or partner wants to do so; there are changes also as result of the medications’ side effects (Martinez, Israelski, Walker & Koopman, 2002; Olley, Zeier, Seedat & Stein, 2005).

### 3.6.2.2 Major Depression

According to Mental Health America (2003) major depression is the disabling condition characterized by a persistent sad mood, a diminished sense of wellbeing and feelings of guilt, anxiety, or self-loathing. Symptoms interfere with a person’s ability to work, sleep, study, eat, and enjoy once-pleasurable activities, and they prevent normal functioning of the individual (Campos, Guimaraes & Remien, 2008). Apart from these symptoms that are displayed by major depression, stress also interferes with HIV-diagnosed patients’ ability to take their medication.

Depression is consistently associated with poorer medication adherence among HIV-infected individuals (Freeman *et al.,* 2008; Moosa & Jeenah, 2012). It is also associated with being less likely to receive antiretroviral medication and with HIV-risk behaviours. Major depression on its own is the most common mental health disorder among PLWHA; it has been estimated that about 60 % of PLWHA have a high chance of experiencing depressive episode at some time during their illness (Boarts, Sledjeski, Bogart & Delahanty, 2006). There is also strong evidence indicating that an HIV infection is associated with greater risk of major depressive disorder, although a review of research also found that most PLWHA appear to be psychologically resilient (Ciesla & Roberts, 2001).

According to Campos, Guimaraes & Remien, (2008) both men and women are affected in various ways, with women worrying more about playing a major role in their child rearing, especially, in breast-feeding, and they also worry about their family after their death. Other studies also found that feelings of guilt are also present and they incapacitate HIV-diagnosed patients from taking care of themselves and their families, which results in helplessness, hopelessness and worthlessness (Bhavna & Rejani, 2015; Karasz, Dyche, & Selwyn, 2003; Nyambeni, 2009; Parry, 2007). Depression in men is also evident, due to fear of death, helplessness and guilt feelings which are prominent as most men have high-risk behaviours and usually that they are the cause of the transmission of the infection within the family (Papadatou, 2000). During the depressive phase, more concern is focused on how to inform and face the family members rather than on how to manage the diagnosed HIV status (Shanthi, Damodharan & Priya, 2007). There numerous literatures have different findings about HIV and depression in PLWHIV, in the whole world.

According to Ramovha, Khoza, Lebese & Shilubane, (2012) in their study entitled “Psychological experience of HIV and Aids by newly-diagnosed infected patients at hospital A of Vhembe District, Limpopo Province” they found out that HIV-diagnosed patients were experiencing depressive symptoms that where brought about by their diagnosis; in the same study another participant verbalised that he got depressed when he was told that he is HIV-positive and his CD4 count was low which meant that he had a weak immune system. Similarly studies add to the fact that diagnosed HIV-diagnosed patients suffer from depression that basically occurs mostly 6 months after the diagnosis, however, depression is also triggered by repeated episodes of stress and inability to adjust and accept the diagnosis (Jin, 2006; Murphy, Moscicki, Vermund & Muenz, 2000; Simbayi, Kalichman, Strebel, Cloete, Henda & Mqeketo, 2007). Several studies have found that among all the mental health problems, HIV-diagnosed patients are commonly presenting with depression more than the general population and other people suffering with other chronic diseases like cancer, sugar diabetes and high blood pressure (Kaharuza et al., 2006; Olley, 2006; Antelman *et al.,* 2007; Poupard *et al.,* 2007; Myer *et al.,* 2008; Simbayi *et al.,* 2007). Major depression is common and occurs among PLWHIV globally, especially, among those who do not accept their diagnosis. There is also sufficient evidence that depression is hindering HIV-diagnosed patients from taking their ART adherently, although depression can be prevented among diagnosed patients (Chibanda, 2017; Wagner, 2016).

### 3.6.2.3 Anxiety

This is defined as the feeling of panic or apprehension (APA, 2000). Anxiety can be accompanied by depression or be seen as a disorder by itself, often caused by circumstances that result in fear, uncertainty, or insecurity. Anxiety interferes with a patient's daily function, for example, being unable to work, leave home, attend to medical care; it also interferes with personal relationships, and causes marked subjective distress in HIV-diagnosed patients (Gonzalez, Zvolensky, Parent, Grover & Hickey, 2012). Anxiety is one of the common co-morbidities that are often overlooked in treating patients with HIV/AIDS, although it is mostly diagnosed among HIV-diagnosed patients than the general population (Karasz, Dyche, & Selwyn, 2003; Mental Health & HIV/AIDS, 2003). Among those who have been recently diagnosed with HIV, anxiety has been shown to be more predominant among patients with stress or excess social stigma related to their diagnosis. It has been observed that it can also lower adherence to ART and medical recommendations and to HIV in general (Bhavna & Rejani, 2015).

Anxiety does exist among HIV diagnosed patients (Bing *et al.,* 2001; Brandt *et al.,* 2017). According to a study by McNally, (2002), HIV symptoms are anxiety sensitive; meaning that it is simple for an HIV diagnosed patients to suffer from anxiety because PLWHIV are vulnerable. Another studies reported higher prevalence of anxiety in females diagnosed as living with HIV than males (Olley, Seedat, Nei & Stein, 2004; Liu, 2013; Stewart, Jones & Minor, 2011). Lack of support when a person has been diagnosed or is living with HIV is a huge burden and further makes it impossible for an individual to disclose his/her status, therefore it causes such individual to worry when it comes to how they will disclose their status to their loved ones and whether if they disclose their status they will they be fortunate enough to receive support (Dinkel, 2014; Varni, Miller, McCuin & Solomon, 2012). Anxiety is triggered by worry about how they will disclose their status and how will people react to their diagnosis. Consistent worry is accompanied by patients being stigmatised and discriminated by their society and community people, due to their HIV status.

### 3.6.3 PERSONAL FACTORS

#### 3.6.3.1 Mistrust

Mistrust refers to lack of trust within HIV-diagnosed patients lack trust in their medical care providers and the government. These are the barriers to HIV prevention and appropriate use of ARTs (Kathryn, Susan, Rachel, & Laura, 2008; Beer, Fagan, Valverde & Bertolli, 2009; Oliveira, Gimeniz, Vieira, Dayse, Sammyla, Gilmara & Ferreira, 2016). Lots of HIV-diagnosed patients in South Africa are complaining about the services they receive from the clinics and hospital staff; they even advise each other to log complaints so that the Department of Health is obliged to open an investigation into those people who are displaying inappropriate behaviours towards the HIV-diagnosed patients.

The ability of HIV to incapacitate particularly where it is rare has been capitalized on and turned into a potent weapon of war among countries. HIV has been described as a psychological and biological weapon in the recent conflicts in Rwanda, Sierra Leone, the Democratic Republic of Congo, and Liberia through mechanisms of widespread rape by infected military members (Elbe, 2001). The statement above implies that men are allowed to rape women in order to reduce the number of people living in such countries. These activities will hinder HIV-infected patients from seeking appropriate services due to their mistrust directed at their government and the country as a whole (Oliveira *et al.,* 2016). There are also some studies which reported some causes of mistrust in the healthcare providers.

There has been several studies that have been conducted and they reported that one of the reasons that the HIV-diagnosed do not want to consult the healthcare providers, is because they feel that healthcare providers do not keep their medical information secret, and the traditional healer cannot disclose their status as they do not record anything anywhere of their presenting symptoms but rather these healers just treat them (Sankar & Jones, 2005; Arkell, Osborn, Ivens & King, 2006; Audet, Hamilton, Hughart & Salato, 2015). HIV-diagnosed patients, hence, feel more protected when consulting with the traditional healers though they lack information regarding their CD4 count and viral load. The traditional healers do not have resources to do that, therefore, traditional healers commonly treat HIV-diagnosed patients without referring them to the healthcare providers (Poudel *et al.,* 2005; Babb *et al.,* 2007).

#### 3.6.3.2 Shame

Shame is defined as a feeling of distress and humiliation that is caused by a wrongful act or behaviour (APA, 2000). Some people when diagnosed with HIV, become overly overwhelmed by the diagnosis, especially these days when we are all aware of the method of transmission with HIV. HIV-diagnosed patients become ashamed of themselves as they find that they have been infected with a debilitating disease which cannot be cured (Karasz, Dyche, & Selwyn, 2003). The shame is preceded by the factor that they have to disclose their status to their loved once, family and friends as they do not know how these people will react towards them after they had shared the news.

A Cambodian woman contracted HIV from her late husband, who committed suicide in 2013. She was left with her son and they were stigmatized and shamed and their house was even burnt by the people from the community. She moved back to her home and a year later she tested HIV positive and her family also turned on her (Voa News, 2014). These are some of the examples of the traumatising stories that HIV diagnosed patients encounter in their daily lives. HIV-diagnosed patients asked themselves whether to tell anybody that they are HIV-positive, and that maybe rejection may follow after that

(Nyambeni, 2009; Stigma & Discrimination, 2017). Living with HIV nowadays in a community where information regarding HIV is provided left and right embarrasses HIV-diagnosed patients, mostly the newly diagnosed ones. HIV-diagnosed patients develop psychological problems and they view themselves as unworthy and are hopeless due to the diagnosis; they then accept that they are not like other and that makes them to live their lives like outcasts (Kampala, 2009; Olley, Ogunde, Oso & Ishola, 2016). Feeling shame leads to failure to disclosure their status.

## 3.6.4 SOCIAL FACTORS

### 3.6.4.1 Stigma

Stigma in accordance with the purpose of the study, are things that people are afraid of such as people living with HIV, especially in Africa where people fear those who are very ill, who they see as dying, someone who is not supposed to be touched by anyone. Globally HIV stigma has been described as a main source of stress and anxiety among HIV-diagnosed patients (Hatzenbuehler *et al.,* 2011; Tanner, Naar-King & MacDonnel, 2012). Stigma has been identified as potentially increasing sexually risky behaviours among PLWHIV.

It poses a huge threat among HIV-diagnosed patients and it interferes with their ability to take their medication properly and create a barrier to HIV care; it is also associated with compromised antiretroviral medication adherence by HIV-diagnosed patients on ART programs (Dowson, Kober, Perry, Fisher & Richardson, 2012; Smith *et al.,* 2012). HIV-related stigma becomes problematic to the healthcare system as it impacts on patients' engagement with healthcare professionals, health care, and ultimately their quality of life (Kalichman & Simbayi, 2003; Qiao *et al.,* 2015). HIV-diagnosed patients' daily quality of life is affected by the stigma and their effectiveness in taking their medication, adherently. It is those living with HIV who suffers from being stigmatized by their families, societies and communities. It also affects HIV diagnosed patients psychologically to see themselves as 'low' and to have low self-esteem (Olley, Ogunde, Oso & Ishola, 2016). Many authors have found that stigma has an impact on HIV-diagnosed patients and also interferes with how they take their ART treatment.

Stockton, Giger & Nyblade, (2018) report in their study that among the HIV-diagnosed patients who participated in their study, when looking at barriers to mental health treatment, stigma was categorised among anxiety and depression. It is also the issue of stigma that influences non-disclosure among HIV-diagnosed patients; PLWHIV experience stigma daily basis and it affects their self-efficacy and they then undermine themselves and their capacity to live with their diagnosis, thereby further preventing self-disclosure and their ability to perform necessary actions (Arrey, Bilsen, Lacor, & Deschepper, 2015; Adebiyi & Ajuwon, 2015; Overstreet, Earnshaw, Kalichman, & Quinn, 2013). Additionally, Olley, Ogunde, Oso & Ishola, (2016) reported that stigma is the main source of non-disclosure among HIV diagnosed patients; they fear what would become of them as people stigmatize them in their daily living. It is also possible that stigma can exacerbate the stress level of people caring for HIV-diagnosed patients (Khan, Pai, Kulkarni & Ramapuram, 2018). Stigma associated with HIV leads to discrimination and the ignoring of Human Rights among HIV-diagnosed patients and their family members

### 3.6.4.2 Discrimination

Discrimination is defined as a favour or distinction in favour of or against HIV people, but mostly with PLWHIV, it is against them. We cannot actually separate discrimination and stigma, since these two both happen on the same occasions, but are of different forms. PLWHIV are more likely to experience discrimination than other people suffering from other chronic diseases, such as tuberculosis and high blood pressure; discrimination, hence, negatively affect HIV-diagnosed patients.

Discrimination is associated with HIV/AIDS and, it affects HIV-diagnosed patients' families, caregivers, healthcare workers and community home-based care assistants. The increase in discrimination against HIV-diagnosed patients increases the chances of them not disclosing their status and also causes fear to emerge among those who would be able to help them with their health (Mawusi, 2011). HIV discrimination among PLWHIV has many forms, like isolation by family members and neighbors, loss of job and refusal of a job placement and may cause extreme violent conflicts and murders. These forms of discrimination on their own causes and inflict pain, physically and psychologically on HIV-diagnosed patients (Bogart, Landrine, Galvan, Wagner & Klein, 2013; Olley, Ogunde, Oso & Ishola, 2016). There are reasons why HIV-diagnosed patients are being discriminated against by people in the communities.

When HIV was diagnosed years ago, it brought two active epidemics with it, one medical and the other of widespread fear and discrimination among those who were diagnosed with HIV (Sears, Cooper, Younai & Donohoe, 2012). HIV/AIDS is perceived by people as a 'speed-killing disease', more than other chronic diseases heard of, hence, people living with the fear of being infected with HIV display unacceptable behaviours towards HIV-diagnosed patients (UNAIDS, 2000). Discrimination occurs in different forms, in the home, hospital, schools and workplaces although the occurrences and the levels at which it takes place may differ (Kampala, 2009; Simbayi *et al.,* 2007).

## 3.7 Chapter Summary

In chapter three the researcher has given information from relevant literatures regarding adherence, its importance and the barriers. Also discussed are HIV prevalence, adherence and mental health issue, together with some ways that had been developed and used to help HIV-diagnosed patients. This was done with reference to several countries, three African countries and South Africa. Finally, the mental health issues that patients diagnosed with HIV are faced with after the diagnosis, the stages of grief and psychological, personal and social which influence patients’ treatment.

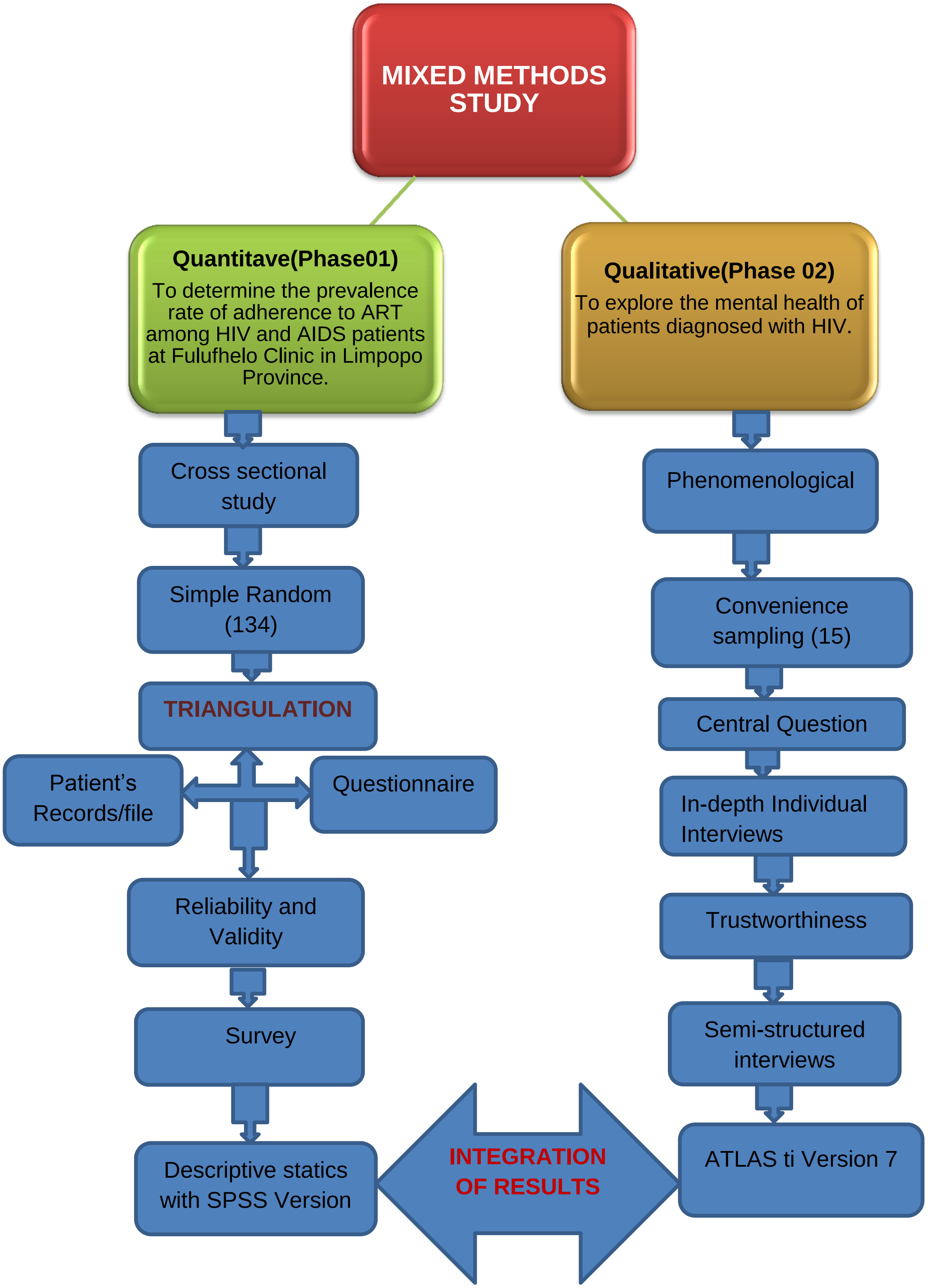
# CHAPTER FOUR: METHODOLOGY

## 4.1 Introduction

In this chapter, the researcher describes the research methodology that was used in the study. Methodology is the procedure which helps the researcher to carry out the research study, systematically (Swartz, De La Rey, Duncan & Townsend, 2011). This section introduces the research approach, background, population setting, population characteristics and the research processes for phase one and phase two including the design, sampling, research instrument, reliability, validity, trustworthiness, entry negotiation, pretesting, data collection method, data analysis and lastly ethical considerations.

## 4.2 Research Approach

The research process is the flow of actions embarked upon in order to achieve specific results. In this study, mixed method approach was used (Gray, 2009). Mixed method is the use of two research approaches in order to compare the results and increase the accuracy of the results. For the purpose of the study, the researcher had to use a combination of quantitative and qualitative research approaches (Altshuld & Witkin, 2000). A combination of qualitative and quantitative helped the study to be richer and more comprehensive. It had also helped in broadening the research findings (Altshuld & Witkin, 2000). Using multiple data collection method improved the reliability and validity of a study, as the data collected was compared and consistent (Golafshani, 2003).


MIXED METHODS STUDY
Quantitave(Phase01)
To determine the prevalence rate of adherence to ART among HIV and AIDS patients at Fulufhelo Clinic in Limpopo Province.
Qualitative(Phase 02)
To explore the mental health of patients diagnosed with HIV.
Cross sectional study
Simple Random (134)
TRIANGULATION
Patient's Records/file
Questionnaire
Reliability and Validity
Survey
Descriptive statics with SPSS Version
Phenomenological
Convenience sampling (15)
Central Question
In-depth Individual Interviews
Trustworthiness
Semi-structured interviews
ATLAS ti Version 7
INTEGRATION OF RESULTS

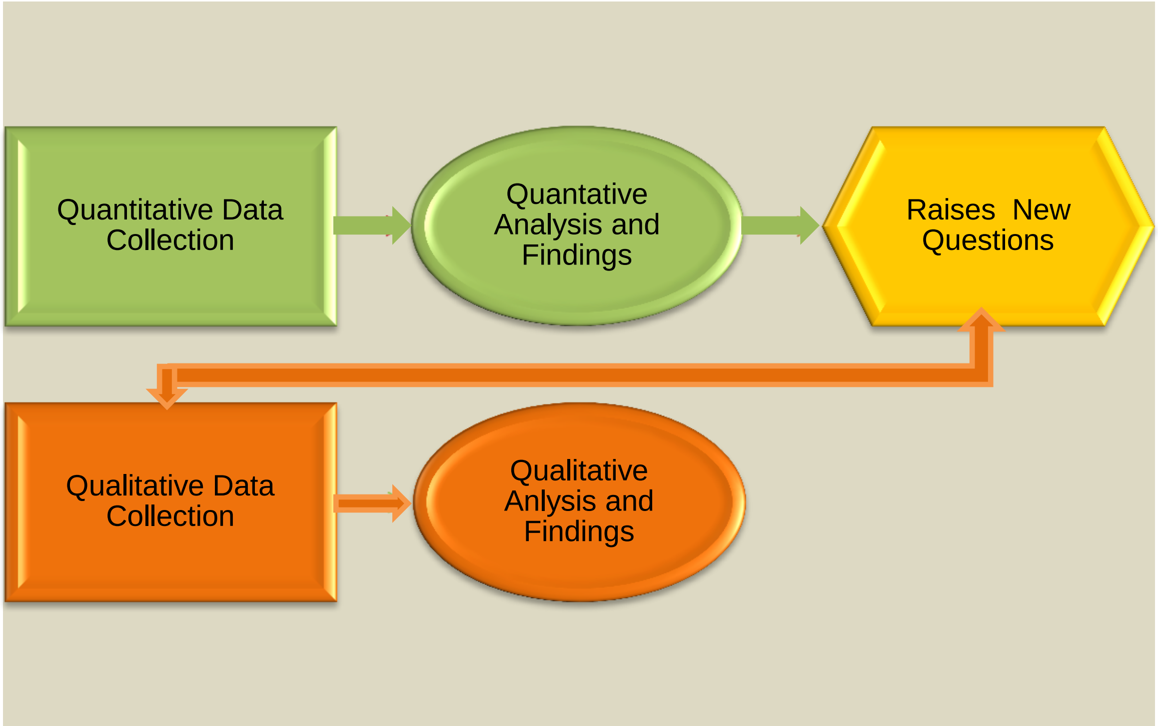


**Figure 4.1 Methodological framework**

### 4.3 Background of this Study

This study is nested within HIV/AIDS & Global Health Research Program based at the University of Venda in a project investigating HIV/AIDS in the northern part of South Africa. The HIV project is generally investigating “transmitted and acquired drug resistance, adherence to, oncoviruses, blood pathogens, and host genetics”. The project has been running since 2015 with ethical clearance from the University of Venda **SMNS/15/MBY/23/0710** and **Ref: 4/2/2** from the Department of Health.

The research team is looking at antiretroviral outcomes, the development and transmission of resistant viruses in adults and children, and the prevalence, risk factors and genetic variants of cancer-associated viruses such as HBV, HHV8 and HPV. In order to understand how viruses develop resistance once treatment is initiated, people who are about to start antiretroviral were recruited and are being followed up for a maximum of 36 months while they are under ARV. The goal is to find out if resistant viruses are being transmitted. The results of the project will help in determining whether HIV-resistant variants are being transmitted; whether individuals failing first and second test have been infected with virus bearing resistant mutants. This information may be useful in understanding the impact of the Highly Active Antiretroviral Therapy (HAART) rollout in Limpopo Province and the prevalence of other related viruses. In general, the data that is being generated may impact policies in the management of HIV/AIDS. The current study is looking at adherence and mental health of people living with HIV at Donald Frazer Hospital in Vhembe District, Limpopo Province, South Africa.

## 4.4 Population Setting

The study was conducted at Donald Fraser Hospital located in Vhufuli under Vhembe District in Limpopo Province. Limpopo is South Africa's Northernmost province which lies within the great curve of the Limpopo River. Its capital city of Polokwane have 4 languages - northern Sotho 52 %, Tsonga 24.0%, Venda 16.7% and Afrikaans 2. 3 %; it has a population of 5 404 868 (South Africa Info, 2015). Vhembe District contributes 22.1% of the population in Limpopo Province. Vhembe has three (3) hospitals, one of which is Donald Fraser, eighteen (18) health care centres and one hundred and twenty-six (126) clinics.

The study only focused on Donald Fraser Hospital, a government/public hospital situated in Vhufuli, Vhembe District, Limpopo Province. It is a provincial facility which is operated by the Department of Health. It is located 80 km North-East of Louis Trichadt and 16 km North of Thohoyandou (South Africa Info, 2015). It offers free services to pregnant, breastfeeding women and children under (six) 6 years while other citizens pay certain amount according to the government stipulated hospital rates. It operates 7 days a week for 24 hours each day. Donald Fraser Hospital has an HIV clinic called ‘Fulufhelo’ (Hope) to HIV-diagnosed patients exclusively. Fulufhelo clinic provides HIV, AIDS and TB-related care and support services onsite, while the hospital in general provides awareness, training and prevention services, psycho-social support and related services. Referral to Tshilidzini Hospital and Mankweng is made for further intervention and medical attention if necessary. It provides HIV counselling and testing and conducts further tests to determine the patient's CD4 count (Info4africa, 2017).

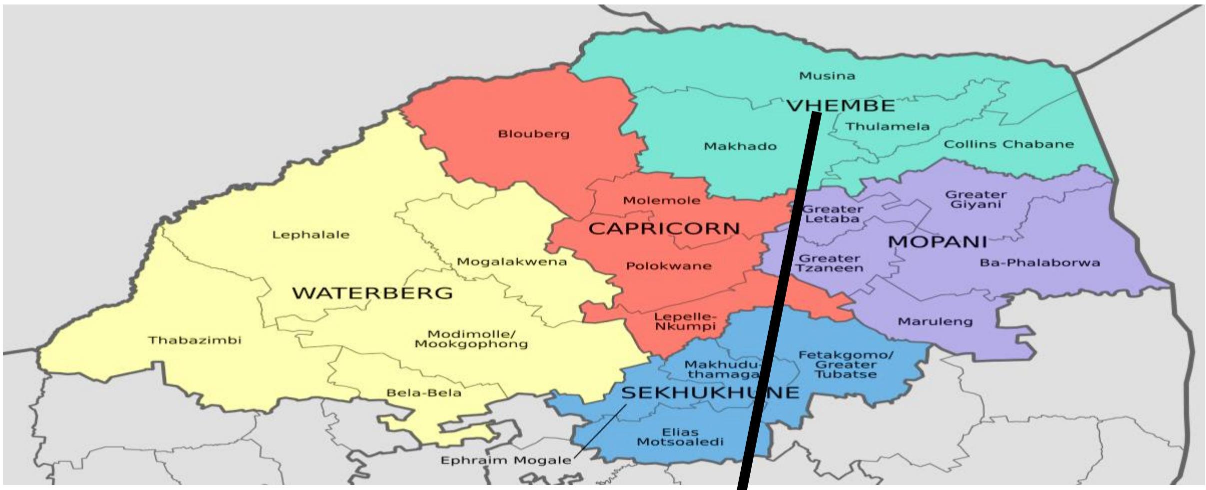


**Figure 4.2 Limpopo map with named municipalities and districts.**

**Figure 4.3 The location map & directions to Donald Fraser Hospital, address is at Vhufuli, Sibasa, Limpopo** (Info4africa, 2017).

A monthly support group is run for TB and PMTCT for chronically ill and HIV-positive patients; there are two forms of support groups, one group is for children and the other one is for adult PLWHIV (Info4africa, 2017). Fhulufhelo staff is composed of one Operational manager, four nurses, one nutritionist, one dietician, two social workers and two data captures. On yearly basis, approximately seven hundred (700)+ people are diagnosed with HIV at Donald Fraser Hospital, Fulufhelo Clinic (Personal communication, October 25, 2018: 9h30), and about 2-5 individuals are diagnosed with HIV on a daily basis, and 6-7 follow up are made with HIV-diagnosed patients. The staff helps about 40+ HIV-diagnosed patients every week. Even though patients are helped, there is an opportunity to transfer about 4-5 HIV-diagnosed patients daily to their nearest clinics until the patient is much healthier and has a good viral load; there are 15-20 transfer per month. The annual statistics for a monthly number of patients who have been diagnosed, received ARVs and came for follow up session in 2017 was provided (Personal communication, October 16, 2018:12h03).

**Table 4.1: 2017 annual static for HIV-diagnosed patients assisted monthly at Donald Fraser Hospital.**

| **Month** | **Number of patients Assisted** |
|---|---|
| January | 638 |
| February | 642 |
| March | 723 |
| April | 594 |
| May | 679 |
| June | 678 |
| July | 647 |
| August | 690 |
| September | 588 |
| October | 654 |
| November | 640 |
| December | 541 |
| **TOTAL** | **7714** |

So far in 2018 about six hundred and ninety-four (694) HIV-diagnosed patients are receiving their ARV's from Fhulufhelo clinic; the number of patients receiving ARV's on a weekly basis ranges between fifteen (15) and sixty (60), the number fluctuates, however, it does not go beyond sixty (60) or below 15 (Personal communication, October 16, 2018: 12h03). The number of patients receiving ARVs is increasing as they are following a new implemented guideline, TEST & TREAT at the same time. They are doing so to decrease mortality rate among HIV-diagnosed patients and to improve the health of patients.

### 4.5 Population Characteristics

Population refers to all the persons who share the similar characteristics which are set by the researcher to compose a population (Lawrence, 2011). The respondents comprised of patients who were diagnosed with HIV and are at Donald Fraser Hospital. The patients who were recruited have been taking medication at least for a period of three (3) months. The respondents were Tshivenda-speaking, black, males and females and their age ranged between 18 to 65 years. The same population characteristics were also used for the qualitative in phase 02.

## 4.6 PHASE 01: QUANTITATIVE

### 4.6.1 Research Approach

Robson, (2011) defines research approach as the method by which the research process is conducted. The current study employed quantitative research approach for phase 1. Quantitative is a formal way to solve social and human problems and uses numbers and words to quantify the phenomenon that is being studied over a general population. In a quantitative study, individuals are best studied at their natural settings from their own perceptions and it enables the possibility of generalising the findings to the whole population (De Vos, Strydom, Fouche & Delport, 2011).

### 4.6.2 Research Design

A research design is the plan and structure of investigation conceived so as to obtain answers to research questions (Kerlinger & Lee, 2000). Cross sectional research design was utilised because it involves collecting data from people sharing the same characteristics and it takes place at one time. The design has provided the researcher with an opportunity to look at numerous characteristics at once and had also helped in providing useful information of what was happening among HIV-diagnosed patients (Creswell, 2003).

### 4.6.3 Sampling

Sampling is defined as a process of selecting individuals to participate in the study and be representatives of the population of interest to the researcher (Welman, Kruger & Mitchell, 2005).

**Sampling Method –** In this study, probability sampling method was used. Simple random sample was employed to ensure that all respondents had an equal and fair chance of being selected to participate in the study (Babbie, 2007). To select participants the researcher requested a register and made a list of all eligible participants, after which numbers where assigned and randomly selected to be part of the study (Lawrence, 2011; Welman, Kruger & Mitchell, 2005).

**Sampling Size –** According to Lawrence (2011), the sampling size is the group of participants who the researcher selects from the larger population to make generalizations about the entire population. A total number of seven hundred (700) patients were diagnosed with HIV in 2016 at Donald Fraser Hospital. One hundred and twenty eight (128) HIV-diagnosed patients were selected according to Slovin’s formula which ensures that a researcher is 99% (a margin error of 0, 02) or 95% (a margin error of 0, 05) sure about the population (Ariola, 2006). Slovin's formula is written as:

n = Number of samples N = Total population e = Error tolerance. In this study the researcher has used 92% whose margin error is 0, 08.

n = N / (1 + Ne^2), n=700/ (1+ (700x0.08) ^2), n=700/ (1+ (700x0.0064)), n=700/ (1+4.48), n=700/5.48, n= 127.7372263 or n= 128 (rounded to the nearest)

According to Solvin's formula one hundred and twenty-eight (128) respondents should form part of the study, however the researcher exceeded the calculated number by six (6) due to the respondent's willingness to participate in the study, and it would not be appropriate to deny them an opportunity when they expressed willingness to participate. In total the respondents who participated in this study where one hundred and thirty-four (134).

### Inclusion and Exclusion Criteria

Inclusion criteria comprised of Tshivenda-speaking males and females who were aged between eighteen (18) and sixty-five (65) years and were on ARVs for HIV/AIDS infection, were attending Donald Fraser Hospital and have been diagnosed and had been living with HIV for at least three (3) months. The time frame was chosen to allow the researcher to have baseline information of patients' CD4 count. The exclusion criteria for the current study excluded all people who were from other ethnic groups and not Tshivenda speaking, those who have been admitted and were critically ill and those who had just learned about their diagnosis. The same inclusion and exclusion criteria were also applied in the qualitative research.

### 4.6.4 Research Instrument

According to Welman, Kruger and Mitchell, (2005) a research instrument is a tool that the researcher uses to collect data or to implement a research. The researcher triangulated data methodological through the use of patients record/file and a questionnaire when collecting data.

### Patients' records review

Patients records, is a systematic file that is used to information regarding patient's medical history including the care over time with things such as CD4 counts, viral loads and medication type that are being used by the patients (Judson & Harrison, 2010). In this study patients records/file were also used to collect information regarding each patient's CD4 count for objective assessment of adherence to ART. Baseline data of CD4 count was recorded upon recruitment and after 6 months each patient's CD4 count was recorded again.

### Questionnaire

In the study, questionnaire was used. A questionnaire is a printed self-report form designed to elicit information that can be obtained through written responses (Creswell, 2003). Since this is a nested study from a bigger research project, the questionnaire composed of four sections which closed-ended questions were, only two sections were relevant for this study, namely: demographic information with six (6) questions and adherence with thirteen (13) questions. The instrument was adapted from a study conducted on HIV baseline patients at the University of Virginia (http://globalhealth.virginia.edu/). A team of experts in Psychology was tasked to scrutinise the instrument in order to assess its relevance and suitability to the current population and some adjustments were made to ensure that the questions were suitable. The instrument was then translated from English to Tshivenda so that respondents could be able to understand better since the dominant population in the Vhembe District are Tshivenda speaking. There was an opportunity for a language specialist to back translate and also ensure that the questions retain the original meaning.

### 4.6.5 Reliability and Validity

According to Golafshani (2003), reliability means that the numerical results that the study reproduces do not vary because of characteristics of the measurement's process. Joppe (2000) maintains that validity determines whether the research truly measures that which it is intended to measure or how truthful the research results of the study are.

The researcher checked for internal consistency which is the degree to which every test item measures the same construct with regard to adherence items and Cronbach's alpha of .96 was found for this study. The base line study in Virginia found the test-retest reliability which was calculated as an intra-class coefficient (ICC) an ICC>0.7 and considered Cronbach's alpha >0.80 and an acceptable Construct Validity (CV) CV ≥0.70 which was similar to the current population.

### 4.6.6 Entry Negotiations

This study was nested within an HIV/AIDS & Global Health Research Program. The researcher became part of the project in order to carry out a portion focusing on adherence and mental health as an additional aspect to be considered when issues of adherence are of concern. The project sought ethical clearance from both the Department of Health (Polokwane) and the University of Venda. The Donald Frazer Hospital management was involved to allow researchers to enter Fhulufhelo Clinic. The nursing staff at Fhulufhelo were instrumental in informing patients about the study when they came for consultation; information sheets were provided for each eligible respondent according to the list that was compiled. Participation in the study was voluntarily and all patients who were willing to participate were given consent form to sign.

### 4.6.7 Pre-Testing

Pre-testing involves the testing of elements such as sampling frame and data collection tools. The researcher administered ten (10) questionnaires to pre-test the instrument to ensure that it was appropriate for the study and changes were made where it was necessary. The respondents who took part in pretesting had similar characteristics and were from Donald Fraser Hospital, but they did not form part of the real study.

### 4.6.8 Data Collection

According to Welman, Kruger and Mitchell, (2005) data collection is the gathering and preparation of information from different sources. Data was collected from Fhulufhelo clinic at Donald Frazer. The researcher employed survey, a quantitative data collection method that is mostly used by researchers widely; it was the most appropriate way to get quality data from respondents. It provides accurate, reliable and valid data, however it also requires serious effort from the researcher (Lawrence, 2011).

Appointments with HIV-diagnosed patients were made to brief them about the study and data collection began immediately after obtaining consent from those who were willing to participate; the researcher elaborated about the study to the respondents (both literate and illiterate), and it took thirty (30) to forty-five (45) minutes. The researcher asked questions and filled in the questionnaire only for the illiterate and elderly respondents.

The questionnaires were administered face to face with the respondents, the HIV/AIDS & Global Health Research questionnaire (http://globalhealth.virginia.edu/). Closed questions were used with the format of yes/no responses (Lawrence, 2011). Respondents were informed about the purpose and nature of the study, then the data collection process began and it lasted for a period of four (4) months.

### 4.6.9 Data Analysis

Data analysis is the process that involves breaking up data into manageable themes, patterns, trends and relationships. The researcher adopted descriptive statistics analysis (Babbie & Mouton, 2001). Statistical Package for the Social Sciences (SPSS) version 25 was employed. It is a widely used program for statistical analysis in social sciences; a software package used for statistical analysis (Bryman & Cramer, 2011). Descriptive statistics is a general type of simple statistic that is used by researchers to describe basic patterns from data and to make sense of the data that can be summarised in some way; this ensures that the reader is able to construct a clear mental picture of the data and the people involved (De Vos, Strydom, Fouche & Delport, 2011). The researcher analysed and summarised the data. The data collected were presented in the form of summaries, tables, pie chart and line graph in order to understand. A further analysis of the chi-square test was used to check whether there was any association between the demographic information and adherence; the test was applied at a statistical significance value of 0.05. This will help the researcher to get more information on what demographic items links with adherence.

## 4.7 PHASE 02: QUALITATIVE

### 4.7.1 Research Approach

Qualitative research approach is a systematic subjective approach used to describe life experiences and give meaning and it focuses in individual’s perspective. The study selected qualitative approach because it is clear, simple, easier to carry out and generates truthful results from a small group of people (Babbie, 2007). It helped the researcher to gain insight; explore the depth, richness, and complexity inherent in the phenomenon, it also helped the researcher to get in-depth information from the participants (Donalek, 2004).

### 4.7.2 Research Design

The researcher has adopted the phenomenological research design which is defined as the study of human beings and their real experiences from their natural setting, as humans are trying to make sense of their life and the world they live in (Babbie & Mouton, 2010). It basically aims to understand people. According to phenomenological research design, individuals are continuously and always constructing, developing and changing their everyday life. It was pertinent to understand the multiple realities of HIV-diagnosed patients

### 4.7.3 Sampling

Non-probability sampling method was utilised and it is described as a less accurate substitute when wanting a representative sample (De Vos, Strydom, Fouche & Delport, 2011). In the study, the researcher employed convenience sampling when recruiting the participants. Convenience sampling is a type of non-probability sampling of which participants who participate in the study are selected based on the fact that they are easy and accessible to contact (Babbie & Mouton, 2010). Participants had to be willing to participate in the study and were not forced. In the current study, patients who met the inclusion criteria, who were at Fhulufhelo clinic at the time that Phase 2 was conducted, were requested to be part of the study.

A total number of fifteen (15) participants, HIV-diagnosed patients, were selected using convenience sampling to participate in the study; these participants were selected from Donald Fraser Hospital, where the data collection process took place.  Relying on the characteristics of the inclusion criteria, data were collected until data saturation was reached (Pitney & Parker, 2009).

### 4.7.4 Research Instrument

Central questions for the purpose of in-depth individual interviews were used to guide the discussion with participants. There were three (3) open-ended questions based on the objectives of the study and were translated from English to Tshivenda (See Appendix 3). The central questions were developed by the researcher with the assistance of the supervisors and the questions were developed based on the objectives of the study.

### 4.7.5 Pre-Testing

During pretesting, three (3) participants was interviewed using Tshivenda Language; the interviews were audio-recorded and evaluated for improvement and input from experts in the field of Psychology; the participants who formed part of the pre-testing did not form part of the real study. Wording of the central questions were adjusted to accommodate the dialect that is used around Donald Frazer Hospital area.

### 4.7.6 Data Collection

Face to face interviews were conducted individually with each participant in a private room that was provided at Fhulufhelo Clinic. The interview was conducted in Tshivenda language for all the participants (Babbie & Mouton, 2008). Semi-structured interview was used to collect the data; this is more of a guided conversation than a strictly-structured interview. Semi-structured interviews gather data through the use of open questions and participants were allowed to talk in-depth, choosing their own words, and in return it helped the researcher to develop a real sense of a person’s understanding of a situation (Babbie & Mouton, 2008). Before the interview began, the researcher obtained a consent from the participants after the researcher had explained in detail the nature, purpose and procedure of the study.  Appointments were made before hand for the interviews.

Each interview lasted for a period of forty (40) to forty-five (45) minutes. The researcher was taking some notes using a notebook while recording the interview using a digital audio recorder; the researcher obtained consent from participants to record the interviews.

### 4.7.7 Data Analysis

The researcher utilised the ATLAS program for analysis. The researcher used Atlas a computer-aided program - a powerful workbench for qualitative data analysis that is particularly used when conducting a larger study that has large sections of text, visual and audio data (Smit, 2002). The texts were analyzed and interpreted using the codes and annotating activities. This means that the data collected were presented in diaphragms (Smith, Flowers & Larkin, 2009; Pietkiewicz & Smith, 2012). The researcher had followed the following steps when anaylsing the data:

Step 01: The researcher had to search for all the themes that were emerging from the transcriptions, systematically, through the use of Atlas ti program.

Step 02: The researcher tried to find the connections within all the themes that were identified within each of the transcription and went through all of them carefully, one by one, and then coded each theme using Atlas ti by going through all the participants' transcription.

Step 03: Lastly the researcher had to look for the patterns into which the themes were emerging, with the aim of finding the major themes. The identified themes were grouped into a table dividing them as whole and then into two portions in order to develop subthemes. The table was divided into two columns, themes (major) and subthemes; major themes were on the right-hand side of the table and supporting subthemes on the left-hand side (Breakwell, 2004; Pietkiewicz & Smith, 2012).

### 4.7.8 Trustworthiness

Trustworthiness refers to a demonstration that the evidence for the results reported is sound and the arguments made based on the results are strong. Trustworthiness helped to establish validity and reliability of qualitative research; it also helped to verify the findings' authenticity (Bowen, 2009). In the study the following two factors of trustworthiness were considered:

**Credibility** is the relevance between what the researcher has transcribed and the information collected from the participant. The researcher ensured that the data were interpreted correctly to increase credibility by referring back to the audiotaped and the transcribed data (Babbie & Mouton, 2010). Credibility was attained through the following steps:

- Prolonged engagement- The researcher stayed at Donald Fraser Hospital collecting data from Fhulufhelo clinic until data saturation occurred.
- Persistent observation- The researcher tried and interpreted the data in different ways, in conjunction with the process of constant and tentative analysis. Searching for multiple influences and what is significant and not necessary to the study.
- Member checks- Checking the information of the study- both the data and its interpretation. The aim of this was to assess the unintentional errors and mistakes made by the participants, correcting the obvious errors and adding volunteer information from the participants. (Babbie & Mouton, 2010).

**Transferability** refers to the extent to which findings can be applied to other contexts or with other participants (Babbie & Mouton, 2008). A qualitative researcher improves transferability by accepting the participants' input and never generalizing to the entire population without taking recognition of participant's inputs.

## 4.8 ETHICAL CONSIDERATION

**Institutional ethics-** Institutional ethics was obtained by first presenting the proposal to the Department of Psychology and the School of Human and Social Sciences Higher Degree's Committee. Then the proposal was submitted to the University's Higher Degrees Committee (UHDC) for approval and lastly to the University's Research Ethics Committee for ethical clearance.

**External ethics**- The permission to conduct the HIV/AIDS & Global Health Research Program at Donald Fraser Hospital in Vhembe district was granted from the University of Venda REC project number SMNS/15/MBY/23/0710, Refer appendix number 5. An approval to conduct this study in the facility (Donald Fraser Hospital) was obtained from the Department of Health at the provincial office in Polokwane Ref: 4/2/2, appendix number 6.

### 4.8.1 Informed Consent

As stated by the Economic and Social Research Council, (2015) informed consent, is a written statement that entails and explains the aspects of the study, so that prospective participants are able to make informed and free decision on their possible involvement. The researcher obtained written informed consent from the patients after the researcher had thoroughly and truthfully informed all about the nature, purpose and objectives of the study, as well as the procedures for the collection of data (Lawrence, 2011). Furthermore, they were informed about their right to withdraw from the study at any time as their participation was voluntary.

### 4.8.2 Confidentiality

According to the School of Psychology, (2015) the participants' information should be kept confidential. The researcher made sure that confidentiality was maintained throughout the course of the study. The information was kept confidential and not divulged to other parties. In cases where the participants' information was shared, it was with the supervisor and the researcher duly informed the participants prior to obtaining consent. The audio recorded interview responses of the participants were kept in a safe place and questionnaires were locked in a cabinet while the transcriptions were stored in a USB that is password protected, stored safely in a locked cabinet. Additionally, there was a backup storage which is an external hard-drive that is also password protected and safely stored (Lawrence, 2011). The researcher and the supervisor are the only ones who have access to the data collected. Both the questionnaires and the transcriptions will be kept for a period of five years.

### 4.8.3 Anonymity

The researcher-maintained anonymity by keeping the names and identities of all patients anonymous. The information provided by the participants was not linked in any way to their names or any other identifiers such as their location (Babbie & Mouton, 2010). The identity and location were not revealed but was protected. Instead, the researcher used numbers and alphabets to name the respondents and participants, for example, *respondent 1, 2* and *participant A, B* and so forth, to avoid revealing the identity of the respondents/participants (Lawrence, 2011).

### 4.8.4 Debriefing

According to the School of Psychology, (2015) the researcher must have a debriefing session with the respondents/participants after participation. Following the collection of data, the researcher discussed with participants the outcome of the study and allowed them to ask questions (De Vos *et al.,* 2005). The researcher had to find out what their experiences were during the course of the interviews and questionnaires; it enabled the researcher to ascertain if respondents and participants had experienced any psychological harm so that relevant and appropriate action could be made if necessary; in cases where anyone required further assistance, they were referred to the clinical psychologist onsite at Donald Fraser Hospital.

## 4.9 Chapter Summary

This chapter described the methodology on how the study was carried out, in detail and what major steps were taken to achieve the objectives of the study. The researcher had given information regarding the research approach, background, population setting and characteristics, with the research processes phase 01: quantitative and phase 02: qualitative. Elaboration was also provided on the external ethics wherein a letter of approval was obtained from the Department of Health and Vhembe District, together with the ethical clearance from UNIVEN and the ethical consideration considered in the study - informed consent, confidentiality, anonymity and debriefing.

# CHAPTER FIVE:  RESULTS

## 5.1 Introduction

This chapter addresses the summary of the findings of the study. One hundred and thirty-four (134) respondents from Donald Fraser Hospital participated in phase 1 of the study, fifteen (15) participants participated in phase 2 of the study. Data were analysed using the Statistical Package for Social Sciences (SPSS) version 25 and Atlas ti version 7. The results include demographic profile, adherence of HIV-diagnosed patients, and lastly the mental health issues that the HIV -diagnosed encounter with their diagnosis.

### Data management and response rate

All questionnaires were filled fully and the responses of the respondents met all the anticipated requirement. The next step was to sort data, code them and all data were then entered into SPSS using all the relevant codes as expected. The researcher then did descriptive analysis to familiarise herself with the data, made summaries that were more understandable. Chi-square statistics were utilised to examine the relationship between variables and the researcher was helped by a statistician to unpack the process of data analysis properly and effectively.

## 5.2 Demographic Profile

**Table 5.1 Demographic factors with the frequencies (n) and percentages (%)**

| DEMOGRAPHIC FACTORS | FREQUENCY AND PERCENTAGE (%) n=134 |
|---|---|
| **Gender** | |
| Male | 54(40%) |
| Female | 80(60%) |
| **Age(in years)** | |
| 18-30 | 22(16.4%) |
| 31-45 | 56(41.8%) |
| 46-55 | 31(23.1%) |
| 56-65 | 25(18.7%) |
| **Marital status** | |
| Single | 46(34.3%) |
| Married | 40(29.9%) |
| Widowed | 29(21.6%) |
| Divorced | 19(14.2%) |
| **Highest level of education** | |
| No education | 12(9%) |
| Primary | 22(16.4%) |
| Secondary | 61(45.6%) |
| Matric | 22(16.4%) |
| Tertiary | 17(12.7) |
| **Occupation** | |
| Unemployed | 112(83.6%) |
| Employed | 14(10.5%) |
| Student | 7(5.2%) |
| Employed & studying | 1(0.8%) |
| **Religions** | |
| Islam | 1(0.8%) |
| Hinduism | 1(0.8%) |
| Christianity | 107(79.9%) |
| Tradition | 17(12.7%) |
| Christianity & Tradition | 8(6%) |

Summary of the findings in Table 5.1, shows that out of 134 respondents, 60% were females. The majority of respondents were aged between 31-45 years at 41.8% and single category accounted for 34.3%; 45.6% of those who were in secondary level or had left school at secondary level formed the majority of the respondents. Many of the respondents were unemployed at 83.6% and Christians accounted for 79.9%.

## 5.3 OBJECTIVE 1: PREVALENCE RATE OF ADHERENCE TO ART AMONG HIV AND AIDS PATIENTS

### 5.3.1 Self- report of adherence

Respondents at 94.8% reported that they were adhering to medication whiles 22.4% among them were defaulting when taking ART.

### 5.3.2 Baseline CD4 count at ART initiation with Age

**Table 5.2 Baseline CD4 count at ART initiation**

| Age | Count & Percentage (%) | <200c/mm3 | 200-350c/mm3 | >350c/mm3 | Unknown | Total |
|---|---|---|---|---|---|---|
| **18-30 Years** | Count | 5 | 3 | 6 | 8 | **22** |
| | Percentage (%) | 3.7% | 2.2% | 4.5% | 6% | **16.4%** |
| **31-45 Years** | Count | 21 | 9 | 15 | 11 | **56** |
| | Percentage (%) | 15.7% | 6.7% | 11.2% | 8.2% | **41.8%** |
| **46-55 Years** | Count | 14 | 1 | 11 | 5 | **31** |
| | Percentage (%) | 10.5% | 0.8% | 8.2% | 3.7% | **23.2%** |
| **56-65 Years** | Count | 13 | 1 | 6 | 5 | **25** |
| | Percentage (%) | 9.7% | 0.8% | 4.5% | 3.7% | **18.7%** |
| **Total** | **Count** | **53** | **14** | **38** | **29** | **134** |
| | **Percentage (%)** | **39.6%** | **10.5%** | **28.4%** | **21.6%** | **100%** |

The researcher noted that 39.6% of the respondents from Table 5.2 CD4 count which is below 200c/mm3, and 28.4% of the respondents have a CD4 count which is greater than 350c/mm3. 10.5% of the respondents had their CD4 count ranging between 200-350c/mm3, while 21.6% of the respondents did not know anything about their baseline CD4 count. 15.7% of respondents aged 31-45 years had most of their CD4 count below 200c/mm3.

### 5.3.3 Latest CD4 count after at least 6 months with Age

**Table 5.3 Latest CD4 count after ART initiation**

| **Age** | **Count & Percentage (%)** | **<200c/mm3** | **200-350c/mm3** | **>350c/mm3** | **Unknown** | **Totals** |
|---|---|---|---|---|---|---|
| **18-30 Years** | Count | 7 | 5 | 5 | 5 | **22** |
| | Percentage (%) | 5.2% | 3.7% | 3.7% | 3.7% | **16.3%** |
| **31-45 Years** | Count | 20 | 5 | 8 | 23 | **56** |
| | Percentage (%) | 14.9% | 3.7% | 6% | 17.2% | **41.8%** |
| **46-55 Years** | Count | 11 | 5 | 9 | 6 | **31** |
| | Percentage (%) | 8.2% | 3.7% | 6.7% | 4.5% | **23.1%** |
| **56-65 Years** | Count | 8 | 1 | 7 | 9 | **25** |
| | Percentage (%) | 6% | 0.8% | 5.2% | 6.7% | **18.7%** |
| **Totals** | **Count** | **46** | **16** | **29** | **43** | **134** |
| | **Percentage (%)** | **34.3%** | **11.9%** | **21.6%** | **32.1%** | **100%** |

The majority of the respondents, 34.3% demonstrated that they had a CD4 count which was less than 200c/mm3; a total of 32.1% of respondents'CD4 count was unknown. 21.6% respondents had a CD4 count which was greater than 350c/mm3.

### 5.3.4 CD4 Count at baseline and 6 months after ART initiation

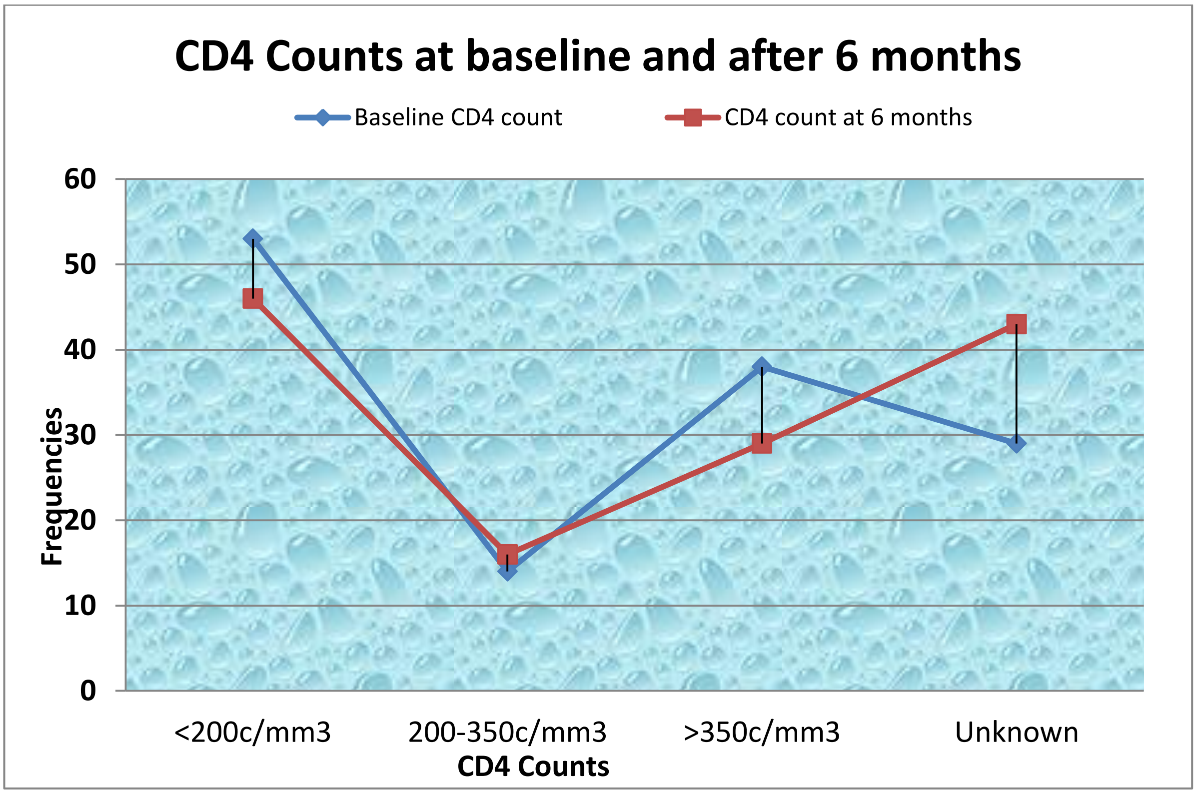


**Figure 5.1 CD4 counts at baseline and after 6 months of ART initiation**

The researcher noted that among the respondents at the baseline, 39.6% of the respondents had CD4 count which is below 200c/mm3 while after six months 34.3% accounted for less than 200c/mm3 respectively, 28.4% of the respondents had the CD4 counts which is greater than 350c/mm3 at baseline while 21.6% accounted for follow up;, 21.6% of the respondents' CD4 count was unknown at baseline while 32.1% accounted for follow up respectively.

### 5.3.5 ART and defaulting

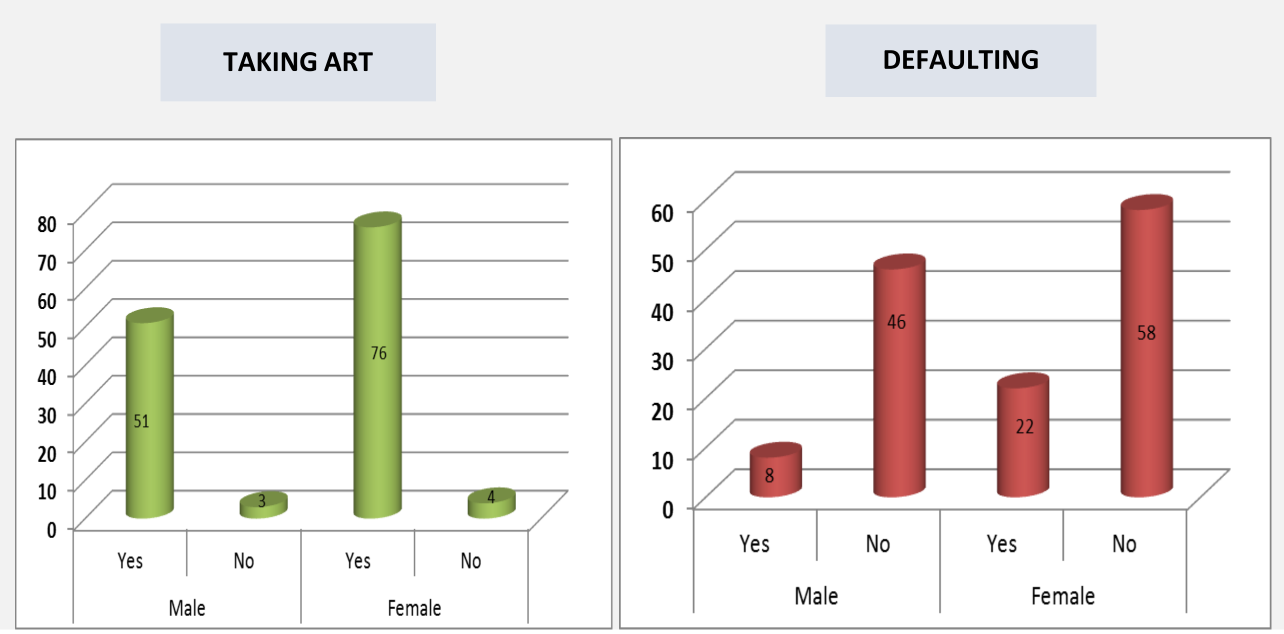


**Figure 5.2 Frequencies of male and female patients taking ART and defaulting**

The current findings revealed that 56.7% of females were taking ART and 38.1% of males respectively; 16.5% of females indicated that they defaulted treatment and 2% of males respectively.

### 5.3.6 Count of missed medical appointments

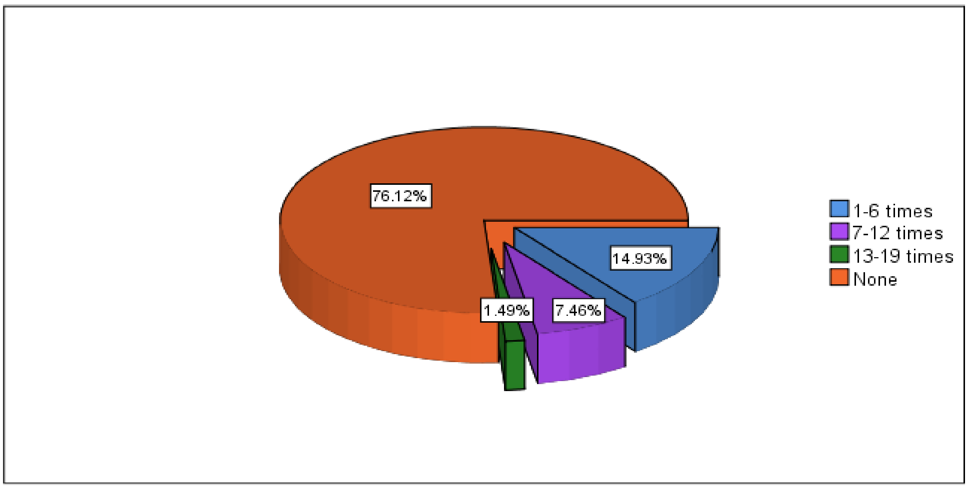


**Figure 5.3 Count of missed medical appointments in the last six months**

The majority of the respondents 76.1% did not miss any medical appointments. Respondents who missed appointments 1 - 6 times accounted for 14.9%, 7.5% missed appointments 7-12 times and 1.5% have missed appointments 13-19 times.

### 5.3.7 Reasons for missing appointment in the past 6 months

80.6% of respondents did not miss any appointment, while 19.4% missed and below are the reason for missing a medical appointment with the healthcare provider.

**Table 5.4 Reasons for missing medical appointments in the past 6 months**

| REASONS | FREQUENCY | PERCENTAGE |
|---|---|---|
| I had other commitments | 26 | 19.4% |
| The appointment was not at a convenient time for me | 26 | 19.4% |
| I was feeling better so did not go | 17 | 12.7% |
| I could not get transportation | 17 | 12.7% |
| The appointment was not with the health care provider of my choice | 15 | 11.2% |
| I was too sick to attend | 13 | 9.7% |
| I was in the hospital at the time | 7 | 5.2% |
| I forgot about the appointment | 3 | 2.2% |
| I overslept | 1 | 0.8% |

**Numbers are overlapping (respondents could report more than one reason)*

The findings in Table 5.4 highlighted that among the respondents, the majority 19.4% said the appointment was not at a convenient time and respondents had other appointments; 12.7% couldn’t get transportations and respondents indicated that they were feeling better; 11.2% highlighted that the appointment was not with the healthcare provider of choice; 9.7% of respondents indicated that they were too sick to attend the appointment; 5.2% were hospitalised; 2.2% forgot about the appointment and 0.8% overslept. These are the reasons that had caused respondents to miss their medical appointments with healthcare provider, and other respondents gave no responses by choosing none, as they did not miss any medical appointments in the last 6 months.

## 5.4. OBJECTIVE 2: MENTAL HEALTH OF PATIENTS DIAGNOSED WITH HIV

**Table 5.5 Socio-demographic characteristics**

| Participant No | Age | Gender | Education | Occupation | Religions | Duration living with HIV |
|---|---|---|---|---|---|---|
| A | 30 | Female | Matric | Unemployed | Christianity | 3-12 months |
| B | 52 | Female | Primary | Unemployed | Christianity | 8 years and above |
| C | 38 | Male | Secondary | Unemployed | Christianity | 5-7years |
| D | 37 | Female | Secondary | Unemployed | Christianity | 3-12months |
| E | 39 | Female | Matric | Unemployed | Christianity & Tradition | 3-12months |
| F | 53 | Male | Tertiary | Unemployed | Christianity | 8 years and above(but on ART 3-12 months) |
| G | 31 | Female | Secondary | Unemployed | Christianity | 3-12months |
| H | 61 | Male | Primary | Employed | Christianity | 8 years and above |
| I | 63 | Female | No Education | Unemployed | Christianity | 2-4 years (but on ART 3-12 months) |
| J | 56 | Female | Primary | Unemployed | Christianity | 8 years and above (but on ART 3-12 months) |
| K | 44 | Female | Matric | Unemployed | Christianity | 2-4years |
| L | 36 | Female | Matric | Unemployed | Christianity | 2-4 years (but on ART 3-12 months) |
| M | 47 | Female | Secondary | Unemployed | Christianity | 3-12months |
| N | 44 | Female | Tertiary | Unemployed | Christianity | 8 years and above (but on ART 3-12 months) |
| O | 40 | Male | Matric | Unemployed | Christianity | 3-12months |

Table 5.5 highlights the demographic information of the participants who participated in phase 2 of the study. There was eleven (11) females and four (4) males, participants were aged between 30-63 years, seven (7) participants had no matric its either they left at primary and secondary level, five (5) participants left school at matric level, only two (2) had tertiary qualifications, fourteen (14) were unemployed and fourteen (14) were Christians. Among the participants when it comes to the duration living with HIV, most participants knew of their diagnosis and had been living with HIV for a period of 8 years and above; some participants were diagnosed within 3-12 months which is recent.

### 5.4.2 Findings from the Interviews

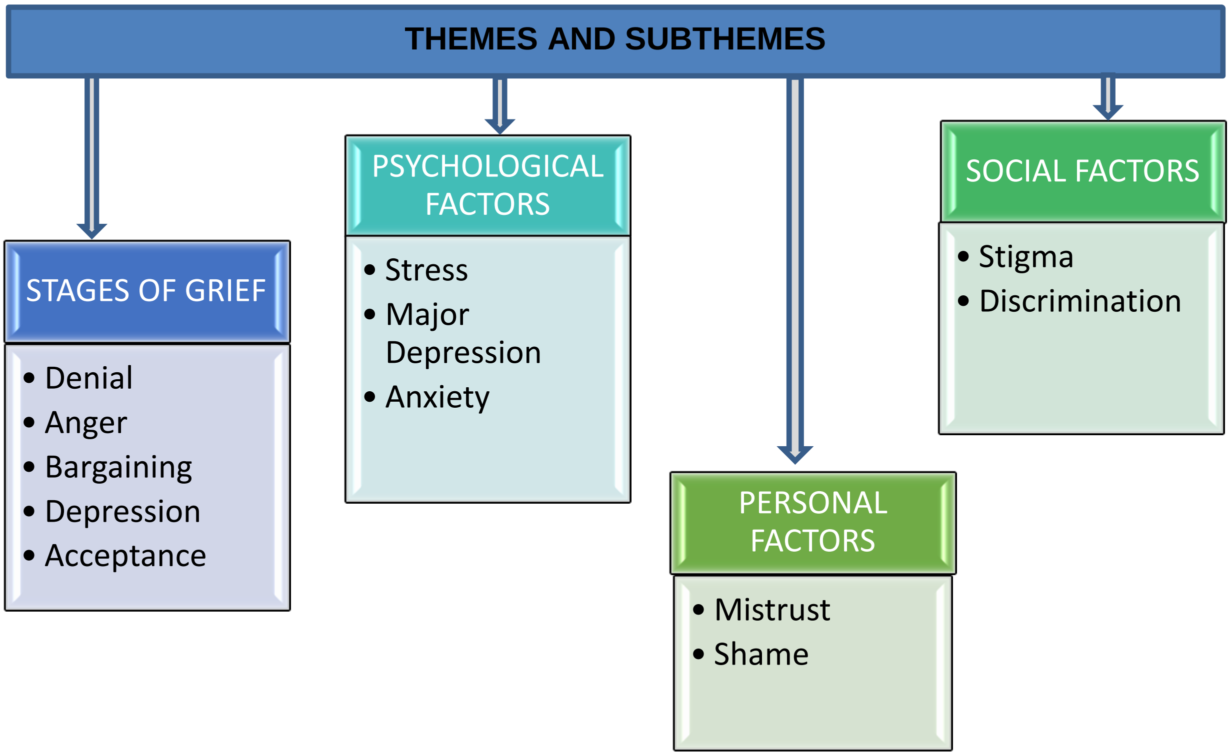


**Figure 5.4 Summary of the findings, identified and sub- themes**

### 5.4.3 STAGES OF GRIEF

In this study grief was expressed by many participants to be prevalent and five stages were depicted from the results and these findings are presented in detail below; the stages include denial, anger, bargaining, depression and acceptance.

### 5.4.3.1 Denial

Most participants revealed that they denied their diagnosis when they were informed after testing, they felt that it was an inaccurate result. This was illustrated by the following quotation:

*"When I first discover that I was HIV positive, it was so hard for me to accept. It was difficult because the day I discover it I got disturbed mentally, and I was admitted at the psychiatric ward. When I went to the hospital I was admitted because I had diarrhoea but when they do Pap smear they told me that I am HIV positive, then I collapsed and I woke up and found myself at the psychiatric ward, immediately when I was told my head had a huge headache and I felt that I had carried something, and it was during that time when they use to say that if you are HIV positive you will die. Then I felt that it is now time that I would leave my children suffering when I die, I could not believe it"* **(Participant L, 36 years).**

*"I felt like nothing happened to me, I tried to ignore the results. I was scared that I won't be able to have children for the rest of my life"* **(Participant O, 40 years).**

*"I was a bit nervous and filled with disbelief"* **(Participant M, 47 years).**

### 5.4.3.2 Anger

Participants highlighted that they were angry with themselves and did not understand how they were diagnosed with HIV. This was illustrated by the following quotations:

*"I was angry for some time and I have told another person at home that it is very difficult"* **(Participant A, 30 years).**

*"I became angry at the first time and I felt pain, when I was told that I am HIV positive"* **(Participant J, 56 years).**

*"I am so ambitious like I have said, so I was angry that I will not be able to succeed my things well. I developed fear and even now I do not have that much peace, because some of my dreams will not be able to come true"* **(Participant F, 53 years).**

### 5.4.3.3 Bargaining

The majority of participants reported that after diagnosis they asked themselves how they were going to live with it; they had to surrender to a higher being, to God and ask to be healed and that their days be increased.  This was illustrated by the following quotation:

*"I have left a lot of things of this world, I have restrained myself from lot of things of this world and I am focusing on going to church, I am looking forward on God as He is the giver of life. So a person should shun away from evil doings like drinking, adultery and so on, you should leave some of the things. I am praying too much and knowing God more; I want Him to lessen the pain that I am feeling"* **(Participant D, 37 years).**

*"As for me I always pray, prayer is my daily activity, but mmmh I only go to church and pray that's all. As when praying is like telling God to increase the days of my life and decrease the pain that I feel in my body"* **(Participant E, 39 years).**

*"I don't attend church services, but I even went to ECG church and I was prayed for so that I can be well"* **(Participant A, 30 years).**

### 5.4.3.4 Depression

Most of the participants were depressed once they find that they were HIV positive as they had to adapt to a new state of living, with the diagnosis. This was illustrated by the following quotations:

*"I had depression, at first after the diagnosis I would even seat down and cry when I think of the diagnosis"* **(Participant A, 30 years).**

*"But when I started I didn't have a huge depression of which I could be hospitalized but it touched my heart and I was in pain"* **(Participant K, 44 years).**

#### 5.4.3.5 Acceptance

Some participants indicated that they had accepted that they are HIV positive and they had to live with it. This was illustrated by the following quotations:

*"So I accepted my status and I am living well and am not losing any weight, if I did not accept my status I wouldn't be healthy and fat, I would be thin and people would be able to recognize that I have a problem"* **(Participant B, 52 years).**

*"But as times goes on where I was collecting the ARV's we were receiving them in large number, so I started realizing that I am not the only one in this situation we are many, like…. So many people.... I mean here there are no people. We would be so many, and then I started accepting that this disease is of everyone"* **(Participant K, 44 years).**

*"I ended up accepting the reality"* **(Participant A, 30 years).**

## 5.5 PSYCHOLOGICAL FACTORS

### 5.5.1 Stress

Participants experienced stress because of their diagnosis. This was illustrated by the following quotations:

*"I was experiencing a little bit of stress, but it (HIV diagnosis) touched me and I thought that I am going to die and how would I live"* **(Participant I, 63 years).**

*"I was having a little bit of pressure and stress, maybe for period of a week being affected by stress"* **(Participant K, 44 years).**

### 5.5.2 Major Depression

The majority of participants reported that they were thinking hard about the diagnosis, the thinking was accompanied by their inability to accept the diagnosis and they would prefer spending time alone, some even developed suicidal thoughts. This can be verified by the following illustrated statements:

*"I would be thinking that is better if I kill myself once. It has occurred the day before yesterday; I locked myself inside the house not wanting anyone to disturb me. That man (my husband) just entered into the room and he came and stood by me, I was seating on the bed and he said 'I should get out', and I replied and said no I do not want go out and I don't need any person inside this room I want to seat alone. I would feel nothing it is just that I will be thinking a lot, that it is better if die because there is nothing I am living for, that's all I think of, I was always sad"* **(Participant G, 31 years).**

*"I would always be sitting alone and it was hard for me to accept that I'm HIV positive. I believed in my results when they informed me, but I was under a lot of pressure and I end up having high blood pressure, always crying and sad"* **(Participant N, 44 years).**

*"I am very moody, as when a person does things that annoy me I sweat a lot, I overly sweat. So when it happens like that when am feeling annoyed I choose to confront the person and talk with him or her, overwhelmed with hopelessness and helplessness"* **(Participant B, 52 years).**

*"I engage in something else so that I would avoid thinking. During that it will be a time wherein I don't need anybody near me because I will be thinking about my things, so I will be in need of my own space, sad, always tired, not interested in anything"* **(Participant J, 56 years)***.*

### 5.5.3 Anxiety

Most participants reported that they were very worried about their diagnosis especially thinking about how to proceed with life and how they will disclose their status. The following are direct quotations from participants:

*"I was very worried"* **(Participant A, 30 years).**

*"I was so worried to a point where I wouldn't feel comfortable while seating with other people. What gave me the fright the most was the changes that are going to take place in my life. I was thinking about my future because I wasn't expecting to live my life relying on medications"* **(Participant N, 44 years).**

## 5.6 PERSONAL FACTORS

### 5.6.1 Mistrust

Several participants in the study had doubts in their results at first when told that they were HIV-positive. They had to consult another clinics/hospital to test again hoping that a different healthcare professional will have different results and to verify results. Mistrusting the healthcare provider made participants to seek confirmatory test. This was verbalised by the following quotations:

*"No, I got tested in the clinic and I also came here and got tested again. I got tested also on the 9th"* **(Participant A, 30 years).**

*"I felt that they made a mistake with the results that they have told me. I went back again to get tested again for confirmatory test, and it came back the same*" **(Participant G, 31 years).**

*"I did not get angry at first when I was told about my diagnosis by the Doctor then I was transferred to another Doctor for confirmatory test and that was when I believed that I am indeed HIV positive"* **(Participant B, 52 years).**

### 5.6.2 Shame

The majority of the participants in this study reported that they were feeling ashamed because of their diagnosis and were thinking of how other people will think and view them. This is illustrated by the following statements:

*"No I can't tell another person about my diagnosis, what if I tell the person and the same person start spreading rumours about my status, I would feel ashamed"* **(Participant K, 44 Years).**

*"But I can share my status with a person who is in the same situation as I am. I was very sceptical about this diagnosis and also ashamed of myself"* **(Participant C, 38 years).**

*"I allow people to speak about HIV and I even add some information and you will hear them saying someone is infected with HIV, and when I look at myself I don't think any person can tell by just my look that I am HIV positive and I was ashamed"* **(Participant E, 39 years).**

## 5.7 SOCIAL FACTORS

### 5.7.1 Stigma

Most of the participants reported that they have been subjected to stigma as a result of being HIV positive. The following quotations help to verify the existence of stigma among HIV-diagnosed patients:

*"I knew that there was HIV, but when I was told that I was HIV positive, many things came in my mind at once, like how people will take me and I was scared of being judged"* **(Participant L, 36 years).**

*"People speak of HIV as if it is a bad disease. And the same belief makes them to hate and reject us when they do their things in the* community" **(Participant O, 40 years).**

### 5.7.2 Discrimination

Participants reported incidents of discrimination that had occurred, such as being treated like foreigners because of the diagnosis. The following quotations help to verify participant's exposure to discrimination after HIV diagnosis:

*"And many men who proposed me once I told them about my diagnosis they would stay away from me"* **(Participant L, 36 years).**

*"I become afraid, because I have witnessed other people who were HIV positive being treated like a foreigner and even now some people they see us(HIV diagnosed people) like disgusting things"* **(Participant J, 56 years).**

**Figure 5.4: The summary of the findings, identified themes and sub-themes**

## 5.8 Linkages between mental health issues

In the current study there were many linkages among the mental health issues themes; you may find that participants had experienced almost three to four mental health issues. This information is best explained through the following figure:

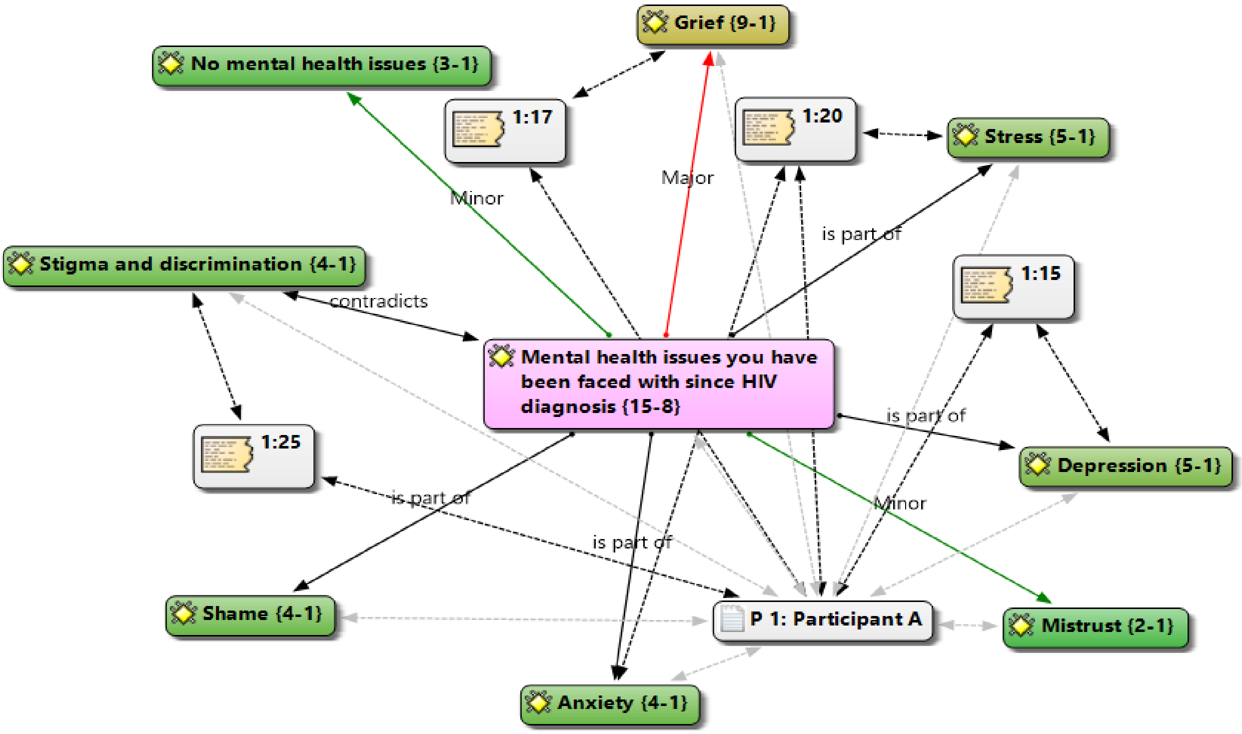


**Figure 5.5 Network of linkages between mental health issues themes**

## 5.9 Chapter Summary

In this chapter the researcher presented the results of the study starting with demographic information, followed by objective one with results presented in a form of graphs, tables and pie charts from SPSS. And lastly, findings from objective two were explained with verbatim quotations displayed from ATLAS ti based on the following themes that had emerged -stages of grief, and psychological, personal and social factors affecting HIV-diagnosed patients.

# CHAPTER SIX: DISCUSSIONS

## 6.1 Introduction

This chapter contains a discussion about key findings of the quantitative results presented in the preceding chapter in light of the literature review. The summary and interpretation of the research findings on the adherence to ART and the mental health of HIV-diagnosed patients on antiretroviral therapy will be discussed in the context of other studies previously completed integrating the relevant theoretical framework. The researcher discussed the findings according to the objectives of the study and different themes that have emerged in this study. The main aim was to investigate adherence and mental health of HIV/AIDS patients on ART at Donald Fraser.

## 6.2 DEMOGRAPHIC INFORMATION

### Gender

Females comprised 59.7% as compared to males at 40.3% in the sample of the study. The number of males found to be attending at the hospital to receive their ART was expected to be low.  Similarly, Tweya *et al.,* (2018) found 58% females were HIV positive as compared to 42 % males. Other studies have found that females are more likely to attend Voluntary Counselling and Testing (VCT) services and also they seek healthcare more actively than males (Shisana *et al.,* 2005; Shisana, 2014). Shisana *et al.,* (2012) found that low rates of males patients was accounted for by the fact that most women were unemployed and able to collect ART from their hospital while males collected their medication in their place of work, while some did not like the long queue, hence, avoided consulting.

### Age

Regarding the age group of respondents, more than 41.8% were between the ages of 31-45 years. This is consistent with other results that have showed a significantly higher incidence of HIV in sexually-active people within this age group (Shisana *et al.,* 2005). This might further indicate that the adult population are more willing to check their HIV status than the younger age groups. The current study also revealed that the same age group is more highly infected by HIV than respondents of the other age groups. Other similarly results were reported in Ethiopia (Negash & Ehlers, 2013).  Additionally, Afolabi, Ijadunola, Fatusi, & Olasode, (2009) found that 40.1% of the respondents were aged 40 years and below while 59.9 % were aged 40 years and above.

### Marital status

The majority of respondents were single at 34.3%. This means that there are high rates of infections among single people compared to married or widowed; single people are more willingly to check and be aware of their HIV status and may be engaging in unprotected sex with numerous partners (Shisana, 2004; Shisana *et al.,* 2005; Peltzer *et al.,* 2010). Surprisingly, the second highest rates of respondents were married at 29.8%; for married respondents, this could be the results of extramarital affairs (Kaiser et al., 2011).

### Education

45.5% of the respondents for the current study had secondary level education. These results correlate with other findings where 86.5% had at least secondary education (Choi *et al.,* 2016; Tran *et al.,* 2013). Additionally, Peltzer *et al.,* (2010) found that 61.9% of respondents were in Grade 8 or informal education in a study conducted among HIV-diagnosed patients in KwaZulu-Natal.

### Occupation

The majority in the current study 83.5% were unemployed; 10.4% were employed, similarly (Lourdes *et al.,* 2005) found 54% of respondents were unemployed and 66% were unemployed and depressed due to their diagnosis. Correspondingly, 61.9% HIV-diagnosed patients were unemployed and living in rural areas (Peltzer *et al.,* 2010).

### Religion

When it comes to religion it was found that the majority of 79.9% were Christians although, people who are Christians and are living with HIV are perceived to be sinners and not following the commandment of God (Isezuo & Onayemi, 2004; Mohamed, 2007; Zou *et al.,* 2009).

## 6.3. OBJECTIVE 1: PREVALENCE RATE OF ADHERENCE TO ART AMONG HIV AND AIDS PATIENTS

Failure to respond to ARV therapy creates opportunities for transmission of ARV drug-resistant strains of HIV, however it also makes HIV virus to progress to AIDS rapidly, therefore it is important for HIV-diagnosed patients to adhere strictly to their ART (Quinn, 2000). It is of very Importance that HIV-diagnosed patients take their ART medicines willingly in order to improve their health. The self-report regarding adherence showed 94.8% for the current study, similarly Mills *et al.,* (2006) found 77%, of ART patients attained the expected 95% level of adherence in 27 studies from 13 African countries; Gesesew, Ward, Woldemichael, Mwanri, 2017 also find that 82% were adhering to ART; Logie, *et al.,* 2018 found that about 83% took their ART. Environmental setting was found to be the basis for poor adherence. In low- and middle-income countries adherence is the main problem due to many adversities and situational factors. The demand to take ART at a proper time, correct dosage as instructed by the health care provider is critical to achieve the optimal adherence rate of 95% (Lima, Harrigan, Murray, Moore, Wood, Hogg, 2008). Peltzer *et al.,* (2010) also found that 84.5% adherence and 15.5% non- adherent of self-reported from the patients.

The medical evidence of adherence in this study indicated a different picture. Baseline information showed that 39.6% had <200c/mm3 CD4 count, 15.7% among patients aged 31-45; 10.5% accounted for patients with 200-350c/mm3 CD4 count while 28.4% had >350c/mm3 CD4 count. Worryingly was the 21.6% of patients whose CD4 count was unknown for reasons ranging from defaulting and missing medical appointments. Furthermore, follow-up after 6 months indicated that 32.1% of patients' CD4 count was unknown; this is an increase from baseline which negatively implies that many of the patients might have defaulted within the period of 6 months. Additionally, those whose CD4count was 350c/mm3 declined to 21.6% as compared to 28.4% baseline, implying that many patients still remained at the same level and some declined

Positive findings for the current study show that there was a slight improvement regarding patients with <2000c/mm3 CD4 count account for 34.3% compared to 39.6% at baseline; 11.9% accounted for those whose CD4 count was 200-350c/mm3 as compared to 10.5% at baseline; a slight improvement was also observed for CD4 count of <200c/mm3 (14.9%) compared to 15.7% at baseline. This implies that there is slightly improvements for those who adhere to ART. According to the HBM theory, patients are more likely to adhere to their ART treatment if they see themselves susceptible to HIV and also after considering the seriousness of their diagnosis and side effects of not taking their ART. Although to those who do not perceive themselves vulnerable to HIV infection and not considering the seriousness of their diagnosis, they do not adhere to ART (Jones & Bartlett, 2010). The rate of adherence seems to fall short of the golden standard (95%) seemingly patients are aware of the implications on their health of not taking their medications, hence visible efforts to adhere are found from various studies.

The CD4 is considered normal when it is between 500 to 1400c/mm3 and patients who have <200c/mm3 CD4 counts are at risk of being infected by numerous infections which may lead to death (Hogg, *et al.,* 2001; Johnson *et al.,* 2013). Similar findings where the CD4 counts of respondents continued to decrease have been discussed (Braunstein *et al.,* 2011; Ohene & Forson, 2009; Tran *et al.,* 2013). This implies that patients struggle to take ART as prescribed. Similarly, Mountain *et al.,* (2014) found that some patients had <200c/mm3 of CD4 count at initiation of ART (Braunstein *et al.,* 2011; Gesesew, Ward, Woldemichael, Mwanri, 2017; Yu *et al.,* 2018). In agreement with these earlier findings, studies conducted in China and Kwazulu-Natal found that 84.5% of the respondents had CD4 counts which was less than 350c/mm3 & 10% of the respondents had CD4 counts which was 350–499c/mm3 respectively (Yu *et al.,* 2018; Tang *et al.,* 2017). In the beginning, CD4 count was used to determine when and who must initiate ART, but randomised trials revealed the importance and advantages of starting ART immediately after the diagnosis. Nonetheless, CD4 count is the finest tool to assess the patient's immune system, the likelihood of contracting other infections due to being susceptible, and the count makes it possible for healthcare providers to inductively decide especially for those patients in more advanced stages of HIV (Ford *et al.,* 2017; Johnson *et al.,* 2013). In the current study, many patients still remain with CD4 count of <200c/mm3, meaning that most patients are vulnerable to additional infections; this will result in higher rates of admissions in the hospital which will continue to add a burden to the health sector for both government and healthcare providers in terms of workload for medical and clinical staff.

### 6.3.1 ART treatment and defaulting

The self-report about defaulting indicates that 22.4% of patients defaulted with 16.4% being females and 6% males. Self-report for those patients who were not taking their medication showed 5%, with 3% accounting for females and 2% for males.

Similarly, Gesesew, Ward, Woldemichael & Mwanri, (2017) found 2.9% males and 2.2% females who were defaulters. The current study also illustrates that patients may not always be truthful, because there is a high percentage of adherence level but the reported defaults' rate indicates a slightly higher number than expected based upon self-report. Although most of the respondents reported taking ART findings also confirms that some respondents defaulted which is a contradiction. SCT in correlation with HBM theories state that behaviours can be learned and if approved or rewarded the possibilities are that such behaviours will be more likely to be repeated in the future. Just like HIV-diagnosed patients those who are experiencing difficulties when taking ART, are more likely to default as they are not getting any good rewards when using them, and to those that values and understand the importance and benefits of using ART, they will adhere (Bandura, 2011; Lennerling & Forsberg, 2012).

However, there were some respondents who were defaulting when taking their ART, this is an indication that respondents are not taking their ART adherently; they take when it suits them perhaps; when feeling better they skip or quit for some time (Katz, 2013; Lourdes *et al.*, 2005). In support of the current study, 20% of women reported missing pills twice (Claude *et al.,* 2003).

### 6.3.2 Count of missed medical appointment

The majority of the respondents 76.1% did not miss any medical appointments. Respondents who missed appointments 1-6 times accounted for 14.9%; 7.5% had missed appointments 7-12 times and the least 1.5% have missed appointments at least 13-19 times. Deribe, Hailekiros, Biadgilign, Amberbir & Beyene, (2008) reported that 8% had missed two or more clinical medical appointments with their healthcare providers. HBM theory states that when patients are accounting for the barriers or side effects and factors such as stigma, discrimination and stigma occurs in relation to HIV diagnosis, they will surely miss their medical appointments. When patients feel intimidated about the barriers, they would want to avoid such in the lives, so in future they will taker ART treatment adherently and will attend every medical appointment with the healthcare provider (Glanz & Bishop; 2010; Tarkang & Zotor, 2015). Furthermore, cues for action will be to seek for support from other people, disclosing one’s status so that people can be able to assist and remind the time when a patients is supposed to take the ART.

### 6.3.3 Reasons for Missing Medical Appointment

Of all the respondents, only 19.4% missed their medical appointments while 80.6% did not miss any medical appointment. Patients reported that they missed appointment for various reasons; 19.4% had other commitments and the appointment was not at a convenient time; 12.7% were feeling better and struggled to get transportation; 11.2% revealed that the appointment was not with the healthcare provider of the patient’s choice; 9.7% were too sick to attend the medical appointment. Based on HBM theory if patients perceive the severity of the diagnosis they are more likely to develop any reason that will help to avoid anything related to their diagnosis. However, if they do not perceive the seriousness of their diagnosis and take it serious it is possible that they will miss medical appointments with their healthcare providers (Groenewold, Bruijn & Bilsborrow, 2006; Jones & Bartlett, 2010).

The current study differs with findings from Tran *et al.,* (2013) who reported that 21.5% forgot about their appointments; only one female overslept.  Hansana, (2013) on the contrary, found a slightly higher rate of 62.2% of patients who forgot taking their ART (Hansana, 2013); 33% reported that they were busy working (Tran *et al.,* 2013). Similarly, Tweya *et al.,* 2018; Chesney, 2000; Chesney, Morin & Sherr, 2000; Chesney, 2003; and Maskew *et al*., 2007 all found that some patients missed their appointment due to being too sick, appointment was not scheduled with the healthcare provider of their choice, some struggled with transportation while others were feeling better. Katz, 2013; Lourdes *et al.,* 2005 reported that patients also missed appointments because they were feeling better and some decided to stop taking ART for some time. According to the HBM if a patient does not perceive the seriousness of the diagnosis, s/he is more likely to take ART only when ill, stopping to take medication when feeling better (Pender, Murdaugh & Parsons, 2011).

## 6.4 OBJECTIVE 2: MENTAL HEALTH OF PATIENTS DIAGNOSED WITH HIV

### 6.4.1 STAGES OF GRIEF

#### 6.4.1.1 Denial

Participants emphasised that once they were informed of their diagnosis they denied their status right away and had fears of how they were going to live and inform other people within their inner circle. This correlates with the following findings wherein HIV-diagnosed patients adopted strategies in order to deal with the diagnosis through denial, blaming themselves, losing hope and giving up on the treatment (Russell & Seeley, 2010). The first and common reaction to HIV diagnosis by HIV-diagnosed patients is denial; they become shocked and surprised by their positive results, and also Isezuo & Onayemi (2004) found that the rate of denial was 9.4% for the participants in their study.

In the current study participants were failing to accept their diagnosis and thought the result were not theirs, others also thought it was a mistake. Méda *et al.,* (2016) found that all participants felt bad immediately when informed about their diagnosis; they feared for their lives and thought that living with HIV is a death sentence for them. According to SCT theory, HIV-diagnosed patients choose to associates themselves with the actions that are favourable to them at the time, as results of what they have observed and learned from those whom have model their behaviour when living (Pastorelli & Regalia, 2001; Nabi, Clark, 2008). In contrast Miller & Hays, (2000) found that some HIV-patients became angry when they realised that the transfusion of the HIV virus was through blood, and they eagerly ask for another blood test; this happens after they have had some time trying to find the cause of their infection and then they become zealous to get tested again to confirm again, even though, they have found out what had happen.

#### 6.4.1.2 Anger

In this study it was revealed that participants were angry when they found out that they were positive. Refusal to accept the diagnosis leads to failure in taking ART treatments among HIV-diagnosed patients; hence, failure in accepting the diagnosis obviously has negative consequences (Miller & Chang, 2002). According to Fitzgerald, Maxi, Marcelin, Johnson & Pape, (2004) in their study they found that HIV-diagnosed patients require logical explanation of the diseases and when such is not attained, unacceptable or unavailable, they turn to other ways in which they can cope with disease in an effort to better understand their diagnosis, rather than relying on ART treatment. Shanthi, Damodharan & Priya, (2007) reported about a young woman who through her anger at finding out that she was HIV positive, slept around with many man, having unprotected sex with them. The current study revealed that anger among HIV diagnosed was mostly direct towards the patients themselves when they think that their lives are going to change. Isezuo & Onayemi, (2004) reported that 21.1% experienced anger that was preceded by their reactions to the disclosure of their HIV positive status to loved ones. Patients 28.1%

went through grief after being diagnosed. Anger also serve as negative though that patients diagnosed with HIV imitates by being irrational towards their diagnosis.

### 6.4.1.3 Bargaining

In the present study, participants reported that they were blaming themselves for what had happened and trying every way possible to change the situation by asking higher power to change their circumstance. In support of the current study, DABDA Process of HIV/AIDS, (2015) and Tanner, (2016) found that patients diagnosed with HIV turn to ask for forgiveness from God and higher authority in order to lessen the pain and for compensation for the cure to their diagnosis. The current study also found that HIV-diagnosed patients had been asking themselves how they will face people and if people will accept them with their diagnosis. In line with HBM theory, bargaining can cause HIV-diagnosed patients to evaluate their benefits and barriers when living with HIV and the susceptibility of becoming HIV positive; it is when they value themselves unsusceptible to HIV that they bargain to higher powers, and are more likely to take ART treatment (Groenewold, Bruijn & Bilsborrow, 2006; Jones & Bartlett, 2010). Crain, (2012) also found that some people become more spiritual and holy and even engage in fasting so that their situation may change and hope to alter what had happened in the past. Kremer, Ironson & Porr, (2009) reported that it is common for patients diagnosed with HIV to view HIV as life-threatening disease, hence, to seek protection and strength from God and other higher powers, however, in this study there were participants who had spent time blaming themselves for the diagnosis, asking many questions about how other people will perceive them with the diagnosis. These had happened to them as they did not see themselves vulnerable and susceptible to HIV, believing in such they obviously had to deny their status.

### 6.4.1.4 Depression

Findings of the current study also revealed that when HIV diagnosed patients were going through the stages of grief, they were depressed at some point. Confirming the findings, depression worsens the life of HIV diagnosed patients and worsen the burdens of being HIV positive; the health of patients deteriorate rapidly as a result. Bing *et al.,* (2001) found that depression is a chronic mental health issue that affects about 30% of HIV-diagnosed patients. The way that patients perceive and their frame of core beliefs determined coping mechanism and influences if one adheres strictly to ARV (McLeod, 2008; Corey, 2014). Furthermore HBM theory posits that individual factors, such as the patient’s demographics, social support, life style or mental health pre-determine how the patient perceives their susceptibility to HIV or severity levels; those patients who perceive adherence as beneficial are more likely to commit to follow ART strictly as instructed by the health care providers because they will be motivated to take action through decision internally (the courage to take medication) and externally (pill taking as prescribed) because they perceive adherence as beneficial to their overall health. In the context of demographic circumstances wherein a patients is surrounded by poverty, severity levels might be perceived as threatening and negative, meaning that the patients are more likely to be depressed and not engage themselves to adhere to ART because they do not see the benefits of taking ART (Tarkang & Zotor, 2015; Pender, Murdaugh & Parsons, 2011). Do *et al.,* (2014) found that depression is three times higher in HIV-diagnosed patients than other people in the general population, and also they found that many of the HIV-diagnosed patients have experienced symptoms that are consistent with major depression (New York State Department of Health, 2010). Heckman *et al.,* (2018) reported persistent symptoms of depressive symptoms among HIV-diagnosed patients after seeing a therapist. This supports the finding that HIV-diagnosed patients are vulnerable to finding themselves living a depressed life.

### 6.4.1.5 Acceptance

In this study HIV-diagnosed patients reported their willingness to accept their diagnosis. Similar findings to the current study report patients' desire to volunteer for HIV counselling which fosters acceptance that is preceded by preparation for good or bad news in VCT. HIV counsellors seems to be key in providing support and counselling towards HIV diagnosis, assuring patients that there is still life after diagnosis; this built hope for the future within the patients and they accept the diagnosis (Horter *et al.,* 2017; Jenness *et al.,* 2012). The encouragement and support received from the counsellors seems to be helping HIV-diagnosed patients in accepting their diagnosis. According HBM theory, based on the level of self-efficacy concept, HIV-diagnosed patients are more likely to be self-sufficient when there are high levels of confidence in their ability to successfully perform a behaviour; acceptance becomes an outcome.

If a patient sees him/herself negatively (*I am going to die*), view the world and/or others negatively (*people hate me because of my HIV status*) and sees the future negatively (*my future is doomed*) then acceptance is impossible; the patient will not commit to take ART consistently because it is not perceived as beneficial (Tarkang & Zotor, 2015; Jones & Bartlett, 2010). HIV-diagnosed patients will then make necessary decision that would have good outcomes based on their behaviors, in order to improve health and strengthen immune system. Acceptance of the diagnosis and disclosure are linked to HIV care; disclosure enables closure, to receive support and assurance from other people and hope for the future (Nakigozi et al., 2013).

## 6.4.2 PSYCHOLOGICAL FACTORS

### 6.4.2.1 Stress

Leserman, (2008) maintains that stress is associated with an increased level of CD4 count and HIV mortality rate; there is a strong association between HIV and stress (Leserman, 2008). In the current study participants were stressed when they thought of the future and the conception was that an HIV status is associated with death. Similarly, findings revealed that participants were suicidal and others attempted suicide because they felt hopelessness, depressed and had the desire to escape the pain and were stressed (Courtenay, Wolitsk, Parsons & Gomez, 2006). Considering SCT theory stress is also associated mostly especially to those whom don't see themselves susceptible to HIV diagnosis, in this way they won't accept their diagnosis which will make them over their diagnosis (Pastorelli & Regalia, 2001; Nabi, Clark, 2008).

### 6.4.2.2 Major Depression

In the current study participants alluded to being depressed, feeling alienated and were thinking a lot about their diagnosis. Post-HIV diagnosis patients also indicated that suicidal thought flooded their thoughts. The finding is consistent with Thai, Jones, Harris & Heard, (2016) who maintain that 31% of HIV-diagnosed patients have been identified by psychiatrists as experiencing depression after HIV diagnosis. Olley, Seedat, Nei & Stein, (2004) and Kaminer, Stein, Mbanga & Zungu-Dirwayi, (2001) found that women living with HIV are more likely to have a lifetime of major depression as compared to men. Similar, studies found significant association between the development of depression and HIV diagnosis (Niu *et al.,* 2016; Liu *et al.,* 2013; Wanga *et al.,* 2017).

According to HBM, HIV-diagnosed patients develop negative thoughts about themselves and other people and the world, leading to a depressed mood (Glanz & Bishop; 2010;

Tarkang & Zotor, 2015). Factors like unemployment and poverty among HIV-diagnosed patients cause depression in addition to the symptoms brought along by the diagnosis (Allavena *et al.,* 2016; Kanmogne *et al.,* 2017).

### 6.4.2.3 Anxiety

The current study revealed that HIV-diagnosed patients experience anxiety; the worry was based upon anticipated failure to accomplish personal dreams because of the diagnosis. In support of the current findings, functional social support, psychological capital, and depressive and anxiety symptoms among people living with HIV/AIDS, 45.6% participants had experienced anxiety symptoms (Liu, Pang, Sun, Qu, Lu & Wang, 2013; Méda *et al.,* 2016). Women were identified as being more emotional when it comes to reacting to sad news concerning their healthcare than men (Kaharuza *et al.,* 2006). Validating the findings of this study, Evangeli & Wroe, (2017) reported that anxiety among participants was due to the concerns relating to disclosure to loved ones. Similar to what had been found in the current study, HIV-diagnosed patients were worried about how they will disclose their status and how life might change. Studies found significant association between the development of anxiety and HIV diagnosed patients (Niu *et al.,* 2016; Liu *et al.,* 2013; Wanga *et al.,* 2017).

SCT theory application to HIV-diagnosed patients takes a stance about the outcome expectation, modelling behaviour and the use of observational learning to adjust behaviour, therefore if a patient sees others who are HIV positive coping, he/she is more likely to learn through observation or model the behaviours of other for a positive outcome. Health care providers can also serve to provide a positive reinforcement when patients are adhering to ART, through encouragement and acknowledgement of those who are consistent, others may observe and learn positive behaviours (Bandura, Caprara, Barbaranelli, Pastorelli & Regalia, 2001; Nabi, Clark, 2008). HBM theory application to

HIV-diagnosed patients maintain that a negative attitude towards ART can provoke worrying about the side effects of using ART medication, and in turn patients are more likely to default in taking  ART (Scarinci, Bandura, Hidalgo & Cherrington, 2012). Sharing one's HIV diagnosis opens up a canister of dysfunctionality within the families and patients are certainly not ready for that. Tesfaw *et al.,* (2016) reported that 34% of people living with HIV were experiencing anxiety and divorced participants were more likely to suffer from anxiety than married participants due to lack of companionship. Patients diagnosed with HIV and who have anxiety problems struggle to adhere to treatment (Tao *et al.,* 2017; Crain, 2012).

### 6.4.3 PERSONAL FACTORS

#### 6.4.3.1 Mistrust

In this study HIV-diagnosed patients lacked trust in the healthcare providers when they were informed about their diagnosis; some even went for another HIV test as a way of confirming the results to find out if they were true. The findings of the current study also correlate with Stern *et al.,* (2017) who found that participants took two additional HIV tests to confirm and by consulting two different doctors or hospitals. Furthermore, SCT state that cognition can be determined by the behaviour and through observation which may mean that patients have vicariously learned their mistrust issues from other people who act as role model and in turn are modelling certain behaviours (Nabi, Clark, 2008). Interaction with the environment can also influence how patients will act towards healthcare providers.

In agreement with the current findings, Bogart & Thorburn, (2005) and Newman *et al.,* (2004) found that mistrust in the healthcare providers appears to be a worldwide problem among HIV-diagnosed patients. Zukoski & Thorburn, (2009) had different findings wherein participants complained about mistreatments from the healthcare providers, such as being questioned in an intrusive way and given rude treatment such that participants find it difficult to trust the medication provided by such healthcare providers.

#### 6.4.3.2 Shame

The current study also revealed that HIV-diagnosed patients feel ashamed of their diagnosis, thus decreases the level of disclose afterwards. Bennett, Traub, Mace, Juarascio, & O'Hayer, (2016) reported that shame makes HIV-diagnosed people to feel uncomfortable with the diagnosis and they surely struggle to adjust to living with HIV. Ho & Goh, (2017) report that some people, when they were diagnosed with HIV felt ashamed of themselves and also felt that they are shaming their family and have brought humiliation to their loved ones. Regarding the SCT theory, the HIV-diagnosed may feel ashamed of themselves after diagnosis because many have observed that HIV people receive negative reinforcement from significant others and the society (Scott & Freeman, 2010). People living with HIV encounter difficulties when trying to maintain a positive perception (Earnshaw, Smith, Chaudoir, Amico & Copenhaver, 2013; Lewis, 2003).

### 6.4.4 SOCIAL FACTORS

#### 6.4.4.1 Stigma

In the present study it was found that HIV diagnosed patients had experienced stigma in relation with their diagnosis. There is a lot of stigma that is diverted towards HIV-diagnosed patients in the workplace and communities, and this furthers lead to discontinuation in taking ART by the patients (Stuber, Meyer & Link, 2008). Consistent with the current study there is a high rate of HIV-related stigma among HIV diagnosed women and this can easily lead to depression; HIV related stigma seem to co-exist simultaneously with depression (Logie, James, Tharao & Loutfy, 2013). SCT theory's reinforcement concept can help in giving an understanding in this way that the behaviour of HIV-diagnosed patients is influenced by the environment. If patients are receiving negative feedback from the people that surround them (health care providers, significant others, community), they are more likely to distance themselves from those people and as a result when a person is stigmatised, this provokes anxiety and depression because many isolate themselves to avoid experiencing the negative view that others display when interacting in a social setting (Lennerling & Forsberg, 2012; Scott & Freeman, 2010; Simelela, Venter, Pillay & Barron, 2015). In relation to HBM theory, stigma would also serve as barrier to HIV-diagnosed patients taking their ART treatment, since HIV distinguishes those who are living with the diagnosis from other uninfected individual within the communities (Pender, Murdaugh & Parsons, 2011). Rangarajan *et al.,* (2014) found that 41% of HIV-diagnosed patients fear stigma from their community.

### 6.4.4.2 Discrimination

The current study also found that patients diagnosed with HIV were discriminated against by the community. It was found those HIV-diagnosed patients were being discriminated and were treated like foreigners in their own community. Confirming our findings, Parker & Aggleton, (2003) found that 71% of the participants reported that they perceived discrimination in relation to their diagnosis from the community people and other people from the society; they also highlighted that they felt afraid (Simbayi, Kalichman, Jooste, Cherry, Mfecane & Cain, 2005). The participants in the current study also noted that people gossiped about them in the hospital and in the community. Some people believe that people with HIV should not be allowed to work, sell and buy from the shops since they are not capable of doing such, due to the diagnosis (Parker & Aggleton, 2003). Bogart *et al.,* (2013) reported that those who reported being discriminated against are associated with presentation of more symptoms of HIV.

### 6.5 Chapter Summary

In this chapter the research had discussed the findings of the study in relation to other studies and the literature. The findings were discussed in support of our current findings, using the SCT and HBM theories.

# CHAPTER SEVEN: INTRODUCTION, SUMMATION, STRENGTH, LIMITATIONS, RECOMMENDATIONS, CONTRIBUTION AND CONCLUSION

## 7.1 Introduction

The aim of the study was to investigate adherence and mental health of HIV-diagnosed patients on ART at Donald Fraser Hospital in Vhembe district, South Africa. The study attempted to determine the adherence level of HIV-diagnosed patients on ART using self-report strategy and patients files by extracting information regarding each patient's CD4 count as the researcher explored the mental health of the patients taking ART. The Social Cognitive Theory and the Health Belief Model were utilised as theortical framework for this study. This chapter presents the limitations recommendations and conclusions based on the findings of the current study.

## 7.2 Summation of the Study

Chapter one provided an introduction and background of the study. A research case was built on 'why' the need for a study that investigates adherence and mental health. HIV/AIDS is a burden worldwide and 95% adherence levels is mandatory in order to achieve optimal wellbeing. Adherence is therefore central to the management of HIV and exploring mental health is critical because good health goes with positive mental health and the demand of adherence necessitates research to investigate adherence and mental health of patients on ART who are living with HIV.

Chapter two of the dissertation provided details regarding the three theoretical framework utilised in this study, namely, Social Cognitive Theory and the Health Belief Model.

Chapter three captured the review of the past and present literature that was available and relevant to ART adherence by patients. Studies done on adherence showed adherence level ranging between 53% and 97.2% worldwide, 75% to 100% internationally and in South Africa it is 50% to 80% (Simelela *et al.,* 2015; Myer *et al.,* 2008; UNAIDS, 2017; Beer & Skarbinski, 2015). Research evidence shows that patients diagnosed with HIV are faced with various mental health issues because of the nature and chronicity of HIV. The researcher explained both adherence and mental health in conjunction with various studies done internationally, nationally and regionally.

Chapter four, a description of the two methods (mixed method) that were used in the collection of the data, was given. The study was conducted through the use of both the quantitative and qualitative research designs, divided into two phases. Phase 1 used a questionnaire, patients' files and statistics to analyse the data. In Phase 2, voice-recorded face-to-face interviews and field notes were used to obtain the qualitative data and ATLAS ti was used for analysis.

Chapter five presented both quantitative and qualitative results.

Chapter six presented a discussion of the finding on the basis of study objectives in conjunction with previous studies, integrating the theoretical framework.

Chapter seven presents the study summary, limitations, recommendations, strengths of the study and concluding remarks.

### 7.3 Strength of the Study

The first strength of this study is in its approach of mixed methods wherein both quantitative and qualitative approach were utilised. The current study has brought forward valuable contribution regarding knowledge especially the aspect of mental health of patients who are on ART. It is also interesting that self-report of adherence seems to misrepresent the actual levels of adherence, therefore, future studies must consider other ways to assess and report on adherence.

The second strength is that this is the first study that looked at adherence and mental health at Donald Fraser. This study is the first to the researcher's knowledge.

The third strength is that the current study taps information from people who are living with HIV, hence, the source of information is relevant and holds power.

The fourth strength is that the results of this study can be generalised to all patients whose origin is Venda, living in rural area with similar characteristics as the current study.

## 7.4 Limitations of the Study

The first limitation to both phases was the representation of ethnic groups and race. The sample might not have been representative of the entire population in Limpopo Province, which impacts the generalisation of the results and the possible inferences that could be made regarding the entire population (Salkind, 2012). People who consult at Donald Fraser Hospital are dominantly Venda speaking, and Limpopo Province has various ethnic groups which were not represented in this study, therefore, the results cannot be generalised to other ethnic groups.

The findings of this study must be interpreted in the light of its limitations. The study was only conducted at only one hospital in Vhembe District, Limpopo Province it may not be generalized to the country as a whole.

The second limitation is that the current study did not explore all other factors that influence adherence, prior HIV diagnosis, such as being bereaved or losing loved ones and other psychosocial stressors; the focus was more on adherence and the mental health after HIV diagnosis.

Thirdly, the use of convenience sampling in phase 2 (qualitative) to select the participants limited the opportunity to interview patients in different categories, for example, defaulters or those who are adhering.

Fourthly, responses that were given by people are more prospective to be the same or repetitive as people were being interviewed at different times in qualitative data and they were usually collected for the same waiting area so it's possible that they may have shared the information among themselves.

Fifthly, there was a limited use of the theoretical framework with regard to the deductive nature of the phase 2 (qualitative) analysis; the theories do not properly describe phase 2 (qualitative) findings to the core.

And lastly there was also lack of examination when it comes to the examination of other comorbid diseases that people are likely to experience while living with HIV diagnosis such as Diabetes Mellitus, Cardiovascular disease (CVD, e.g. hypertension), Respiratory diseases and etc.

## 7.5 Recommendations

### Objective 1: Prevalence rate of adherence to ART among HIV and AIDS patients

Patients strengthening and monitoring measures should be enhanced to encourage patients to take their ART treatment faithfully.  Patient's follow-up must be strategic wherein healthcare care providers can give counselling to the HIV-diagnosed patients in their monthly sessions when they receive their ART. The counselling should focus more on taking ART adherently, avoiding defaulting, avoiding missing medical appointments, patients becoming mindful of their CD-4 counts and their meanings, although, this will require a lot of time and dedication to do such for each diagnosed patients.

Considering the reasons for missed appointments, it is important that the system in the Department of Health allows the patients to comment about follow-up. In this current study, many of the patients who missed their appointment indicated that the appointment was not at a convenient time, therefore, it will be beneficial if the system can give an opportunity for patients to indicate if they will be able to make it in order to allocate dates that are convenient to the patient. Defaulting has far-reaching consequences to the wellbeing of the patient. Patients can share with their healthcare providers days on which they will be absent so that if possible appropriate dates can be set in agreement with all of them; the patients will then be present for their medical appointments.

The government must increase implementing tailor-made programmes to the rural areas in order to improve the knowledge and understanding of adherence, among HIV diagnosed patients. And also it will be good when they continue to hand out this information through books, brochures pamphlets and any materials that are capable of advertising so that they can distribute information about the importance of taking ART, having an increased CD4 count together with an indictable viral load in order to live a healthy life.

Government policies must strengthen matters regarding adherence because it is critical for optimal health. Efforts like community-clubs that have been started to strategically meet with HIV-diagnosed patients after every two months is a good initiative.  Efforts must be increased on the promotion of family and community support for the HIV-diagnosed patients.

Department of health is accountable to ensure that healthcare providers initiate good communication with the patients; the ratio of health care workers and patients is still a challenge in South Africa. The quality of service is also dependant on the ratio between the two, therefore the Government has a mandate to ensure that the people have basic necessities to improve health. Training, refresher workshops, debriefing for health care providers might help to enhance an already strained system. The Department of Health and Social development should consider implementing mandatory programmes for all HIV-diagnosed patients, to equip them with the psychological skills needed to cope with the demands of adherence.

**Objective 2: Mental health of patients diagnosed with HIV**

The current study revealed that there are various mental health issues that HIV-diagnosed patients on ART experience following the diagnosis. Additionally, living with HIV brings an emotional demand on the patient; ART requires a commitment that is lifelong. On the basis of the above, these recommendations are made:

Patients must get more counselling from the nurses, lay counsellors and most importantly from professional registered counsellor or psychologist, for them to become aware of some of mental health issues that may interfere with their diagnosis. Given the fact that grief was major factor in this study, it is also advisable that during pre- and post-counselling, patients should be taught more about the stages of grief after HIV diagnosis.

Community awareness campaigns must be strengthened to address issues such as the stigma and discrimination that are directed towards HIV-diagnosed patients as this affects patients in the taking of their ART treatment. There should be talks within the community members to clarify the impact of stigma and HIV-related information to unify communities. The community people can also help by supporting individuals living with HIV as it will enhance them in living healthily and be able to encounter mental health issues.

The healthcare provide must during the pre and post counselling shed some lights to participant regarding the mental health issues that they most likely can experience such as grief and depression. This will help patients to have an exposure even of the predicament about such mental health before their diagnosis.

The government initiative for community support groups might enhance openness. Patients must be encouraged to disclose their HIV status to their loved ones, friends and family to avoid mental health issues such as shame, mistrust, grief, stigma and depression. Further improving the workshops teaching healthcare providers about the mental health issues of HIV-diagnosed patients; it should increase their knowledge on how they can help and encourage HIV-diagnosed patients. It is also advisable that the government should not be more focused on the physical features that are presented by HIV and it is recommended that mental health must also be prioritised given the rates of suicide, depression and anxiety in the country. Psychologists are relevant to ensure that those experiencing psychosocial stress get the necessary help.

## Recommendations for future research

It is recommended that future research on this subject recruit diverse ethnic groups to be able to generalise the results to a larger population. Since the current study only involved a single ethnic group (VhaVenda), and therefore the results cannot be generalised to the entire population in Limpopo Province, South Africa.

In order to better understand the effects of multiple environmental risk factors on HIV-diagnosed patients, a holistic, multidisciplinary and multilevel approach is needed that encompasses the complex interactions between the biological, physical, and psychosocial factors impacting patients’ developmental outcomes. Such an understanding will allow researchers to effectively intervene.

Finally, future research can be directed towards investigating the effectiveness of programmes that could be used to promote and increase adherence. The need for interventions that will increase the potential for optimal adherence is critical.

## 7.6 Contribution of the Study

The findings of this study will contribute to the body of existing knowledge in the field of health, wellbeing and community psychology. Further, the results have generated some thoughts regarding the assessment of adherence levels and the mental health status of those living with HIV/AIDS. It is believed that this study provides relevant knowledge to patients, health care providers and policy makers.

## 7.7 Conclusion

The current study found that there is 94.8% of adherence among HIV diagnosed patients which was suboptimal, 22.4% of patients defaulted treatment so their CD4 counts decreased after 6 months of ART initiation. The findings also revealed that patients experience various mental health issues such as grief (denial, anger, bargaining, depression and acceptance), stress, major depression, anxiety, mistrust, shame, stigma and discrimination showing the many adversities surrounding a positive HIV result. Recommendations were made to strengthen programmes that will enhance support to HIV-diagnosed patients in order to lessen the burden of ART adherence.

## 7.8 Chapter Summary

This chapter had a brief introduction, the summary of the chapters from chapter one to six, areas in which the study was limited, the strength including the recommendation based on the results within each objective. The contribution of this findings and conclusion were also made.

## 8. REFERENCES

## REFERENCES

Abadia-Barrero, C. E., & Castro, A. (2006). Experiences of stigma and access to HAART in children and adolescents living with HIV/AIDS in Brazil. *Social Science & Medicine,* 62(5), 1219–1228. [PubMed: 16099573].

Abas, M. V., Broadhead, J., Todd, C., & Reeler, A. (2001). Depression in developing countries, lessons from Zimbabwe. *BMJ,* 322, 482–484.

Afolabi, M. O., Ijadunola, K. T., Fatusi, A. O., & Olasode, O. A. (2009). Determinants of adherence to antiretroviral drugs among people living with HIV/AIDS in the Ife-Ijesa zone of Osun State, Nigeria. *African Journal of Primary Health Care & Family Medicine*, 1(1), 6-1.

Africa Check. (2015). *Yes, South Africa has the world's largest antiretroviral therapy programme*. Retrieved from https://africacheck.org/reports/yes-south-africa-has- the-worlds-largest-antiretroviral-therapy-programme/

AIDS Epidemic update. (2009). Geneva, Switzerland, UNAIDS. Retrieved April, 23, 2010, from

http://www.Data.unaids.org/pub/report/2009/JCL700-epi-update2009 en.pdfs.unitednations.

AIDS Care. (2004). *Psychological and Socio-medical Aspects of AIDS/HIV*. Retrieved September, 27, 2010, from https://www.unodc.org/treatment/en/HIVAIDS_references.html

Allavena, C., Guimard, T., Billaud, E., De la Tullaye, S., Reliquet, V., Pineau, S., Hüe, H., Supiot, C., Chennebault, J. M., Michau, C., Hitoto, H., Vatan, R., & Raffi, F.

(2016). Prevalence and Risk Factors of Sleep Disturbance in a Large HIV-Infected Adult Population. *AIDS Behav,* 20(2), 339±44. doi:10.1007/s10461-015-1160-5. PMID.

Alison, S. E., Joseph, J., Gotora, T., Muzunze, B., Gliemann, J. O., Mukungunugwa, Farley, T., & Mangwiro, A. Z. (2017). Patterns of HIV Care Clinic Attendance and Adherence to Antiretroviral Therapy Among Pregnant and Breastfeeding Women Living With HIV in the Context of Option B+ in Zimbabwe. *J Acquir Immune Defic Syndr,* 75, 198–206.

Altshuld, J., & Witkin, B. R. (2000). *Transferring Needs into Solution Strategies.* Newbury Park, CA: Sage.

American Psychiatric Association. (2013).*Diagnostic and Statistical Manual of Mental Disorders.* (5th Eds.). DSM-5.

Anderson, J. 2005. *HIV and Mental Health, The Challenge of Dual Diagnosis.* NASTAD Mental Health Issue Brief. Washington: National Alliance of State and Territorial AIDS Directors.

Antelman, G., Kaaya, S., Wei, R., Mbwambo, J., Msamanga, G., Fawzi, W., & Smith Fawzi, M. (2007). Depressive symptoms increase risk of HIV disease progression and mortality among women in Tanzania. *Journal of the Acquired Immune Deficiency Syndrome,* 44, 470-477.

Antonio, G. P., & Stella, M. R. (2003). *Cognitive-Behavioral Theory. Part 1Theoretical Framework.* Chapter 2, page 14-40. Retrieved from https://www.sagepub.com/…/40689-9.pdf

APA. (2000). *Diagnostic and Statistical Manual of Mental Disorders*. Washington, DC, APA. (4th ed.). Text Revision (DSM–IV-TR).

Ariola, M. M. (2006). *Principles and Methods of Research.* Philippines: Book Store. ISBN 975-971-23-4548-7.

Axelsson, J. M., Hallager, S., & Barfod, T. S. (2015). Antiretroviral therapy adherence strategies used by patients of a large HIV clinic in Lesotho*. Journal of Health, Population and Nutrition,* 33(10), 1-9. doi: 10.1186/s41043-015-0026-9.

Azia, I. N., Mukumbang, F. C., & Van Wyk, B. (2016). Barriers to adherence antiretroviral treatment in a regional hospital in Vredenburg, Western Cape, South Africa. S Afr J HIV Med, 17(1), 1-8.

Babb, D. A., Pemba, L., Seatlanyane, P., Charalambous, S., Churchyard, G. J., & Grant, A. D. (2007). Use of traditional medicine by HIV-infected individuals in South Africa in the era of antiretroviral therapy. *Psychol Health Med,* 12(3), 314–20. [PubMed: 17510901].

Babbie, E. (2010). *The practice of social research.* (11th ed.). Belmont: Thomson Wadsworth.

Babbie, E., & Mouton, J. (2001). *The practice of social research.* Cape Town: Oxford University Press.

Babbie, E., & Mouton, J. (2008).*The basics of social research.* Belmont: Thomson Wadsworth.

Bandura, A. (2001). Social Cognitive theory: An agentic perspective. *Annual Review of Psychology,* 52, 1-6.

Bandura, A. (2011). The Social and Policy Impact of Social Cognitive Theory. In M. Mark, S. Donaldson, & B. Campbell (Eds.), *Social Psychology and Evaluation.* (pp. 33-70). New York, NY: Guilford Press.

Bandura, A., Caprara, G. V., Barbaranelli, C., Pastorelli, C., & Regalia, C. (2001). Socio-Self- regulating mechanisms governing transgressive behaviour. *Journal of Personality and Social Psychology*, 80, 125-135.

Beer, L., Heffelfinger, J., Frazier, C., Mattson, C, Roter, B., Barash, E., Buskin, S., Rime, T., & Valverde, E. (2012). Use of and adherence to antiretroviral therapy in a large U.S. sample of HIV - infected adults in care, 2007-2008. *The Open AIDS Journal,* 6 (1, M21), 213-223.

Beer, L., Fagan, J. L., Valverde, E., & Bertolli, J. (2009). Health related beliefs and decisions about accessing HIV medical care among HIV-infected persons who are not receiving care. *AIDS Patient Care STDS,* 23(9), 785–92.

Beer, L., Fagan, L. F., Garland, P., Valverde, E. E., Bolden, B., Brady, A. K., Courogen, M., Hillman, D., Neaigus, & Bertolli, J., (2012). Medication-Related Barriers to Entering HIV Care. *AIDS Patient Care STDS*, 26(4), 214–221.

Beer, L., & Skarbinski, J. (2014). Adherence to antiretroviral therapy among HIV- infected adults in the United States: AIDS education and prevention, official publication of the International*. Society for AIDS Education,* 26(6), 521-37.

Bennett, D. S., Traub, K., Mace, L., Juarascio, A., & O'Hayer, C. (2016). Shame among people living with HIV: A literature review. *AIDS Care,* 28(1), 87–91.

Berg, K. M., Cooperman, N. A., Newville, H., & Arnsten, J. H. (2009). Self-efficacy and depression as mediators of the relationship between pain and antiretroviral adherence. AIDS Care. *Psychological and Socio Medical Aspects of AIDS/HIV,* 21(2), 244–8.

Bhat, M. V. G., Ramburuth, M., Singh, O., Titi, A. P., Antony, L., Chiya, E. M., Irusen, P. P., Mtyapi, M. E., Mofoka, A., Zibeke, L. A., Chere-Sao, N., Gwadiso, N. C., Sethathi, S. R., & Mbondwana, M. M. (2010). Factors associated with poor adherence to anti-retroviral therapy in patients attending a rural health centre in South Africa. *Eur J Clin Microbiol Infect Dis,* 29(8), 947–953. Doi: 10.1189/jlb.1203639.

Bhavna, M., & Rejani, T. G. (2015). Impact of Mental wellbeing and Quality of Life of Depression, Anxiety and Stress among people living with HIV/AIDS (PLWHA). *The International Journal of Indian Psychology*, 3(9), 2349-3429.

Biadgilign, S., Reda, A. A., & Digate, T. (2012). Predictors of mortality among HIV infected patients taking antiretroviral treatment in Ethiopia: A retrospective cohort study on AIDS. *AIDS research and therapy*, 9(15), 33.

Bill, P. (2008). Press, The Sad Legacy of Jerry Falwell. Retrieved May, 18, 2007, from https://en.wikipedia.org/wiki/Religion_and_HIV/AIDS.

Bing, E., Burnam, A., Longshore, D., Fleishman, J. A., Sherbourne, C. D., & London, A. S. (2001). Psychiatric disorders and drug use among Human Immunodeficiency Virus-Infected adults in the United States. *Arch Gen Psychiatry,* 58, 721–728. [PubMed: 11483137].

Boarts, J. M., Sledjeski, E. M., Bogart, L., & Delahanty, D. (2006). The differential impact of PTSD and depression on HIV disease markers and adherence to HAART among people living with HIV. *AIDS Behav,* 10, 253–61.

Bogart, L. M., Landrine, H., Galvan, F. H., Wagner, G. J., & Klein, D. J. (2013). Perceived Discrimination and Physical Health among HIV-Positive Black and Latino Men who have Sex with Men. *AIDS and Behavior,* 17(4), 1431–1441.

Bogart, L. M., & Thorburn, S. (2005). Are HIV/AIDS conspiracy beliefs a barrier to HIV prevention among African Americans?. *J Acquir Immune Defic Syndr,* 38, 213–8.

Botswana country factsheet. (2016). UNAIDS country information. Retrieved May, 10, 2016, from http://www.unaids.org/en/regionscountries/countries/botswana

Botswana National AIDS Coordinating Agency (NACA). (2014). Botswana 2013 *Global AIDS Response Report: Progress Report of the National Response to the 2011 Declaration of Commitments on HIV and AIDS. Gaborone, Botswana: NACA*; 2014.

Botswana National Vision Council. (2016). 2014 Progress reports submitted by countries. Retrieved August, 30, 2010, from http://www.unaids.org/en/dataanalysis/knowyourresponse/countryprogressreports/2014

Bowen, G. A. (2009). From Qualitative Dissertation to Quality Articles, Seven Lessons Learned. *The Qualitative Report*, 15(4), 864-879.

Brandt, C. P., Paulus, D. J., Garza, M., Lemaire, C., Norton, P. J., & Zvolensky, M. J. (2017). A novel integrated cognitive-behavioral therapy for anxiety and medication adherence among persons living with HIV/AIDS. *Cognitive Behavioural Practice,* 25(1), 1–43.

Brandt, R. (2009). The mental health of people living with HIV/AIDS in Africa: a systematic review. *African Journal of AIDS Research,* 8(2), 123-133.

Braunstein, S. L., Umulisa, M. M., Veldhuijzen, N. J., Kestelyn, E., & Ingabire, C. M. (2011). HIV diagnosis, linkage to HIV care, and HIV risk behaviors among newly diagnosed HIV-positive female sex workers in Kigali, Rwanda. *Journal of Acquired Immune Deficiency Syndromes (JAIDS),* 57, 70–76.

Breakwell, G. M. (2004). *Doing Social Psychology Research.* (1st ed.). Australia: Blackwell Publishing.

Brion, M. J., Menke, M. E., & Kimball, C. (2013). Grief and HIV Medication Adherence, The Work of Transcending Loss. *Journal of Loss and Trauma,* 18(6), 499-520. Doi: 10.1080/15325024.2012.719341.

Brown J., L., & Vanable, P., A. (2011). Stress management interventions for HIV- infected individuals, review of recent intervention approaches and directions for future research. *Neurobehavioral HIV Medicine,* 3, 95–106.

Bruckner, T., Scheffler, R., Shen, G., Yoon, J., Chisholm, D., Morris, J., & Saxena, S. (2010). The mental health workforce gap in low-and middle-income countries: A needs- based approach. *Bulletin of the World Health Organization,* 89, 184-194.

Bureau of Statistics. *Lesotho 2006 Census of Population and Housing Preliminary Report.* Maseru, Government Printers; 2007.

Bygrave, H., Kranzer, K., Hilderbrand, K., Whittall, J., Jouquet, G., Goemaere, E., Goemaere, E., Vlahakis, N., Trivino, L., Makakole, L., & Ford, N. (2010). Trends in loss to follow-up among migrant workers on antiretroviral therapy in a community cohort in Lesotho. *PLoS One,* 5(10),131-98. PubMed Central.

Bryman, A., & Carmen, D. (2011). *Quantitative Data Analysis with IBMSPSS 17, 18 and 19: A Guide for Social Scientists.* London: Routledge.

Burns, J. K. (2010). Mental health services funding and development in KwaZulu-Natal Province: A tale of inequity and neglect. *South African Medical Journal,* 100(10), 662-666.

Campos, L. N., Guimaraes, M. D., & Remien, R. H. (2008). Anxiety and depression symptoms as risk factors for non-adherence to antiretroviral therapy in Brazil. *AIDS, Behav,* 14, 289–99.

Cardarelli, R., Weis, S., Adams, E., Radaford, D., Vecino, I., Munguia, G., Munguia, g., Johnson, K. I., & Fulda, K. G. (2008). General health status and adherence to antiretroviral therapy. *Journal of the International Association of Physicians in AIDS Care,* 7(3), 123–129. PubMed.

Castro, A. (2005). Adherence to antiretroviral therapy: merging the clinical and social course of AIDS. *PLoS Med* 2005, 2-338.

Catalan, J., Harding, R., Sibley, E., & Clucas, C. (2011). HIV infection and mental health, suicidal behavior-systematic review. *Psychology, Health & Medicine,* 16(5), 588–611.

Cauldbeck, M. B., O‟Conner, C., Mortimer, B. O., Saunders, J. A., Rao, B., Mallesh, V. G., Kotehalappa, N., Kumar, P., Mamtha, G., McGoldrick, C., Laing, R. B., & Satish, K. S. (2009). Adherence to anti-retroviral therapy among HIV patients in Bangalore, India. *AIDS Research and Therapy, 6*(7), 1-8. Retrieved June, 16, 2017, from http://www.aidsrestherapy.com/content/6/1/7

CDC. National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. Division of AIDS Prevention. Mortality Slide Series. Retrieved June, 27, 2017, from https://www.cdc.gov/hiv/pdf/statistics_surveillance_hiv_mortality.pdf

Cha, E., Erlen, J. A., Kim, K.H., Sereika, S. M., & Caruthers, D. (2008). Mediating roles of medication-taking self-efficacy and depressive symptoms on self-reported medication adherence in persons with HIV, a questionnaire survey. *International Journal of Nursing Studies,* 45(8), 1175–84. PubMed.

Chege, W.W. (2004). *Psychosocial support of people living with HIV/ AIDS in AMPATH project.* Paper presented at the XVth Inter-national Conference on AIDS, July, Bangkok. Abstract no. ThPeE8118.

Chen, F.Q., Li, F., Chen, L.L., Li, Y., Li, Y., & Guo, Z.A. (2014). Depression and anxiety among HIV/AIDS patients. *Journal for Dermatology and Venereology,* 36(2), 110–112.

Cheng, J. O., Lo, R. S., Chan, F. M., Kwan, B. H., & Woo, J. (2010). An exploration of anticipatory grief in advanced cancer patients. *Psycho-Oncology,* 19(1), 693-700.

Chesney, A. C., Morin, M., & Sherr, L. (2000). Adherence to HIV combination therapy. *Social Science & Medicine,* 50, 1599 – 1605.

Chesney, M. A. (2003). Adherence to HAART regimens. *Aids Patient Care STDs,* 17(4), 169-177.

Chesney, M. A. (2000). Factors affecting adherence to antiretroviral therapy. *Clinical Infectious Diseases,* 30(2), 171–176.

Chibanda, D. (2017). Depression and HIV, integrated care towards 90-90-90*. Int Health Journal,* 9, 77–79.

Choi, S. K. Y., Boyle, E., Cairney, J., Collins, E.J., Gardner, S., & Bacon, J. (2016). Prevalence, Recurrence, and Incidence of Current Depressive Symptoms among People Living with HIV in Ontario, Canada, Results from the Ontario HIV Treatment Network Cohort Study. *PLoS ONE,* 11(11), 13-25.

Cielsa, J. A., & Roberts, J. E. (2001). Meta-analysis of the relationship between HIV infection and risk for depressive disorders. *American Journal of Psychiatry.* 158 (5), 725-730.

Claude, A., Mellins, D., Kang, E., Leu, C. H., Jennifer, F., Havens, M. D., & Chesyney, M.A. (2003). Longitudinal Study of Mental Health and Psychosocial Predictors of Medical Treatment Adherence in Mothers Living with HIV Disease. *AIDS Patient Care and STDs,* 17(8), 407-17.

Clucas, C., Sibley, E., Harding, R., Liu, L., Catalan, J., & Sherr, L. (2011). A systematic review of interventions for anxiety in people with HIV. *Psychology, Health & Medicine,* 16(5), 528–547.

Cluver, L. D., Orkin, M., Gardner, F., & Boyes, M. E. (2012). Persisting mental health problems among AIDS-orphaned children in South Africa. *Journal of Child Psychology and Psychiatry,* 53(4), 63-370.

Cluver, L., & Gardner, F. (2006). The psychological well-being of children orphaned by AIDS in Cape Town, South Africa. *Annals of General Psychiatry,* 5(1), 8.

Cluver, L., & Gardner, F. (2007). The mental health of children orphaned by AIDS: a review of international and southern African research. *Journal of child and adolescent Mental Health,* 19(1), 1-17.

Cluver, L., & Orkin, M. (2009). Cumulative risk and AIDS-orphanhood: Interactions of stigma, bullying and poverty on child mental health in South Africa*. Social science & medicine,* 69(8), 1186-1193.

Collins, P. Y., Holman, A. R., Freeman, M. C., & Patel, V. (2006). What is the relevance of mental health to HIV/AIDS care and treatment programs in developing countries? A systematic review. *AIDS,* 20, 1571-1582.

Collins, R. L., Kanouse, D. E., Gifford, A. L., Senterfitt, J. W., Schuster, M. A., & McCaffrey, D. F. (2001). Changes in health-promoting behavior following diagnosis with HIV: Prevalence and correlates in a national probability sample. *Health Psychology,* 20(5), 351-60.

Colombini, M., James, C., & Ndwiga, C. (2016). The risks of partner violence following HIV status disclosure, and health service responses: Narratives of women attending reproductive health services in Kenya. *Journal International AIDS Society,* 19(1), 1-7. doi:10.7448/ias.19.1.20766.

Corno, L., & de Walque, D. (2013). Socioeconomic determinants of stigmatization and HIV testing in Lesotho. AIDS care, 25 (1), 108-13.

Coping with HIV/AIDS,  Mental Health. (2011). Retrieved August, 03, 2011, from https://www.hiv.va.gov/patient/daily/mental/single-page.asp

Courtenay-Quirk, C., Wolitski, R. J., Parsons, J. T., & Gomez, C. A. (2006). Is HIV/AIDS stigma dividing the gay community? Perceptions of HIV-positive men who have sex with men. *AIDS Education and Prevention,* 18(1), 56-67.

Creswell, J. W. (2003). *Research Design, Qualitative, Quantitative, and Mixed Methods Approaches.* (2nd ed.). Thousand Oaks, CA: Sage.

DABDA Process of HIV/AIDS Victims. Retrieved May 29, 2015, from https://www.aids2002.com/the-dabda-process-of-hivaids-victims/

Day, C., Gray, A., & Budgell, E. (2011). Health related indicators. In A. Paradath & R. English (Eds.), *South Africa health review* (pp. 119–248). Durban: Health Systems Trust.

De Vos, A. S. (2005*). Research at Grassroots for the Social Sciences and Human Service Professions*. Pretoria: Van Schaik Publishers.

Demmer, C. (2001). Dealing with AIDS-related loss and grief in a time of treatment advances. *American Journal of Hospice & Palliative Care,* 41(18), 36-41.

Dennill, K., King, L., Lock, M., & Swanepoel, T. (1999). *Aspects of primary health care.* Midrand: South Africa.

De Olalla, P., Knobel, G., & Carmona, H. Impact of adherence and highly active antiretroviral therapy on survival in HIV-infected patients. *J Acquir Immune Defic Syndr*, 30, 105-110.

Department of Health (DoH). (2010). Human Immunodeficiency virus (HIV). Retrieved December, 03, 2014, from http://www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-HIV.htm

Department of Health (DoH). [South Africa] (2009). *Policy Guideline for HIV Counselling and Testing (HCT)*. Pretoria, South Africa, National Department of Health.

Department of Health. (2007*). HIV/AIDS prevention, Care and Treatment. Republic of South Africa*: Jacania Media Publishers.

Deribe, K., Hailekiros, F., Biadgilign, S., Amberbir, A., & Beyene, B. K. (2008). Defaulters from antiretroviral treatment in Jimma University Specialized Hospital, Southwest Ethiopia. *Tropical Medicine and International Health,* 13(3), 328–333.

DiIorio, C., McCarty, F., DePadilla, L., Resnicow, K., Holstad, M. M., Yeager, K., Sharma, S. M., Morisky, D. E., & Lundberg, B. (2009). Adherence to antiretroviral medication regimens: A test of a psychosocial model. *AIDS and Behavior*, 13(1), 10–22.

Dinkel, A., Nather, C., Jaeger, H., Guedes, E. J, Lahmann, C., Steinke, C., Wolf, E., & Ronel, J. (2014). Stigmatization in HIV/AIDS, first German of the HIV-stigma scale (HSS-D). *Psychother Psychosom Med Psychol,* 64(1), 20–7.

Dlamini, P. S., Wantland, D., Makoae, L. N., Chirwa, M., Kohi, T. W., Greeff, M., Naidoo, J., Mullan, J., Uys. L. R., & Holzemer, W. L. (2009). HIV Stigma and Missed Medications in HIV-Positive People in Five African Countries. *AIDS Patient Care & STDs,* 23(5), 377-87.

Dlomo, N. (2010). *Investigating adherence for people living with HIV and AIDS on ART in* Durban, Kwazulu Natal, south Africa. Stellenbosch University.

Do, A. N., Rosenberg, E. S., Sullivan, P. S., Beer, L., Strine, T. W., Schulden, J. D., Fagan, J. L., Freedman, M. S., & Skarbinski, J. (2014). Excess Burden of Depression among HIV-Infected Persons Receiving Medical Care in the United States: Data from the Medical Monitoring Project and the Behavioral Risk Factor Surveillance System. *PLoS ONE*, 9(3), 928-42.

Dodds, S., Nuehring, E. M., Blaney, N. T., Blakely, T., Lizzotte, J. M., Lopez, M., & Sullivan, M. J. (2004). Integrating mental health services into primary HIV care for women, the whole life project. *Public Health Reports*, 119(1), 48–59.

Dowson, L., Kober, C., Perry, N., Fisher, M., & Richardson, D. (2012). Why some MSM present late for HIV testing: A qualitative analysis. *AIDS Care,* 24, 204–209.

Draina, P. K., Losinab, E., Colemand, S. M., Bogarte, L., Giddyf, J., Rossg, D., Katzc, J. N., & Bassetta, I. V. (2015). Social support and mental health among adults prior to HIV-counseling and testing in Durban, South Africa. *AIDS Care, 27*(10), 1231–1240.

Earnshaw, V. A., Smith, L. R., Chaudoir, S. R., Amico, K. R., & Copenhaver, M. M. (2013). HIV stigma mechanisms and well-being among PLWH: A test of the HIV stigma framework. *AIDS and Behavior,* 17(5), 1785–1795.

Economic & Social Research Council. (2015). *Framework for Research Ethics (FRE).* Retrieved January, 16, 2015, from http://www.esrc.ac.uk/-images/framework-for- research-ethics-09-20-tcm8-4586.pdf

Edwards, L. V. (2006). Perceived Social Support and HIV/AIDS Medication Adherence Among African American Women. *QUALITATIVE HEALTH RESEARCH*, 16(5), 679-691.

Ehlers, V. J., & Tshisuyi, E. T. (2015). Adherence to antiretroviral treatment by adults in a rural area of Botswana. *Curationis,* 38(1), 1255. doi:10.4102/curationis.v38i1.1255.

Elbe, S. (2001). HIV/AIDS and the changing landscape of war in Africa. *International Security,* 27, 159–77.

Elizabeth, L., L., Mosepele, M., Seloilwe, E., & Kathy, L. (2012). Depression in HIV-Positive Women in Gaborone, Botswana. *Health Care for Women International,* 33(4), 375-386. doi: 10.1080/07399332.2011.603871.

Engler, B. (2006). *Personality theories.* (7th ed.). Boston, MA: Houghton Mifflin Company.

Erasumus, N. (2016, July, 21). 259 227 new HIV positive infections in Limpopo in a year. *Polokwane Observer.* Retrieved from http://www.observer.co.za/259-227-new-hiv-positive-infections-in-limpopo-in-a-year

Evangeli, M., & Wroe, L. A. (2017). HIV Disclosure Anxiety: A Systematic Review and Theoretical Synthesis. *AIDS Behav,* 21, 1–11. doi: 10.1007/s10461-016-1453- 3.

Evans, D., Menezes, C., Mahomed, K., Macdonald, U. S, Levin, L., Jaffray, I., Bhana, N., Firnhaber, C., & Maskew, M. (2003). Treatment outcomes of HIV-infected adolescents attending public-sector HIV clinics across Gauteng and Mpumalanga, South Africa. *AIDS Res Hum Retroviruses,* 29, 892–900.

Eyassu, M.A., Mothiba, T.M., & Mbambo-Kekana, N.P. (2016). Adherence to antiretroviral therapy among HIV and AIDS patients at the Kwa-Thema clinic in Gauteng Province, South Africa. *Afr J Prm Health Care Fam Med,* 8(2), 924. doi. org/10.4102/phcfm.v8i2.924.

Eyawo, O., Franco-Villalobos, C., Hull, M. W., Nohpal, A., Samji, H., Sereda, P., Lima, V. D., Shoveller, J., Moore, D., Montaner, J. S., & Hogg, R. S. (2017). Comparative Outcomes And Service Utilization Trends (COAST) study (2017). Changes in mortality rates and causes of death in a population-based cohort of persons living with and without HIV from 1996 to 2012. *BMC infectious diseases*, 17(1), 174. Doi: 10.1186/s12879-017-2254-7.

Farahani, M., Vable, A., Lebelonyane, R., Seipone, K., Anderson, M., & Avalos, A. (2014). Outcomes of the Botswana national HIV/AIDS treatment programme from 2002 to 2010: a longitudinal analysis. *The Lancet Global Health,* 2(1), 44–50. doi: 10.1016/S2214-109X(13)70149-9. [PubMed].

Fielding, K. L., Charalambous, S., Stenson, A. L., Pemba, L. F., Martin, D. J., Wood, R. Churchyard, G. J., & Grant, A. L. (2008). Risk factors for poor virological outcome at 12 months in a workplace-based antiretroviral therapy programme in South Africa: a cohort study. *BMC Infect Dis*, 8(93), 1-70.

Forsman, A. K., Nyqvist, F., Schierenbeck, I., Gustafson, Y., & Wahlbeck, K. (2012). Structural and cognitive social capital and depression among older adults in two Nordic regions. *Aging Ment Health,* 16(6), 771–9.

Freeman, M. C. (2003). Mental health and HIV/AIDS: report on a round-table discussion, March 2003. Cape Town: HSRC Press.

Freeman, M., Nkomo, N., Ntlabati, P., & Kleintjies, S. (2005*). Coping psychologically with being HIV sero-positive: A study of lived experience, supporting and aggravating factors.* Pretoria, South Africa: HSRC.

Freeman, M., Nkomo, N., Kafaar, Z. & Kelly, K. (2008). Mental disorder in people living with HIV/AIDS in South Africa. *South African Journal of Psychology,* 38(3), 489–500.

Freeman, M., Patel, V., Collins, P. Y., & Bertolote, J. (2005). Integrating mental health in global initiatives for HIV/AIDS. *Br J Psychiatry,* 87, 1-3.

Gauchet A, Tarquinio C, Fischer G. (2007). Psychosocial predictors of medication adherence among persons living with HIV. *Int J Behav Med,* 3(14), 141–150.

Gaughan, D. M., Hughes, M.D., Oleske, J. M., Malee, K., Gore, C. A., & Nachman, S. (2004). Psychiatric hospitalizations among children and youths with human immunodeficiency virus infection. *Pediatrics,* 113(6), 544–51.

Gesesew, H. A., Ward, P., Woldemichael, K., & Mwanri, L. (2017). Prevalence, trend and risk factors for antiretroviral therapy discontinuation among HIV-infected adults in Ethiopia in 2003-2015. *PLoS ONE,* 12(6), 179-533.

Gilbert, L. & Walker, L. (2009). They (ARVs) are my life, without them I'm nothing experiences of patients attending a HIV/AIDS clinic in Johannesburg, South Africa. *Health Place,* 15(4), 1123–1129.

Gilbert, L., & Walker, L. (2010). My biggest fear was that people would reject me once they knew my status: Stigma as experienced by patients in an HIV/AIDS clinic in Johannesburg, South Africa. *Health Soc Care Community,* 18(2), 139–146.

Gill, C.J., Hamer, D.H., Simon, J.L., Thea, D.M., & Sabin, L.L. (2005). No room for complacency about adherence to antiretroviral therapy in sub-Saharan Africa. *AIDS,* 19, 1243-1249.

Glanz, K., Rimer, B. K., & Viswanath, K. 2008. *Health Behavior and Health Education, Theory, Research, and Practice* (4th ed.). San Francisco: Jossey-Bass.

Global HIV and AIDS statics. (2016). Avert. Retrieved September, 01, 2016, from https://www.avert.org/global-hiv-and-aids.

Global HIV & AIDS statistics —2018 fact sheet. (2018). Retrieved October, 08, 2018, from http://www.unaids.org/en/resources/fact-sheet

Global information and education on HIV and AIDS. Stigma and Discrimination. Last updated. Retrieved December, 05, 2017, from https://www.avert.org/professionals/hiv-around-world/sub-saharan-africa/south-africa

Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The Qualitative Report,* 8(4), 597-607.

Government of Lesotho. Health research agenda for Lesotho (2013- 2018). *Maseru, Ministry of Health; 2013.* Retrieved December, 2016, from http//systems.biomedcentral.com/articles/10.1186/s12961-017-0183-y.

Green, G. & Smith, R. (2004). The Psychological and Health Care Needs of HIV Positive People in the United Kingdom. A Review. *British HIV Association,* 1, 50.

Gray, D.E. (2009). Doing Research in the real world. (2nd ed.). London: Sage Publishers.

Groenewold, G., Bruijn, B., & Bilsborrow, R. (2006). Migration of the Health Belief Model (HBM): effects of psychology and migrant network characteristics on emigration intentions on five countries in West Africa and the Mediterranean region. *Population Association of America 2006 annual meeting,* 2006.

Gupta, R., Dandu, M., Packel, L., Rutherford, G., Leiter, K., Phaladze, N., Korte, F. P., Iacopino, V., & Weiser, S. D. (2010). Depression and HIV in Botswana: a population-based study on gender-specific socioeconomic and behavioral correlates. *PloS one,* 5(12), 142-52.

Haffejee, S., Groeneveld, I., Fine, D., Patel, R., & Bowman, B. (2010). An assessment of counselling and support services for people living with HIV in Gauteng, South Africa: findings of a baseline study. *African Journal of AIDS Research,* 9(4), 367–372.

Hansana, V., Sanchaisuriya, P., Durham, J., Sychareun, V., Chaleunvong, K., Boonyaleepun, S., & Schelp, F. P. (2013). Adherence to Antiretroviral Therapy (ART) among People Living With HIV (PLHIV): a cross-sectional survey to measure in Lao PDR*. BMC Public Health,* 13, 617.

Harries, A. D., Nyangulu, D. S., Hargreaves, N. J., Kaluwa. O., & Salaniponi, F. M. (2001). Preventing antiretroviral anarchy in sub-Saharan Africa. *Lancet,* 358, 410-414.

Hatzenbuehler, M. L., O'Cleirigh, C., Mayer, K. H., Mimiaga, M. J., & Safren, S. A. (2011). Prospective associations between HIV related stigma, transmission risk behaviors, and adverse mental health outcomes in men who have sex with men. *Annals of Behavioral Medicine,* 42, 27–23.

HIV & Aids in Botswana. (2013). *AVERT International HIV & Aids Charity.* Retrieved 15 January FROM

HIV/AIDS Glossary. (2018). AIDSinfo *Glossary of HIV/AIDS-Related terms. Offering information on HIV/AIDS treatment, prevention, and research*. (9th ed.). Retrieved January, 22, 2019, from https,//aidsinfo.nih.gov/understanding-hiv-aids/glossary/883/antiretroviral-therapy

Ho, L. P., & Goh, E. C. L. (2017). How HIV patients construct liveable identities in a shame based culture: the case of Singapore. *International Journal of Qualitative Studies on Health and Well-Being,* 12(1), 1333-899.

Hogg, R., Heath, S., Bangsberg, K., Yipa, B., Pressa, N., O'Shaughnessya M. V., & Montanera, J. S. G. (2002). Intermittent use of triple-combination therapy is predictive of mortality at baseline and after 1 year of follow-up. *AIDS,* 16, 1051-1058.

Holt, E. B., & Brown, H. C. (1931*). Animal drive and the learning process, an essay toward radical empiricism.* New York: H. Holt and Co.

Holstad, M. M., DiIorio, C. D., & Magowe, M. K. (2006). Motivating HIV-positive women to adhere to antiretroviral therapy and risk reduction behavior: The KHARMA project. *Online Journal of Issues in Nursing,* 11(1), 1–19. PubMed.

Horter, Z., Thabede, V., Dlamini, S., Bernays, B., Stringer, S., Mazibuko, L., Dube, B., Rusch, K., & Jobanputra. (2017). Life is so easy on ART, once you accept it':

Acceptance, denial and linkage to HIV care in Shiselweni, Swaziland. Soc. Sci. Med, 176, 52-59.

Info4africa. (2017). Donald Fraser Hospital, Retrieved from http://search.info4africa.org.za/Organisation?Id=82016

Jin, H. A., Yu, X, Heaton, R. K., Shi, C., Marcotte, T. P., Young, C., Sadek, J., Wu, Z., & Grant, I. (HNRC China collaboration group). (2006). Depression and suicidality in HIV/AIDS in China. *Journal Affect Disorder,* 94, 269-275.

Jenness, S. M., Myers, J. E., Neaigus, A., Lulek, J., Navejas, M., & Raj-Singh, S. (2012). Delayed entry into HIV medical care after HIV diagnosis: Risk factors and research methods. AIDS Care, 24(10), 1240–1248.

Johnson, M. O., Dilworth, S. E., Taylor, J. M., Darbes, L. A., Comfort, M. L., & Neilands, T. B. (2012). Primary relationships, HIV treatment adherence, and virologic control. *AIDS and behavior,* 16(6), 1511-21.

Johnson, L. F., Mossong, J., Dorrington, R.E., Schomaker, M., Hoffmann, C. J., Keiser, O., Fox, M. P., Wood, R., Prozesky, H., Giddy, J., Garone, B. D., Cornell, M., Egger, M., & Boulle, A. (2013). Life expectancies of South African adults starting antiretroviral treatment: collaborative analysis of cohort studies. *PLoS Med,* 10, 1001-418.

Jones & Bartlett (Publishers). (2010). *Theoretical concepts. Health Belief Model*, p, 31-36. Retrieved February, 12, 2012, from http://www.jblearning.com/samples/0763743836/chapter%204 .pdf.

Kaharuza, F. M., Bunnell, R., Moss, S., Purcell, D. W., Bikaako-Kajura, W., Wamai, N., Downing, R., Solberg, P., Coutinho, A., & Mermin, J. (2006). Depression and

CD4 cell count among persons with HIV infection in Uganda. *AIDS Behav,* 10(4), 105–111.

Kaiser, R., Bunnell, R., Hightower, A., Kim, A. A., Cherutich, P., Mwangi, M., Oluoch, T., Dadabhai, S., Mureithi, P., Mugo, N., Mermin, J., & KAIS Study Group. (2011). Factors associated with HIV infection in married or cohabitating couples in Kenya: results from a nationally- representative study. *PloS one,* 6(3), 1-9, 17842. Doi: 10.1371/journal.pone.0017842.

Kalichman, S. C., & Simbayi, L. C. (2003). HIV testing attitudes, AIDS stigma, and voluntary HIV counselling and testing in a black township in Cape Town, South Africa. *Sexually transmitted infections,* 79(6), 442-447.

Kaminer, D. K., Stein, D. J., Mbanga, I., & Zungu-Dirwayi, N. (2001). The Truth and Reconciliation Commission in South Africa: Relations to psychiatric status and forgiveness among survivors of human rights abuse. *Br J Psychiatry,* 178, 373–377.

Kampala, A. K. (2009). *A Study on Knowledge, Attitudes and Practices related to HIV/AIDS Stigma and Discrimination among People Living With HIV, Caretakers of HIV+ Children and Religious Leaders.*

Kanmogne, G. D., Qiu, F., Ntone, F. E., Fonsah, J. Y., Njamnshi, D. M., Kuate, C. T., Roland, F., Anne, F. M., Kengne, C. T., Tagny, Nchindap, E., Kenmogne, L., Mbanya, D., Cherner, M., Robert, K. H., & Alfred, K. N. (2017). Depressive symptoms in HIV-infected and seronegative control subjects in Cameroon: Effect of age, education and gender. *PLoS ONE,* 12(2), 1719-56. Doi; 10.1371/journal.pone.0171956.

Karasz, A., Dyche, L., & Selwyn, P. (2003). Phyisicans' experience of caring for late stage HIV patients in the post HART era: challenges and adaptations. Social Science and Medicine, 57(9), 1609-1620.

Kathryn, W., Susan, R., Rachel, W., & Laura, K. M. M. (2008). Trauma, Mental Health, Distrust, and Stigma Among HIV-Positive Persons, Implications for Effective Care. *Psychosomatic Medicine,* 70, 531–538. Doi: 0033-3174/08/7005-0531.

Katz, I. T., Ryu, A. E., Onuegbu, A. G., Psaros, C., Weiser, S. D., Bangsberg, D. R., & Tsai, A. C. (2013). Impact of HIV-related stigma on treatment adherence: systematic review and meta-synthesis. *Journal International AIDS Soc,* 16(3 Suppl 2), 18640.

Kempf, M. C., Allen, S., Zulu, I., Kancheya, N., Stephenson, R., Brill, I., Tichacek, A., Haworth, A., Chomba, E., & Rwanda Zambia HIV Research Group. (2008). Enrollment and retention of HIV discordant couples in Lusaka, Zambia. *J Acquir Immune Defic Syndr*, 47(1), 116–25. PubMed. .

Kerlinger, F. N., & Lee, H. B. (2000). Foundations of Behavioral Research. (4th ed.). Wadsworth / Thomson Learning. ISBN, 0-15-507897-6.

Khan, K., Pai, K., Kulkarni, K., & Ramapuram, J. (2018). Depression, anxiety, stress and stigma in informal caregivers of People Living with HIV (PLHIV). *AIDS Care,* 30, 6, 722-726.

Kidia, K., Machando, D., Bere, T., Macpherson, K., Nyamayaro, P., Potter, L., Tariro Makadzange, T., Munjoma, R., Marufu, M., Araya, R., Safren, S., O'Cleirgh, C., Chibanda, D., & Abas, M. (2015). I was thinking too much: experiences of HIV-positive adults with common mental disorders and poor adherence to antiretroviral therapy in Zimbabwe. *Trop Med Int Health,* 20(7), 903–913.

Kim, S. K., Gerver, S. M., Sarahc, F., & Helen, W. (2014). Adherence to antiretroviral therapy in adolescents living with HIV, systematic review and meta-analysis. *AIDS,* 28, 1945–1956.

Kip, E., Ehlers V. J., & Van der Wal, D. M. (2009). Patients' Adherence to Anti-Retroviral Therapy in Botswana. *Journal of Nursing Scholarship*, 41(2), 149-157.

Kgatlwane, J., Ogenyi, R., Ekezie, C., Madaki, H. N., Moyo, S., & Moroka, T. M. (2006). Factors that facilitate or constrain adherence to antiretroviral therapy among adults at four public health facilities in Botswana: A pre-intervention study, in World Health Organization. *From access to adherence, The challenges of antiretroviral treatment – studies from Botswana, Tanzania and Uganda, WHO, Geneva;* pp. 75–164.

Kleintjes, S., Lund, C., Flisher A. J., & MHaPP Research Programme Consortium. (2010). Public sector mental health systems in South Africa, inter-provincial comparisons and policy implications. *Soc Psychiat Epidemiol,* 45, 393–404.

Kotzé, M. (2011). *The coping strategies used over a two-year period by HIV-positive women.* University of Pretoria: School of Human and Social Sciences.

Kotzé, M., Visser, M., Makin, J., Sikkema, K., & Forsyth, B. (2013). Psychosocial factors associated with coping among women recently diagnosed HIV-positive during pregnancy. *AIDS and Behavior,* 17(2), 498–507.

Kremer. H., Ironson, G., & Porr, M. (2009). Spiritual and mind-body beliefs as barriers and motivators to HIV-treatment decision-making and medication adherence? A qualitative study. *AIDS Patient Care STDS,* 23, 127–134.

Kylma, J., Julkunen, K. V., & Lahdevirta, J. (2003). Hope, despair and hopelessness in living with HIV/AIDS: A grounded theory study. *Journal of Advanced Nursing,* 33(6),764-775.

Laurent, C., Diakathe, N., Gueye, N. F. N., et al. (2002). The Senegalese government’s highly active antiretroviral therapy initiative: an 18-month follow-up study. *AIDS,* 16, 1363-1370.

Lawler, K., Mosepele, M., Seloilwe, E., Ratcliffe, S., Steele, K., Nthobatsang, R., & Steenhoff, A. (2011). Depression among HIV-positive individuals in Botswana: a behavioral surveillance. *AIDS and behavior,* 15(1), 204-8.

Lawrence, W. N. (2011). *Social Research Methods: Qualitative and Quantitative Approaches.* (7th ed.). Boston: Pearson.

Lennerling, A., & Forsberg, A. (2012). Self-reported non-adherence and beliefs about medication in a Swedish kidney transplant population. *Open Nursing Journal,* 6, 41–46.

Leserman, J. (2008). Role of depression, stress, and trauma in HIV disease progression. *Psychosom Med,* 70, 539-545.

Lesotho Ministry of Health and Social Welfare. (2010). Lesotho Demographic and Health Survey 2009. Retrieved December, 27, 2018, from http://www.unaids.org/en/regionscountries/countries/zimbabwe .

Lesotho Network of People Living with HIV and AIDS (LENEPWHA). (2014). ‘The People with HIV Stigma Index, Lesotho 2014’. Retrieve May, 14, 2014, from http://www.stigmaindex.org/sites/default/files/reports/Lesotho%20Stigma%20Index%20draft%20report%206-%20L..pdf

Lester, R. T., Ritvo, P., Mills, E. J., Kariri, A., Karanja, S., & Chung, M. H. (2010). Effects of a mobile phone short message service on antiretroviral treatment adherence in Kenya (WelTel Kenya1): a randomised trial. *Lancet,* 376(9755), 1838–45.

Ledwaba, R.J. (2016). Outcomes of the antiretroviral treatment intervention in Mankweng. Master of Management (in the field of Public Sector Monitoring and Evaluation) to the Faculty of Commerce, Law, and Management, WITS School of Governance.

Lewis, M. (2003). The role of the self in shame. *Social Research,* 70(4), 1181–1204.

Lewis, S.A. (2001). The Coping Context of Anticipatory Grief for HIV Case Managers. *International Journal of Humanities and Social Science,* 1(18), 37-41.

Limpopo Department of Health. (2016). District Health Information System (DHIS). Department of Health. Limpopo Province. Limpopo Vhembe District Profile. Retrieved March, 31, 2017, from https://www.health-e.org.za/wp-content/uploads/2013/06/Vhembe-District-Fin.pdf

Literature Review Tutorial. (2015, July 11). What is a literature review? Retrieved from http://www.Writing.utoronto.ca/advice/specific-types-of-writing/literature-review

Liu, L., Pang, R., Sun, W., Qu, P., Lu, C., & Wang, L. (2013). Functional social support, psychological capital, and depressive and anxiety symptoms among people living with HIV/AIDS employed full-time. *BMC Psychiatry,* 13(324), 2-10.

Logie, C. H., Duncan, A. L., Wang, Y., Kaida, A., Conway, T., Webster, K., Pokomandy, A., & Mona, R. L. (2018). Pathways From HIV-Related Stigma to Antiretroviral Therapy Measures in the HIV Care Cascade for Women Living With HIV in Canada. *Journal Acquired Immune Deficiency Syndrome,* 77(2), 148-149.

Logie, C., James, L.L., Tharao, W., & Loutfy, M. (2013). Associations between HIV-Related Stigma, Racial Discrimination, Gender Discrimination, and Depression among HIV-Positive African, Caribbean, and Black Women in Ontario, Canada. *AIDS PATIENT CARE and STDs,* 27(2), 114-22.

Lourdes, W. H., Yun, M. D., Maravi, M., Joyce, S. K., Phoebe, L. B. & Arthur, J. D. (2005). Antidepressant Treatment Improves Adherence to Antiretroviral Therapy Among Depressed HIV-Infected Patients. *J Acquir Immune Defic Syndr,* 38, 432–438.

Mabunda, T. E., Ramalivhana, N. J., & Dambisya, Y. M. (2014). Mortality associated with tuberculosis/HIV co-infection among patients on TB treatment in the Limpopo province, South Africa. *African Health Sciences,* 14(4), 848-854.

Mashau, N. S., & Davhana, M. M. (2009). Experiences of HIV/AIDS home-based caregivers in Vhembe district of the Limpopo Province. *Curationis*, 32(4), 40-47.

Maskew, M., MacPhail, P., Menezez, C., & Rubel, D. (2007). Lost to follow up–contributing factors and challenges in South African patients on antiretroviral therapy. *South African Medical Journal,* 97(9), 853-857.

Martinez, A., Israelski, D., Walker, C., & Koopman, C. (2002). Post-traumatic stress disorder in women attending human immuno-deficiency virus outpatient clinics. *AIDS patient care and STDs,* 16(6), 283-291.

Maswikiti, N. (2011). *Antiretroviral treatment adherence in South Africa: An adolescent perspective.* University of the Witwatersrand: Johannesburg.

Matchtinger, E. R., & Bangsberg, D. R. (2006). Adherence to HIV antiretroviral therapy. HIV Insite. Retrieved May, 30, 2011, from http://hivinsite.ucsf.edu/InSite?page=kb-03-02-09

Mathivha, T. M. (2012). The role of family support and HIV/AIDS stigma on adherence and non-adherence to antiretrovirals at Nzhelele in Limpopo. Master of Public Health In the Faculty of Health science. University of Limpopo. Retrieved from ul.netd.ac.za.

Mawusi, C. (2011). HIV and AIDS in Ghana and the role of the Christian Council of Ghana. *Media Development,* 58(4), 6-9.

McAlister, A. L., Perry, C. L., & Parcel, G. S. (2008). How Individuals, Environments, and Health Behaviors Interact, Social Cognitive Theory. *Health Behavior and Health Education, Theory, Research, and Practice.* (4th ed.). San Francisco, CA: John Wiley & Sons, Inc.

McLeod, S. A. (2008, September, 11). Cognitive Behavioral Therapy. Published 2008, updated 2015. Retrieved from https: //www.simplypsychology.org/cognitive-therapy.html.

McNally, R. J. (2002). Anxiety Sensitivity and Panic Disorder. *Literature Review in Biological Psychiatry*, 52(10), 938-46.

Méda, Z. C., Somé, T., Sombié, I., Maré, D., Morisky, D. E., & Chen, Y. M. A. (2016). Patients infected by tuberculosis and human immunodeficiency virus facing their disease, their reactions to disease diagnosis and its implication about their families and communities, in Burkina Faso: a mixed focus group and cross sectional study*. BMC Research Notes, 9,* 373. Doi.org/10.1186/s13104-016-2183-3.

Meer, T., Lunau, M., Oberth, G., Daskilewicz, K., & Muller, A. (2017). Lesbian, gay, bisexual, transgender and intersex human rights in Southern Africa: A contemporary literature review. Johannesburg: HIVOS.

Melissa H. W., Suzanne, M., Carol, E., Golin, J. A. E., Eugenia, E., Shrikant, B., & Mark, J. (2010). Factors associated with self-reported adherence to antiretroviral therapy in a Tanzanian setting. *AIDS Care,* 22(3), 381–389.

Mellins, C. A., Brackis-Cott, E., Dolezal, C., & Abrams, E. J. (2004). The role of psychosocial and family factors in adherence to antiretroviral treatment in human immunodeficiency virus- infected children, *Pediatric Infectious Disease Journal,* 23(11), 1035–1041.

*Mid-year population estimates.* (2018). STATISTICS SOUTH AFRICA

Mikhail, B, I. (2006). Transcultural adaptation: Health Belief Model scales. *Journal of Nursing Scholarship,* 33(2), 159-165.

Mills, E. J., Nachega, J. B., Bangsberg, D. R., Singh, S., Rachlis. B., & Wu, P. (2006). Adherence to HAART: A systematic review of developed and developing nation patient-reported barriers and facilitators. *PLoS Med,* 3(11), 2039–2064.

Mills, E. J., Nachega, J. B., Buchan, I., Orbinski, J., Attaran, A., Singh, S., & Wilson, K. (2006). Adherence to antiretroviral therapy in sub-Saharan Africa and North America. A meta-analysis. JAMA, 296(6):679–690.

Ministry of Health and Child Care (MoHCC). (2011). National anti-retroviral therapy program data. *MoHCC, Government of Zimbabwe* (GOZ).

Mohamed, N. (2007). Tackling AIDS Through Islam?. Retrieved December, 26, 2009, from https://en.wikipedia.org/wiki/ReligionandHIV/AIDS

Moore, D. J., Posada, C., Parikh, M., Arce, M., Gouaux, B., Vaida, F., Tobin, A., Riggs, K. P., Grant, I., Atkinson, J. H., & the HIV Neurobehavioral Research Center (HNRC). (2013). Medication adherence among HIV infected individuals with comorbid bipolar disorder. AIDS and Behavior, Epub. Oct. 30.

Moosa, M. Y. H., Jeenah, F. Y. & Vorster, M. (2005). HIV in South Africa — depression and CD4 count. *South African Journal of Psychiatry*, 11(1), 12–15.

Moosa, M. Y., & Jeenah, F. Y. (2012). Treating Depression in HIV positive patients affects adherence. *Southern African Journal of HIV Medicine,* 13(3), 144-149.

Mountain, E., Mishra, S., Vickerman, P., Pickles, M., Gilks, C., & Boily, M. C. (2014). Antiretroviral Therapy Uptake, Attrition, Adherence and Outcomes among HIV Infected Female Sex Workers:  A Systematic Review and Meta-Analysis. *PLoS ONE,* 9(9), 13-14.

Mucheto, P., Chadambuka, A., Shambira, G., Tshimanga, M., Notion, G., & Nyamayaro, W. (2011). Determinants of nondisclosure of HIV status among women attending the prevention of mother to child transmission programme, Makonde district, Zimbabwe, 2009. *Pan African Medical Journal,* 8(51), 1-12. ISSN, 1937- 8688.

Mugomeri, E., Bekele, B. S., Mafaesa, M., Maibvise, C., Tarirai, C., & Aiyuka, S. E. (2017). 30-year bibliometric analysis of research coverage on HIV and AIDS in Lesotho. *Health Research Policy and Systems,* 15(21), 1-9.

Mulelelu, A. R. (2016). *Knowledge, attitudes and experiences of people living with HIV who are on antiretroviral treatment at a public health clinic in Limpopo, South Africa.* Master of Arts in Social behaviour Studies in HIV and AIDS. University of South Africa.

Murray, G. K., Clark, L., Corlett, P. R., Blackwell, A. D., Cools, R., Jones, P. B., Robbins, T. W., & Poustka, L. (2008). Incentive motivation in first-episode psychosis: a behavioural study. BMC Psychiatry, 8(34), 12-17.

Murphy, D. A., Moscicki, A. B., Vermund, S. H., & Muenz, L. R. (2000). Psychological distress among HIV(+) adolescents in the REACH study: effects of life stress, social support, and coping. The Adolescent Medicine HIV/AIDS Research Network. *J Adolesc Health,* 27, 391-398.

Murphy, R. A., Sunpath, H., Lu, Z., Chelin, N., Losina, E., Gordon, M., Ross, D., Ewusi, A. D., Matthews, L. T., Kuritzkes, D. R., & Marconi, V. C. (2010). South Africa Resistance Cohort Study Team: Outcomes after virologic failure of first-line ART in South Africa. *AIDS,* 24(7), 1007-12.

Musheke, M., Bond, V. & Merten, S. (2012). Individual and Contextual factors influencing patient attrition from antiretroviral therapy care in an urban community of Lusaka, Zambia. *Journal of international AIDS society,* 15(1), 1– 9.

Mutevedzi, P. C., Lessells, R. J., Rodger, A. J., & Newell, M. L. (2011). Association of age with mortality and virological and immunological response to antiretroviral therapy in rural South African adults. *PLoS One,* 6, 217-95.

Myer, L., Smit, J., Le Roux, L., Parker, S., Stein, D. J., & Seedat, S. (2008). Common mental disorders among HIV-infected individuals in South Africa, Prevalence, predictors, and validation of brief psychiatric rating scales. *AIDS Patient Care STDs*, 22(2), 147-157.

Nabi, R. L., & Clark, S. (2008). Exploring the limits of social cognitive theory. Why negatively reinforced behaviour’s on TV may be modelled anyway. *Journal of Communication, 58 (3), 407–427.*

Nachega, J. B., Stein, D. M., Lehman, D. A., Hlatshwayo, D., Mothopeng, R., Chaisson, R. E., & Karstaedt, A. S. (2004). Adherence to antiretroviral therapy in HIV- infected adults in Soweto, South Africa. *AIDS Research & Human Retroviruses,* 20(10), 1053-1056.

Naidoo, P., Dick, J., & Cooper, D. (2009). Exploring Tuberculosis Patients' Adherence to Treatment Regimens and Prevention Programs at a Public Health Site. *Qualitative Health Research*, 19(1), 55-70.

Nam, S. L. K. Fielding, A. Avalos, D. Dickinson, T. Gaolathe, P., & Geissler, W. (2008).The relationship of acceptance or denial of HIV-status to antiretroviral adherence among adult HIV patients in urban Botswana. *Social science & medicine,* 67(2), 301- 310.

National AIDS Commission (NAC). (2011, November, 02). Report on the national response to HIV and AIDS. Maseru, Lesotho. Retrieved from https, //aidsfree.usaid.gov/sites/default/files/aidstar-one_prc-lesotho_lr_web.pdf

National ARV project team MoH, Botswana. (2006). Gaborone, National ARLV project team. Ministry of Health, Botswana. *The Masa Antiretroviral Therapy Program in Botswana, Patient Enrolment Update.* Retrieved from http://www.moh.gov.bw/Publications/HIVAIDS%20TREATMENT%20GUIDELINES.pdf

National HIV and AIDS Estimates. (2009). Fact Sheet - HIV Decline in Zimbabwe, Positive Behaviour Change Makes a Difference. Retrieved November, 01, 2008, from http://E,/literature%20review%20articles/ZIMBABWE%20DOCS/FACTSheetHIVDeclineinZimbabweFinal.pdf

Ncama, B. P., McInerney, P. A., & Bhengu, B. R. (2008). Social support and medication adherence in HIV disease in KwaZulu-Natal, South Africa. *Int J Nurs Stud,* 45, 1757–1763.

Ndou, T. V., Maputle, S. M., & Risenga, P. R. (2016). HIV-positive patients' perceptions of care received at a selected antiretroviral therapy clinic in Vhembe district, South Africa. *Afr J Prm Health Care Fam Med,* 8(2), 926.

Ndou, T. V., Risenga, P.R., & Maputle, M.S. (2013) Experiences of HIV Positive Patients on ARV Treatment at the Thulamela Municipality in the Vhembe District of Limpopo Province, South Africa. *J Antivir Antiretrovir,* 5, 123-131. Doi, 10.4172/ jaa.1000075.

Ndubuka, N. O., Lim, H. J., Van der Wal, D. M., & Ehlers, V. J. (2016). Health-related quality of life of antiretroviral treatment defaulters in Botswana. *South Africa Journal for HIV Medication,* 17(1), 1-6.

Nebelkopf, E., & Penagos, M. (2005). Holistic native network, Integrated HIV/AIDS, substance abuse, and mental health services for Native Americans in San Francisco. *Journal of Psychoactive Drugs,* 37, 257–264.
Doi: 10.1080/02791072.2005.10400517.

Negash, T., & Ehlers, V. (2013). Personal factors influencing patients' adherence to ART in Addis Ababa, Ethiopia. *J Assoc Nurses AIDS Care,* 24, 530–538.

Newman, P. A., Duan, N., Ellen, T., Rudy, K., & Roberts, J. K. (2004). HIV risk and prevention in a post-vaccine context. *Vaccine,* 22(15-16), 1954-1963.

Niu, L., Luo, D., Liu, Y., Silenzio, V. M. B., & Xiao, S. (2016) The Mental Health of People Living with HIV in China, 1998–2014: A Systematic Review. *PLoS ONE,* 11(4), 1534-89.

Niu, L., Qiu, Y., Luo, D., Chen, X., Wang, M., Pakenham, K. I. Zhang, X., Huang, Z., & Xiao, S. (2016). Cross-Culture Validation of the HIV/AIDS Stress Scale: The Development of a Revised Chinese Version. *PLoS ONE,* 11(4), 1529-90.

Nglazi, M. D., Kranzer, K., Holele, P., Kaplan, R., Mark, D., Jaspan, H., Lawn, S. D., Wood, R., & Bekker, L. G. (2012). Treatment outcomes in HIV-infected adolescents attending a community-based antiretroviral therapy clinic in South Africa. *BMC Infect Dis,* 12(21).

Nwokike, J. (2004). Baseline data and predictors of adherence in patients on antiretroviral therapy in Maun General Hospital, Botswana. International Conference on Improving Use of Medicines (ICIUM). Bangkok, Thailand. Abstract no. HI012, 2004.

Nyambeni, A. M. (2009). *Shame and Stigma as Predictors of Dysfunction among HIV/AIDS and Cancer Patients.* A dissertation submitted in partial fulfilment for the requirements of the degree of Masters of Arts in Clinical Psychology. Retrieved from Http://ul.netd.ac.za/bitstream/handle/10386/467/MatamelaNA_Redacted.pdf.

Nyaphisi, M. B., & Obioha, N. E. (2015). Challenges of HIV and AIDS-related community home-based health care delivery system in Roma Valley, Lesotho. *Anthropological Notebook,* 21 (1), 83–105.

O'Connor, J. L., Gardner, E. M., Mannheimer, S. B., Lifson, A. R., Esser, S., Telzak, E. E., & Phillips, A. N. (2013). Factors associated with adherence amongst 5,295 people receiving antiretroviral therapy as part of an international trial. *Journal of Infectious Diseases,* 208, 40–49.

Ohene, S., & Forson, E. (2009). Care of patients on anti-retroviral therapy in Kumasi Metropolis. *Ghana Medicines Journal*, 43(4), 144–9.

Oliveira, H. A., Gimeniz, M. T. G., Vieira, I. C. L., Dayse, S. G., Sammyla, C. T., Gilmara, H. C., & Ferreira, E . G. C. (2016). Perceptions that People Newly Diagnosed with HIV Have on Health*. International Archives of Medicine Section, Infectious Diseases,* 9(130), 1-6.

Olley, B. O., Zeier, M. D., Seedat, S., & Stein, D. J. (2005). Post-traumatic stress disorder among recently diagnosed patients with HIV/AIDS in South Africa. AIDS Care, 17(5), 550-557.

Olley, B. (2006). Psychological distress in the first year after diagnosis of HIV infection among women in South Africa. *African Journal of AIDS Research*, 5(3), 207-215.

Olley, B. O., Ogunde, M. J., Oso, P. O., & Ishola, A. (2016). HIV-related stigma and self-disclosure: the mediating and moderating role of anticipated discrimination among people living with HIV/AIDS in Akure Nigeria. *AIDS Care,* 28(6), 726-730.

Olley, B. O., Seedat, S., Nei, D. G., & Stein, D. J. (2004). Predictors of major depression in recently diagnosed patients with HIV/AIDS in South Africa. *AIDS Patient Care STDS,* 18, 481–487.

Ortego, C, Huedo-Medina, T. B., Vego, J., & Liorca, F. J. (2011). Adherence to highly active antiretroviral therapy in Spain. A meta-analysis. *Gac Sanit,* 25(4), 282–289.

Overstreet, N. M., Earnshaw, V. A., Kalichman, S. C., & Quinn, D. M. (2013). Internalized stigma and HIV status disclosure among HIV-positive black men who have sex with men. *AIDS Care*, 25(4), 466–471.

Oyugi, J. H., Tusiime, J. B., Charlebois, E. D, Kityo, C., Mugerwa, R., Mugyenyi, P., & Bangsberg, D.R. (2004). Multiple validated measures of adherence indicate high levels of adherence to generic HIV antiretroviral therapy in a resource-limited setting. *J Acquir Immune Defic Syndr*, 36, 1100-1102.

Pajares, F. Prestin, A. Chen, J., N. & Robin, L. (2009). Social cognitive theory and mediafecfts. *The Sage handbook of media processes and* effects: 283–297.

Papadatou, D. (2000). A proposed model of health professionals grieving process *The Journal of Death and Dying,* 41(1), 59-77.

Pappina, M., Woutersb, E. C., Frederik, L. R., Booysend & Crick, L. (2015). Public sector antiretroviral treatment programme in South Africa, health care workers' attention to mental health problems. *AIDS Care,* 27(4), 458–465.

Pappina, M., Wouters, E., & Booysen, F. L. (2012). Anxiety and depression amongst patients enrolled in a public sector antiretroviral treatment programme in South Africa: Cross sectional study. BMC Public Health, 12, 244.

Parker, R & Aggleton, P. (2003). HIV and AIDS – related stigma and discrimination: a conceptual framework and implications for action. *Social Science & Medicine,* 57, 13 – 24.

Patel, Petersen, I., Lund, C., Bhana, A., Flisher, A. J., & Mental, H. (2012). Poverty research programme C. A task shifting approach to primary mental health care for adults in South Africa: human resource requirements and costs for rural settings*. Health policy and planning,* 27(1), 42–51.

Peltzer, K., Preez, N. F., Ramlagan, S., & Anderson, J. (2010). Antiretroviral treatment adherence among HIV patients in KwaZulu-Natal, South Africa. *BMC Public Health,* 10(1), 111.

Pender, N., C. Murdaugh & Parsons, M.A. (2011). Individual models to promote health behavior. In M. Connon, D Macknight, K. Mortimer & S. Wrocklage*. Health promotion in Nursing Practice. 35-66*. New York: Pearson.

Petersen, I., & Lund, C. (2011). Mental health service delivery in South Africa from 2000 to 2010: one step forward, one step back. South African Medical Journal, 101(10), 751-757.

Phelps, B. R., Hathcock, S. J., Werdenberg, J., & Schultze, G. E. (2010). Experiencing antiretroviral adherence: helping healthcare staff better understand adherence to paediatric antiretrovirals. Journal of the International AIDS Society, 13(48), 620-638.

Pitney, W. A., & Parker, J. (2009). *Qualitative research in physical activity and the health professions*. Champaign: Human Kinetics.

Pitpitan, E. V., Kalichman, S. C., & Eaton, L. A. (2012). Gender-based violence and HIV sexual risk behavior: Alcohol use and mental health problems as mediators among women in drinking venues, Cape Town*. Soc Sci Med*, 75(8), 1417-1425.

Poudel, K. C., Jimba, M., Anand, J., A. B., Tandukar, K. P., Sharma, M., & Wakai, S. (2005). Retention and effectiveness of HIV/AIDS training of traditional healers in far western Nepal. *Trop Med Int Health,* 10(7), 640–46.

Poupard, M., Ngom, G. N., Thiam, D., Ndiaye, B., Girard, P., Delaporte, E., Sow, P., & Landman, R. (2007). Quality of life and depression among HIV infected patients receiving efavirenz- or protease inhibitor-based therapy in Senegal. *HIV Medicine,* 8, 92-95.

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Assessing moderated mediation hypotheses, Theory, methods, and prescription. *Multivariate Behavioral Research,* 42, 185-227.

Qiao, S., Li, X., Zhou, Y., Shen, Z., Tang, Z., & Stanton, B. (2015). A focus group qualitative study of HIV stigma in the Canadian healthcare system*. AIDS Care*, 27, 28-35.

Quinn, T. C., Wawer, M. J., Sewankambo, N., Serwadda, D., Li, C., Wabwire-Mangen, F., Meehan, M. O., Lutalo, T., & Gray, R. H. (2000). Viral load and heterosexual transmission of human immunodeficiency virus type 1. *National England Journal Medicines,* 342, 921±29.

Rackstraw, S. (2011). HIV-related neurocognitive impairment—A review. *Psychology, health & medicine*,16(5), 548–563.

Ramovha, R., Khoza, L. B., Lebese, R. T., & Shilubane, H. N. (2012). The Psychological Experience of HIV and Aids by Newly Diagnosed Infected Patients at Hospital A of Vhembe District, Limpopo Province. *J AIDS Clinic Res*, 1(6), 1-6.

Rangarajan, S., Tram, H. N. B., Todd, C. S., Thinh, T., Hung, V., Hieu, P. H., Hanh, T., Chau, K. M., Lam, N. D., Hung, P. T., West, G., & Colby, D. (2014). Risk Factors for Delayed Entrance into Care after Diagnosis among Patients with Late-Stage HIV Disease in Southern Vietnam. *PLoS ONE,* 9(10), 108-939.

Rao, D, Kekwaletswe, T. C., Hosek, S., Martinez, J., & Rodriguez, F. (2007). Stigma and social barriers to medication adherence with urban youth living with HIV*. AIDS Care*, 19(1), 28–33.

Ras, G. J., Simson, I. W., Anderson, R., Prozesky, O. W., & Hamersma, T. (1983). Acquired immunodeficiency syndrome: A report of 2 South African cases. *South Africa Medical Journal*, 64(4), 140–2.

Robertson, D (2010). *The Philosophy of Cognitive-Behavioural Therapy: Stoicism as Rational and Cognitive Psychotherapy*. London: Karnac. ISBN 978-1-85575-756-1.

Rudy, B. J., Murphy, D. A., Harris, D. R., Muenz, L., & Ellen, J. (2009). Adolescent Trials Network for HIVAI. Patient-related risks for nonadherence to antiretroviral therapy among HIV-infected youth in the United States: a study of prevalence and interactions. *AIDS Patient Care* STDS, 23, 185–194.

Russel, S., & Seeley. (2010). The transition to living with HIV as a chronic condition: working to create order and control on anti-retroviral therapy. *Social Sciences and Medicines*, 70(3), 325-85.

Sabina, L. L., DeSilvaa, M. B., Hamera, D. H., Keyid, X., Yuee, Y., Wene, Taof, L., Heggenhougena, H., Setonf, L. K., .Wilsong I. B., & Gill ,C. J. (2008). Barriers to adherence to antiretroviral medications among patients living with HIV in southern China: a qualitative study. *AIDS Care,* 20(10), 1242-1250.

Sankar, P., & Jones, N. L. (2005). To tell or not to tell: primary care patients' disclosure deliberations. *Arch Intern Med,* 165(20), 2378–83. [PubMed, 16287767].

Sax, P. E., Meyers, J. L., Mugavero, M., & Davis, K. L. (2012). Adherence to Antiretroviral Treatment and Correlation with Risk of Hospitalization among Commercially Insured HIV Patients in the United States. *PLoS ONE,* 7(2), 315-91.

Scarinci, I., Bandura, L., Hidalgo, B., & Cherrington, A. (2012). Development of a theory based, culturally relevant intervention on cervical cancer prevention among Latina immigrants using intervention mapping. *Health Promotion Practice*, 13, 29-40.

Sears, B., Cooper, C., Younai, F. S., & Donohoe, T. (2012). HIV discrimination in dental care, Results of a Testing Study in Los Angeles County*. Loyola of Los Angeles Law Review,* 45(3), 909-962.

Seedat, S. (2012). Interventions to improve psychological functioning and health outcomes of HIV-infected individuals with a history of trauma or PTSD. *Curr. HIV/AIDS Rep,* 9(4), 344-350. doi: 10.1007/s11904-012-0139-3.

Sendagala, S. (2010). *Factors affecting the adherence to antiretroviral therapy by HIV positive patients treated in a community-based HIV/AIDS care programme in rural Uganda, A case of Tororo district* (Doctoral dissertation, University of South Africa).

Shisana, O., Rehle, T., Simbayi, L. C., Parker, W., Zuma, K., Bhana, A., & Piillay, V. (2005). *South African national HIV prevalence, HIV incidence, behaviour and communication survey, 2005.*

Shisana, O., Rehle, T., Simbayi, L. C., Parker, W., Zuma, K., Bhana, A., Connolly, C., Jooste, S., (...)., & Shean, Y. (2005). *South African National HIV Prevalence, HIV Incidence, Behaviour and Communication Survey, Cape Town, South Africa*, HSRC Press.

Shisana, O., Rehle, T., Simbayi, L. C., Zuma, K., Jooste, S., Pillay-van-Wyk, V., SABSSM III Implementation Team. (2009). *South African national HIV* *prevalence, incidence, behaviour and communication survey, 2008, A turning tide among teenagers?* Cape Town, HSRC Press.

Shisana, O., Rehle, T., Simbayi, L. C., Zuma, K., Jooste, S., Zungu, N., & Onoya, D. (2014). *South African national HIV prevalence, incidence and behaviour survey, 2012.* HSRC Library, shelf number 8162.

Shubber, Z., Mills, E. J., Nachega, J. B., Vreeman, R., Freitas, M., Bock, P., Nsanzimana, S., (...)., & Ford, N. (2016). Patient-Reported Barriers to Adherence to Antiretroviral Therapy, A Systematic Review and Meta-Analysis. *PLoS medicine,*13(11), 1002-183.

Simbayi, L. C., Kalichman, S., Strebel, A., Cloete, A., Henda, N., & Mqeketo, A. (2007). Internalized stigma, discrimination, and depression among men and women living with HIV/AIDS in Cape Town, South Africa. *Social science & medicine*, 64(9), 1823-1831.

Simbayi, L. C., Kalichman, C. S., Jooste, S., Cherry, C., Mfecane, S., & Cain, D. (2005). Risk factors for HIV-AIDS among Youth in Cape Town, South Africa. *AIDS and Behaviour,* 9(1), 53 –61.

Simelela, N., Venter, F.W. D., Pillay, Y., & Barron, P. A. (2015). Political and social history of HIV in South Africa. *Current HIV/AIDS reports,* 12(2), 256–261.

Simelela, N. P., & Venter, W. D. F. (2014). A brief history of South Africa’s response to AIDS. *South African Medical Journal,* 104 (3), 1249-251.

Simoni, J. M., Amico, K. R., Pearson, C. R., & Malow R. (2008). Strategies for promoting adherence to antiretroviral therapy: A review of the literature. *Curr Infect Dis Rep,* 10, 515–521.

Sinclair, J. (2006). *Collins COBUILD Advanced Learner's English Dictionary.* (5th ed.). Glasgow: Harper Collins Publishers.

Smart, T. (2005). Former manager of Botswana's antiretroviral treatment programme describes barriers to rapid scale-up and suggest possible solutions at *2nd Annual African AIDS Conference. HIV & AIDS Treatment in Practice.*

Smit, B. (2002). Atlas.ti for qualitative data analysis. *Perspectives in Education*, 20(3), 65-76

Smit, J., Myer, L., Middelkoop, K., Seedat, S., Wood, R., Bekker, L. G., & Stein, D. J. (2006). Mental health and sexual risk behaviours in a South African township: a community-based cross-sectional study. *Public health,* 120(6), 534-542.

Smith, J. A., Flowers, P., & Larkin, M. (2009). *Interpretative phenomenological analysis, theory, method and research*. London: SAGE.

South Africa Statistic. (2016). Statistical release P0302. Mid-year population estimates 2016. Retrieved July, 23, 2015, from https://www.statssa.gov.za/publications/P0302/P03022016.pdf

Stewart, D. W., Jones, G. N., & Minor, K. S. (2011). Smoking, depression, and gender in low-income African Americans with HIV/AIDS. *Behav Med,* 37, 77–80.

Stockton, M. A., Giger, K., & Nyblade, L. (2018). A scoping review of the role of HIV-related stigma and discrimination in noncommunicable disease care. *PLoS ONE,* 13(6), 199-602.

Stuber, J., Meyer, I., & Link, B. (2008). Stigma, prejudice, discrimination and health*. Soc Sci Med,* 67, 351–357.

Substance Abuse and Mental Health Services Administration (SAMSA). *HIV, AIDS, and Viral Hepatitis.* Last Updated, 09/15/2017. Retrieved from https://www.samhsa.gov/hiv-aids-viral-hepatitis.

Swartz, L., De La Rey, C., Duncan, N. & Townsend, L. (2011). *Psychology: An introduction*. (3rd ed.). Cape Town: Oxford University Press Southern Africa (Pty) Ltd.

Tanner, M. R., Naar-King, S., & MacDonnel, K. (2012). Depression and stigma in high-risk youth living with HIV, A multi-site study. *Journal of Pediatric Health Care*, 26, 300–305.

Tanner, W. (2016, August, 20). HIV And The Stages of Grief-A positive Tomorrow. Retrieved from http://www.apositivetomorrow.org/2016/01/20/denial.

Tao, J., Vermund, H. S., Lu, H., Ruan, Y., Shepherd, B. E., Kipp, M.A. (...)., & Qian, H. (2017). Impact of Depression and Anxiety on Initiation of Antiretroviral Therapy Among Men Who Have Sex with Men with Newly Diagnosed HIV Infections in China. *AIDS PATIENT CARE and STDs,* 31(2), 96-104.

Tarkang, E. E., & Zotor, F. B. (2015). Application of the Health Belief Model (HBM) in HIV Prevention: A Literature Review. Central African. *Journal of Public Health,* 1(1), 1-8.

Tedaldi, E. M., van den Berg, W. M., Richardson, J., Patel, P., Durham, M., Hammer, J., Henry, K., Metzler, S., Önen, N., Conley, L., Wood, K., Brooks, J.T., Buchacz, K. (2012). Sadness in the SUN: Using computerized screening to analyze correlates of depression and adherence in HIV-infected adults in the United States. *AIDS Patient Care and STDS,* 26, 718–729.

Thai, T.T., Jones, K.M., Harris, M.L., & Heard, C.R. (2016). Screening value of the Center for epidemiologic studies – depression scale among people living with HIV/AIDS in Ho Chi Minh City, Vietnam: a validation study. *BMC Psychiatry,* 16(145), 1-11.

Thom, R. (2008). Mental disorders in HIV-infected individuals at various HIV-treatment sites in South Africa [abstract only]. *South African Journal of Psychiatry,*14(3), 114.

Thope, M. A., Emeka, E. Mpheni, O., & Mpheni, R. M. (2008). *Documentation of 'Know Your Status' Campaign as an entry point in scaling up HIV Prevention, Treatment, Care and Support in Lesotho.* A Report submitted to the World Health Organisation. Maseru: Lesotho Country Office.

Tran, B. X., Nguyen, T. N., Nguyen, N. H., Hoang, Q., & Jongnam Hwang, J. (2013). Determinants of antiretroviral treatment adherence among HIV/ AIDS patients, a multisite study. *Glob Health Action,* 6, 1-6.

Tuldra, A., Fumaz, C. R., Ferrer, M. J., Bayes, R., Arno, A., & Balague, M. (2000). Prospective randomized two-arm controlled study to determine the efficacy of a specific intervention to improve long-term adherence to highly active antiretroviral therapy. *J Acquir Immune Defic Syndr Hum Retroviral,* 25, 221–8.

Turkon, D., Himmelgreen, D., Daza, N. R., & Noble, C. (2009). Anthropological perspectives on the challenges to monitoring and evaluating HIV and AIDS programming in Lesotho. *African Journal of AIDS Research,* 8(4), 473–480.

Turner, M. J. (2016). Rational Emotive Behavior Therapy (REBT), Irrational and Rational Beliefs, and the Mental Health of Athletes. Front. *Psychol,* 7(1423), 1-16. doi: 10.3389/fpsyg.2016.01423.

Tweya, H., Oboho, I., K., Gugsa, S.T., Phiri, S., Rambiki, E., & Banda, R. (2018). Loss to follow-up before and after initiation of antiretroviral therapy in HIV facilities in Lilongwe, Malawi. *PLoS ONE,* 13(1), 1-12.

UBain, L. E., Nkoke, C., & Noubiap, J. (2017). UNAIDS 90-90-90 targets to end the AIDS epidemic by 2020 are not realistic: comment on "Can the UNAIDS 90-90- 90 target be achieved? A systematic analysis of national HIV treatment cascades". *BMJ global health*, 2(2), 227.

UN Joint Programme on HIV/AIDS. (2010). Global report, UNAIDS report on the global AIDS epidemic. Retrieved November, 23, 2010, from http://www.unhcr. org/refworld/docid/4cfca9c62.html

UNAIDS. (2017). ‘Data Book’. State of the AIDS epidemic. Retrieved July, 20, 2017, from http://www.unaids.org/sites/default/files/mediaasset/20170720Databook2017en.pdf

UNAIDS DATA. (2017). Joint United Nations Programme on HIV/AIDS (UNAIDS). Retrieved July, 20, 2017, from http://wwwfile.///F./literature%20review%20articles/ZIMBABWE%20DOCS/2017_data-book_en.pdf

UNAIDS Fact Sheet. (2017). Retrieved July, 20, 2017, from http://www.unaids.org/en/resources/fact-sheet

UNAIDS. (2016). 90–90–90—An ambitious treatment target to help end the AIDS epidemic. Retrieved September, 1, 2016 from http://www.unaids. org/en/resources/documents/2014/90-90-90

UNAIDS report on the global AIDS epidemic 2010. Joint United Nations Programme on HIV/AIDS (UNAIDS). (2010). Retrieved December, 23, 2010, from http://www.unhcr. org/refworld/docid/4cfca9c62.html

UNAIDS. (2000*). HIV and AIDS-related stigmatisation, discrimination and denial, forms, contexts and determinants,* research studies from Uganda and India (prepared for UNAIDS by Peter Aggleton). Geneva, UNAIDS.

UNAIDS. (2014). The gap report, Geneva. Retrieved July, 3, 2015 from

http://www.unaids.org/en/resources/fact-sheet

UNAIDS. (2013). *Getting to Zero: HIV in Eastern and Southern Africa.* Geneva, University Press.

USAID. (2000). USAID Concept Paper: *Combating HIV/AIDS Stigma, Discrimination and Denial, What Way Forward?*. Unpublished paper. June 23rd, 2000.

Uthman, O. A., Magidson, J. F., Safren, S. A., & Nachega, J. B. (2014). Depression and adherence to antiretroviral therapy in low-, middle- and high-income countries: a systematic review and meta-analysis. *Curr. HIV/AIDS,* 11, 291–307.

Van Cutsem, G. K. L., Kerschberger, B., Malavazzi, C., Ford, N., & Boulle, A. (2010*). ART for youth and adolescents in Khayelitsha.* AIDS 2010 - XVIII International AIDS Conference. Vienna, Austria, 18–23 July 2010.

Varni, S, E., Miller, C. T., McCuin, T., & Solomon, S. E. (2012). Disengagement and engagement coping with HIV/AIDS stigma and psychological well-being of people with HIV/AIDS. *J Soc Clin Psychol*, 31(2), 123–50.

Virginia Department of Health. (2017). Retrieved May-July, 2017, from

http://www.vdh.virginia.gov/

Wagner, G. J., Ghosh-Dastidar, B., Robinson, E., Ngo, V. K., Glick, P., Mukasa, B., & Akena, D. (2017). Effects of Depression Alleviation on ART Adherence and HIV Clinic Attendance in Uganda, and the Mediating Roles of Self-Efficacy and Motivation. *AIDS and Behavior,* 21(6), 1655–1664.

Wang, H., Zhou, J., He, G., Luo, Y., Li, X., Yang, A., Fennie, K., & Williams, A. B. (2009). Consistent ART adherence is associated with improved quality of life, CD4 counts and reduced hospital costs in central China. *AIDS Research and Human Retroviruses*, 25(8), 757-763.

Weiser, S. D., Tuller, D. M., Frongillo, E. A., Senkungu, J., Mukiibi, N., & Bangsberg, D. R. (2010). Food insecurity as a barrier to sustained antiretroviral therapy adherence in Uganda. *PLoS One,* 5(4), 2–8.

Weiser, S., Wolfe, W., Bangsberg, D., Thior, I., Gilbert, P., Makhema, J. Kebaabetswe, P., Dickenson, D., Mompati, K., Essex, M., & Marlink, R. (2003). Barriers to anti-retroviral adherence for patients living with HIV infection and AIDS in Botswana. *Journal of Acquired Immune Deficiency Syndromes,* 34(3), 281–288.

Welman, C. Kruger, F & Mitchell, B. (2005). *Research methodology.* (3rd ed.). Cape Town: Oxford University Press.

WHO. (2006). Antiretroviral therapy for HIV infection in adults and adolescents in resource limited settings, towards universal access Recommendations for a public health approach. Geneva, Switzerland.

WHO and Greco, D. B., & Simao, M. (2007). Uganda Bulletin of the World Health Organization. Brazilian policy of universal access to AIDS treatment, 85(7), 550- 4

WHO. (2003). Investing in mental health. Department of Mental Health and Substance Dependence, Noncommunicable Diseases and Mental Health, World Health

Organization, Geneva. Retrieved October, 26, 2008, from http: //www.who.int/mental_health/media/investing_mnh.pdf.

WHO. (2004). The world health report. Retrieved November, 26, 2018, from http://www.who.int/whr/2004/en/report04_en.pdf?ua=1.

WHO. (2009). WHO Case definition of HIV for Surveillance and Revised Clinical staging and Immunological Classification of HIV Related disease in Adults and Children, Retrieved March, 21, 2014, from http //www.who.int.

WHO. (2010). HIV/AIDS – Wikipedia. WHO and UNAIDS announce recommendations from expert consultation on male circumcision for HIV prevention. Retrieved July, 3, 2011, from https://en.wikipedia.org/wiki/HIV/AIDS

WHO. (2014). Linkage to HIV care following diagnosis in the WHO European Region, A systematic review and meta-analysis, 2006-2017. Retrieved February, 16, 2018, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5815583/

WHO. (2016). Consolidated Guidelines on the use of Antiretroviral Drugs for Treating and Preventing HIV Infections Recommendations for a Public Health Approach. (2nd ed.). World Health Organization.

Wilson, P., Wright, K., & Isbell, M. T. (2008). Left behind. Black America: a neglected priority in the global AIDS epidemic. Los Angeles: Black AIDS Institute.

Wolfe, W. R, Weiser, S.D., Leiter, K., Steward, W. T., De Korte, F. P., Phaladze, N., Iacopino, V., & Heisler, M. (2008). The Impact of Universal Access to Antiretroviral Therapy on HIV Stigma in Botswana. *American Journal of Public Health,* 98(10), 165-1871.

Wolfe, W. R., Weiser, S. D., & Bangsberg, D. R. (2006). Effects of HIV-related stigma among an early sample of patients receiving antiretroviral therapy in Botswana. *AIDS Care,* 18, 931-933.

Wood, R., Fox, M., Conradie, F., Cornell, M., Dehlinger, M., Heiberg, C., Ingram, C., Ive, P., Orrell, C., Panchia, R., Rassool, M., Stevens, W., Truter, H., Horst van der, C., Zeinekcer, J., Mcintyre, J., & Sanne, I. (2009). Nurse Management is not Inferior to Doctor Management of Antiretroviral Naïve HIV Infected Patients. Conference Abstract, 5th IAS Conference on HIV Pathogenesis, Treatment and Prevention, Cape Town, July 22 2009. Abstract LBPED03.

Woollett, N., & Hatcher, A. M. (2016). Mental health, intimate partner violence and HIV. *South African Medical Journal (SAMJ),* 10(106), 969-972.

World Health Organization Global HIV/AIDS response. (2011). *Epidemic update and health sector progress towards Universal Access – Progress report 2011*. Geneva, World Health: Organization.

Yu, Y., Luo, D., Chen, X., Huang, Z., Wang, M., & Xiao, S. (2018). Medication adherence to antiretroviral therapy among newly treated people living with HIV. *BMC Public Health*, 18, 825.

Zimbabwe National Network of People Living with HIV (PLWH). (2014). 'Zimbabwe Stigma Index Research Report'. Retrieved January, 26, 2010, from http://www.stigmaindex.org/sites/default/files/reports/Zimbabwe%20People%20Living%20with%20HIV%20Stigma%20Index%20Report_15-12-14pdf.pdf

Zimmerman, R. K., Nowalk, M. P., Raymund, M., Tabbarah, M., Hall, D. G., Wahrenberger, T., & Ricci, E. M. (2003). Tailored interventions to increase influenza vaccination in neighbourhood health centres serving the disadvantaged. *American Journal of Public Health*, 93, 1699–1705.

Zou, J., Yamanaka, Y., John, M., Watt, M., Ostermann, J., & Thielman, N. (2009). Religion and HIV in Tanzania, influence of religious beliefs on HIV stigma, disclosure, and treatment attitudes. *BMC public health,* 9(75), 1-12.

Zukoski, A. P., & Thorburn, S. (2009). Experiences of Stigma and Discrimination among Adults Living with HIV in a Low HIV-Prevalence Context: A Qualitative Analysis. *AIDS PATIENT CARE and STDs,* 23(4), 267-276.

## 9. APPENDICES

### APPENDIX 1: INFORMATION SHEET

My name is Manenzhe Tovhowani. I am studying Master of Arts at the University of Venda. I am conducting research as part of my degree and I am inviting you to take part in this research project. My research topic aims on investigating the adherence and mental health of HIV-diagnosed patients on antiretroviral therapy in Vhembe district, Limpopo Province.

In this study, you will be asked a few questions relating to the topic of the study. The time estimated for completing the questionnaire is 30 to 45 minutes. The data collected will be kept safe in a locked cabinet and destroyed after a period of five years. The information obtained from you will be kept confidentially and your identity will not be traceable or revealed.

There is no potential risk involved in your participation in this study. You will be protected when you participate in this study. After your participation, the researcher will ask you to explain and share your experiences regarding your participation in this study, and if ever you have been affected psychological, you will be referred to the clinical psychologist onsite at Donald Fraser Hospital for further psychological intervention.

You will not be discriminated in any way through your participation in this study. And you are free to ask the researcher where you do not understand, for clarity. You are free to withdraw at any time if you feel without giving a reason. Your choice to withdraw from the study will not affect you in any way. Your participation in this study is completely voluntary.

Should you have any question or in need of any information regarding the study, feel free to contact me on the following email: tovhowanimananzhe@gmail.com. If you would like to report any problems or complaints that you have with regard to any part of the research process you can also contact my supervisor: Dr. A. Maphula on 015 962 8341.

Kind regards

**Manenzhe Tovhowani**

(Researcher)

## APPENDIX 1: INFORMATION SHEET (Tshivenda Version)

Dzina langa ndipfi Manenzhe Tovhowani. Ndi khou gudela Master Of Arts gudedzeni la ntha la University ya Venda. Ndi khou ita thodisiso sa tshipida tsha ngudo dzanga ndi khou vha ramba uri vhavhe tshipida tsha thodisiso idzi. Tshipikwa tsha thodisiso idzi ndi 'u shela mulenzhe kha thandela ya u sedza kunwele kwa mishonga na mutakalo wa muhumbulo kha vhathu vhane vhatshila na tshitzhili tsha HIV vhatshi dzhia mishonga kha tshitirikini tsha Vhembe, Limpopo Province.

Kha thodisiso iyi, vhado vhudzisiwa dzimbudziso dzo vhalaho dzitshi tumana na thoho ya thodisiso. Tshifhinga tsho lavhelewaho u fhindula dzimbudziso ndi ubva kha mitheto ya fumi tharu (30) u swika kha mithetho ya fu ina thanu (45). Mafhungo ane ado kuvhanganyiwa kha thodisiso iyi ado valeliwa kha cabinet nahone ado tshinyadziwa nga murahu ha minwaha mitanu. Mafhungo ane ado kuvhanganyiwa ubva kha vhone ado vha tshiphirini nahone madzina avho hanga do bviselwa khagala na u ri hanga do kona u tevhelea.

Ahuna masiandaitwa ane avha hone ngakha u dzhenelela havho kha thodisiso idzi. Vhadovha vho tsireledzea nga khau dzhenelela havho kha thodisiso idzi. Nga murahu ha u fhindula dzimbudziso, vhado vhudziswa nga mutodisisi uri vha ambe ngaha vhudipfi havho nga kha u dzhenelela havho kha thodisiso idzi, honeha arali hovha na tshinyalelo kha kuhumbelele kwavho vhado isiwa kha clinical psychologist hanefha Donald Fraser Hospital u itela uri vha toliwe muhumbulo wavho.

Ahungavhi na khethululo ngakha masia othe ngakha u dzhenelela havho kha thodisiso idzi. Nahone vho tendeliwa u vhudzisa mutodisisi hune vhasi pfesese hone, uri vha bvele khagala. Vho fholowa uri vhanga kona u litsha thodisiso tshifhinga tshinwe na tshinwe, vha songo nea tshiitisi. U litsha ndowe ndowe yavho kha u dzhenelela kha thodisiso iyi ahungavhi na vhukwamani navho. U dzhenelela havho kha thodisiso idzi ndi u volunthia.

Vhangavha na inwe mbudziso kana vhatshi toda manwe mafhungo zwitshi tumana na thodisiso khavha fholowe u nkwama kha email heyi tovhowanimananzhe@gmail.com. Arali vhatshi toda unga fhirisa inwe thaidzo kana vhunwe vhudipfi hune vhavha naho, zwitshi tumana na thodisiso idzi vhanga kwamana na mulanguli muhulwane kha nne (supervisor): Dr Maphula kha nomboro dzitevhelaho 015 962 8341.

Wavho Munwaleli

**Manenzhe Tovhowani**

(Mutodisisi)

## APPENDIX 2A: PARTICIPANT CONSENT LETTER AND FORM

Department of Psychology

University of Venda

Private Bag X5050

Thohoyandou

0950

Date______________

Dear Participant

Thank you for showing interest in this study that focuses on investigating adherence to antiretroviral therapy and mental health of HIV-diagnosed patients in Vhembe District, Limpopo Province. I am requesting you to participate in this study; you will be asked questions focusing on the aim of the study and some of the information will be recorded from your medical file. The time estimated for completing the questionnaire is 30 to 45 minutes. The data collected will be kept safe in a locked cabinet and destroyed after a period of five years. The information obtained from you will be kept confidentially and your identity will not be traceable or revealed.

There is no potential risk involved in your participation in this study, you will be protected. After your participation, the researcher will ask you to explain and share your experiences regarding your participation in this study, and if ever you have been affected psychological, you will be referred to the clinical psychologist onsite at Donald Fraser Hospital. You will not be discriminated in any and you are free to ask the researcher where you do not understand, for clarity. You are free to withdraw at any time without giving reasons. Your participation in this study is completely voluntary.

Please answer all the questions as honestly as possible. Your participation in this research is very important. Thank you for your time and cooperation.

Yours Truly

_______________ __________________

Manenzhe T. (Masters Student) Date

________________ __________________

Dr A. Maphula (Supervisor) Date

## APPENDIX 2A: PARTICIPANT CONSENT LETTER AND FORM (Tshivenda Version)

Department of Psychology

University of Venda

Private Bag X5050

Thohoyandou

0950

Date______________

Aa!

Ndi a livhuwa u sumbedzwa u takalela havho kha ‘u shela mulenzhe kha thandela ya u sedza kunwele kwa mishonga na mutakalo wa muhumbulo kha vhathu vhane vhatshila na tshitzhili tsha HIV vhatshi dzhia mishonga kha tshitirikini tsha Vhembe, Limpopo Province. Ndi khou vha humbela uri vha dzhenelele kha thodisiso idzi, vhado vhudziswa mbudziso dzo livhana na ndivho ya thodisiso, manwe a mafhungo ado todiwa ubva kha faila yavho ya mutakalo. Tshifhinga tsho lavhelewaho u fhindula dzimbudziso ndi ubva kha mitheto ya fumi tharu (30) u swika kha mithetho ya fu ina thanu (45). Mafhungo ane ado kuvhanganyiwa kha thodisiso iyi ado valeliwa kha cabinet nahone ado tshinyadziwa nga murahu ha minwaha mitanu. Mafhungo ane ado kuvhanganyiwa ubva kha vhone ado vha tshiphirini nahone madzina avho hanga do bviselwa khagala na u ri hanga do kona u tevhelea.

Ahungavhi na khethululo ngakha masia othe ngakha u dzhenelela havho kha thodisiso idzi, vhadovha vho tsireledzea. Nga murahu ha u fhindula mbudziso, vhado vhudzisa uri vha ambe ngaha vhudipfi kha u dzhenelela havho kha thodisiso idzi, honeha arali hovha na tshinyalelo kha kuhumbelele kwavho vhado isiwa kha clinical psychologist hanefha sibadela Donald Fraser u itela uri vha toliwe muhumbulo wavho. Ahungavhi na khethululo ngakha masia othe ngakha u dzhenelela havho kha thodisiso idzi. Ndi a pfesesa u ri ndi nga litsha u dzhenelela kha idzi thodisiso tshifhinga tshinwe na tshinwe arali ndi sa tsha takalela na uri tsheo eyo I nga si ntsie ndi na masiandaitwa a si avhudi. Ndi a pfesesa uri mushumo wa idzi thodisiso zwingasi vhe na vhukwamani na dzina langa, tshiiomo tsha mutakalo wanga na mafhungo e nda amba anga si bviswelwe khagala. U dzhenelela havho kha thodisiso idzi ndi u volunthia.

Ndi humbele uri vha fhindule mbudziso hedzi nga u fhulufhedzea, u dzhenelela havho kha thodisiso idzi, ndi zwa ndeme kana vhuthogwa nga maanda. Ndi livhuwa tshifhinga tshavho na tshumisano yavho.

Wavho Munwaleli

_______________ __________________

Manenzhe T. (Masters Student) Duvha

________________ __________________

Dr A. Maphula (Supervisor) Duvha

## APPENDIX 2B: INFORMED CONSENT TO BE SIGNED BY PARTICIPANT

I ____________________________________________________(Full names) hereby agree to participate in this study which aims to investigating adherence to antiretroviral therapy and mental health of HIV-diagnosed patients in Vhembe District, Limpopo Province.

I confirm that I have been informed by the researcher of the aim and nature of this study. I am interested in participating in this study. I am aware that the results of the study including personal details regarding my age and diagnosis will be anonymously processed into the report. Privacy and confidentiality will be ensured. I acknowledge that participation is voluntary and I have the right to withdraw from participating at any time, without any prejudice. And I also have the right to ask for clarity where I do not understand.

________________________________ __________________

**Signature of Interviewee** **Date**

## APPENDIX 2B: INFORMED CONSENT TO BE SIGNED BY PARTICIPANT(Tshivenda Version)

**Fomo ya thendelo**

Nne ______________________________________________(Madzina othe) ndi khou tenda u shela mulenzhe kha ‘’thandela yau sedza kunwele kwa mishonga na mutakalo wa muhumbulo kha vhathu vhane vhatshila na tshitzhili tsha HIV vhatshi dzhia mishonga kha tshitirikini tsha Vhembe, Limpopo Province.

Ndi kho khwathisedza uri ndo divhadzwa nga vhudalo nga ha mushumo na ndivho ya idzi thodisiso. Ndi a pfesesa u ri ndi nga litsha u dzhenelela kha idzi thodisiso tshifhinga tshinwe na tshinwe arali ndi sa tsha takalela na uri tsheo eyo I nga si ntsie ndi na masiandaitwa a si avhudi. Ndi a pfesesa uri mushumo wa idzi thodisiso zwingasi vhe na kwamani na dzina langa, tshiiomo tsha mutakalo wanga na mafhungo e nda amba zwi nga si bviswelwe khagala. Muthodisisi udo zwiita zwa ndeme uri phindulo dzavho dza vhudavhidzani dzi do vha tshiphirini. Mutodisisi udo lingedza u sa kwamanya na dziphindulo dzavho kana u bvisela khagala dzina lavho sa mudzheneleli wa idzi thodisiso. Ndi dovha nda tendelana na la uri ndina ndugelo yau vhudzisa hune ndasa pfesese uri ndi bvele khagala tshothe.

______________________________ ________________

**Tsaino** **Duvha**

## APPENDIX 3: CENTRAL QUESTIONS

**Age:**

**Gender:**

1. When were you diagnosed HIV positive?
2. When did you start taking your ARVs?
3. What are the mental health issues you have been faced with since this diagnosis?

# APPENDIX 3: CENTRAL QUESTIONS (Tshivenda Version)

**Minwaha:**

**Mbeu:**

1. Vho divha lini ngaha tshiimo tshavho?
2. Vho thoma lini u dzhia dzi ARV?
3. Ndi u khakhisea hufhio ho bvelelaho kha mutakalo wavho wa muhumbulo nga murahu ha divha tshiiomo tshavho tsha mutakalo?

## APPENDIX 4: QUESTIONNAIRE

I highly appreciate your willingness to participate in this study. The purpose of the study is to investigate adherence to antiretroviral therapy and mental health of HIV-diagnosed patients in Vhembe District, Limpopo Province. You are requested to provide honest responses on the questions listed below. You responses are useful and will be kept confidential. It will only take about 30-45 minutes to respond to the questionnaire. Feel free to ask me if there is anything that you don't understand.

**Please tick using a cross (X) in the appropriate box.**

## SECTION 1: DEMOGRAPHIC INFORMATION

1.1. Gender

| | | | |
|---|---|---|---|
| 1 | Male | 2 | Female |

1.2. Age

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 18 to 30 | 2 | 31 to 45 | 3 | 46 to 55 | 4 | 56 to 65 |

1.3. Marital status

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | Single | 2 | Married | 3 | Widowed | 4 | Divorced |

1.4. Highest education level

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | No education | 2 | Primary | 3 | Secondary | 4 | Matric | 5 | Tertiary |

1.5. Occupation

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | Unemployed | 2 | Employed | 3 | Student | 4 | Employed & Studying |

1.6. Religion

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Islam | 2 | Hinduisim | 3 | Judaisim | 4 | Christianity | 5 | Tradition |

**SECTION 2: ART ADHERENCE**

2.1. What was the baseline CD4 count at the time of ART initiation?

| | | | |
|---|---|---|---|
| <200c/mm3 | 200-350c/mm3 | >350c/mm3 | Unknown |
| 1 | 2 | 3 | 4 |

2.2. What is the latest CD4 count after at least 6 months of treatment?

| | | | |
|---|---|---|---|
| <200c/mm3 | 200-350c/mm3 | >350c/mm3 | Unknown |
| 1 | 2 | 3 | 4 |

2.3. Are you currently taking any antiretroviral medicines?

1 YES

2 NO

2.4. Have you ever defaulted since you started on medication?

1 YES

2 NO

2.5. Because of the barriers to care and other reasons, people often find it hard to keep all of their medical appointments and sometimes miss appointments. Have you missed an appointment with a doctor, nurse, or other health care provider for HIV medical care?

1 YES

2 NO

2.6. How many times did you miss your medical appointment?

1. 1-6 times

2. 7-12 times

3. 13-19 times

4. None

2.7. Please say whether each reason has been true for you as a reason for missing appointments in the past six months:

| | |
|---|---|
| 1. I forgot about the appointment | 1. Yes |
| | 2. No |
| 2.I overslept | 1. Yes |
| | 2. No |

| | | |
|---|---|---|
| 3.The appointment was not at a convenient time for me | 1. Yes | |
| | 2. No | |
| 4. I had other commitments | 1. Yes | |
| | 2. No | |
| 5.I was too sick to attend | 1. Yes | |
| | 2. No | |
| 6.The appointment was not with the health care provider of my choice | 1. Yes | |
| | 2. No | |
| 7.I could not get transportation | 1. Yes | |
| | 2. No | |
| 8. I was feeling better so did not go | 1. Yes | |
| | 2. No | |
| 9.I was in the hospital at the time | 1. Yes | |
| | 2. No | |

## APPENDIX 4: QUESTIONNAIRE (Tshivenda Version)

Ndi livhuwa udi dina havho uri vha dzhenelela kha thoduluso heyi ‘’Yau sedza kunwele kwa mishonga na mutakalo wa muhumbulo kha vhathu vhane vhatshila na tshitzhili tsha HIV vhatshi dzhia mishonga kha tshitirikini tsha Vhembe, Limpopo Province. Vhakho humbeliwa uri vha fhindule ngoho kha dzi mbudziso dzire afho fhasi, ndi tama vhatshi pfesesa uri phindulo dzavho dzothe ndidza ndeme na uri dzido vha tshiphiri. Ndi humbela vha kondelele, vhunga zwitshi do dzhia mithethe I linganaho 30-45 u fhindula hedzi mbudziso. Ndi humbela vha songo ofha u vhudzisa musi vhasa pfesesi.

**Vha humbeliwa vha vhee tshifhambano ho teaho kha phindulo yavho (X).**

### SECTION 1: ZWI DODOMBEDZWA ZWA VHUNE

1.1. Mbeu

| | | | |
|---|---|---|---|
| 1 | Munna | 2 | Mufumakadzi |

1.2. Minwaha

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 18 to 30 | 2 | 31 to 45 | 3 | 46 to 55 | 4 | 56 to 65 |

1.3. Tshiimo tsha mbingano

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | U ethe | 2 | O vhingwa | 3 | Tshilikadzi | 4 | Talano |

1.4. Ngudo dza nthesa

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | A thongo funzea | 2 | Primary | 3 | Secondary | 4 | Matric | 5 | Tertiary |

1.5. Mushumo

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | Thongo tholiwa | 2 | Ndo tholiwa | 3 | Ndi mutshudeni | 4 | Ndo tholiwa nda dovha ndavha mutshudeni |

1.6. Vhureleli

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Islam | 2 | Hinduisim | 3 | Judaisim | 4 | Christianity | 5 | Tradition |

## SECTION 2: ART ADHERENCE

2.1. Vha a divha masole a muvhili wavho (CD4 count) a musi vha tshi thoma unwa mishonga ya ART?

| <200c/mm3 | 200-350c/mm3 | >350c/mm3 | Unknown |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

2.2. Masole a muvhili wavho (CD4 count) a u fhedzisela a musi vho no thoma na mishonga lwa minwedzi rathi (6) ndi vhugai?

| <200c/mm3 | 200-350c/mm3 | >350c/mm3 | Unknown |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

2.3. Vhakho unwa mishonga yavho zwa zwino?

1 EE

2 HAI

2.4. Ubva tshe vha thoma unwa mishonga yavho, vhono vhuya vhadi wana vhakho litsha?

1 EE

2 HAI

2.5. Nga mulandu wa zwiitisi na dzinwe tsheo, vhathu vha dzulela u wana uri zwia konda u fara zwifhinga na uya nga maduvha au vhuelela vhuongeloni. Vhono vhuya vhadi wana vho hangwa mutangano wavho na vho dokotela, vho nurse, kana munwe wa muongi wa HIV?

1 EE

2 HAI

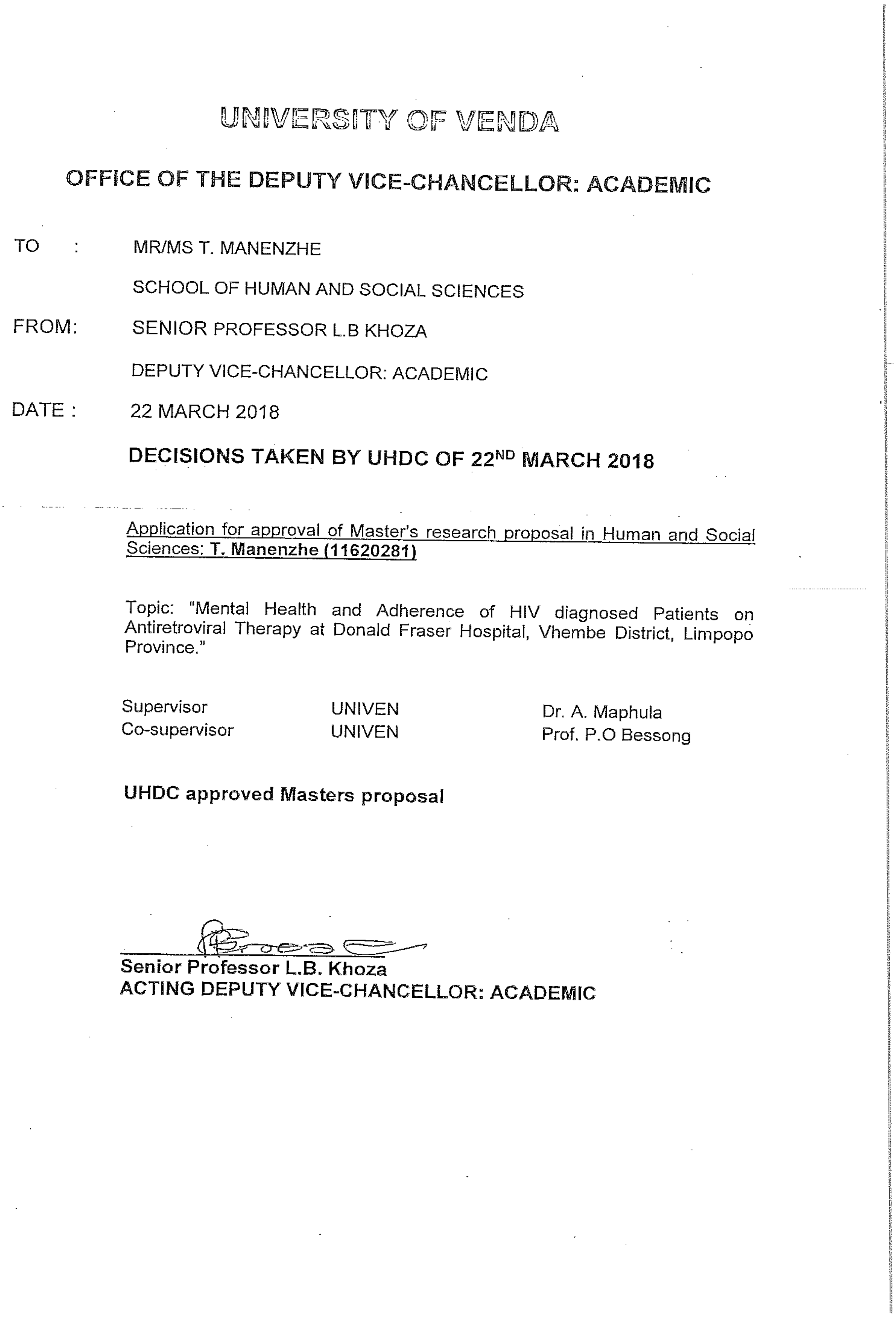
2.6. Ndi lungana vha tshi diwana vho hanga mutangano wavho na vhaongi ubva tshe vha thoma unwa mishonga ya ART:

1. 1-6 times
2. 7-12 times
3. 13-19 times
4. Ahuna

3.3. Ndi humbela uri vha ambe kha izwo zwiitisi uri zwovha zwone zwa u ita uri vha hangwe mutangano wavho kha minwedzi ya rathi yo fhiraho?

| | |
|---|---|
| 1. Ndo hangwa uri ndina mutangano | 1. Ee |
| | 2. Hai |
| 2.Ndo rongomelwa | 1. Ee |
| | 2. Hai |
| 3.Mutangano wovha usi nga tshifhinga tshavhudi kha nne | 1. Ee |
| | 2. Hai |
| 4. Ndo vha ndina zwinwe zwe ndavha ndikho ita | 1. Ee |
| | 2. Hai |
| 5.Ndo vha ndikho vhaisala ndingasi kone uya | 1. Ee |
| | 2. Hai |
| 6.Mutangano wovha u sina muongi ane nda mutakalela | 1. Ee |
| | 2. Hai |
| 7. Thingo kona u wana tshiendedzi | 1. Ee |
| | 2. Hai |
| 8. Ndovha ndi khopfa ndi khwine nda saye | 1. Ee |
| | 2. Hai |
| 9.Ndovha ndi vhuongeloni nga hetsho tshifhinga | 1. Ee |
| | 2. Hai |

## APPENDIX 5: LETTER FROM UHDC



### UNIVERSITY OF VENDA

### OFFICE OF THE DEPUTY VICE-CHANCELLOR: ACADEMIC

TO : MR/MS T. MANENZHE
SCHOOL OF HUMAN AND SOCIAL SCIENCES

FROM: SENIOR PROFESSOR L.B KHOZA
DEPUTY VICE-CHANCELLOR: ACADEMIC

DATE : 22 MARCH 2018

**DECISIONS TAKEN BY UHDC OF 22ND MARCH 2018**

Application for approval of Master's research proposal in Human and Social Sciences: **T. Manenzhe (11620281)**

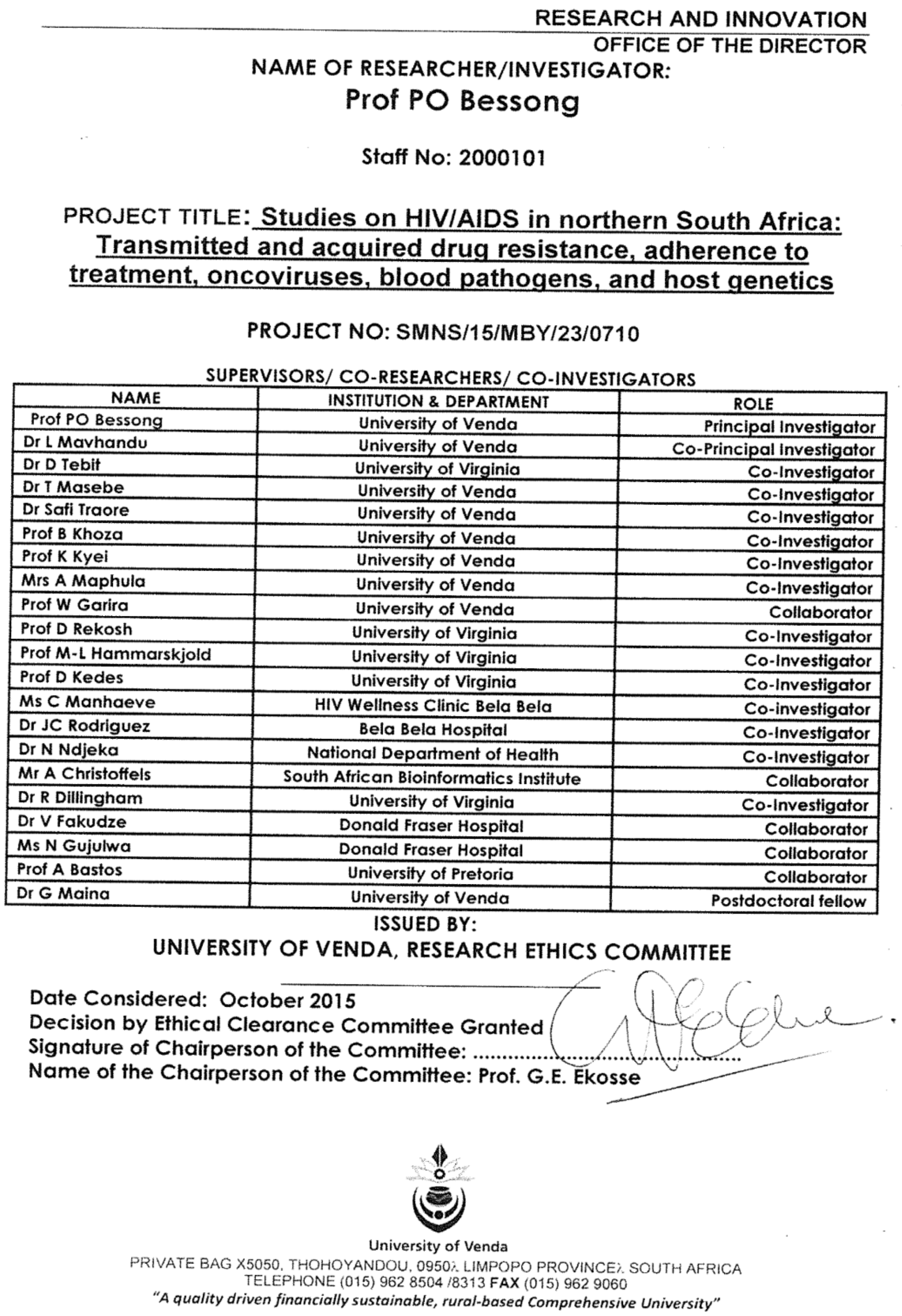
Topic: "Mental Health and Adherence of HIV diagnosed Patients on Antiretroviral Therapy at Donald Fraser Hospital, Vhembe District, Limpopo Province."

| | | |
|---|---|---|
| Supervisor | UNIVEN | Dr. A. Maphula |
| Co-supervisor | UNIVEN | Prof. P.O Bessong |

**UHDC approved Masters proposal**

**Senior Professor L.B. Khoza**
**ACTING DEPUTY VICE-CHANCELLOR: ACADEMIC**

## APPENDIX 6: UNIVEN ETHICAL CLEARANCE



RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

NAME OF RESEARCHER/INVESTIGATOR:
**Prof PO Bessong**

Staff No: 2000101

PROJECT TITLE: **Studies on HIV/AIDS in northern South Africa: Transmitted and acquired drug resistance, adherence to treatment, oncoviruses, blood pathogens, and host genetics**

PROJECT NO: SMNS/15/MBY/23/0710

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

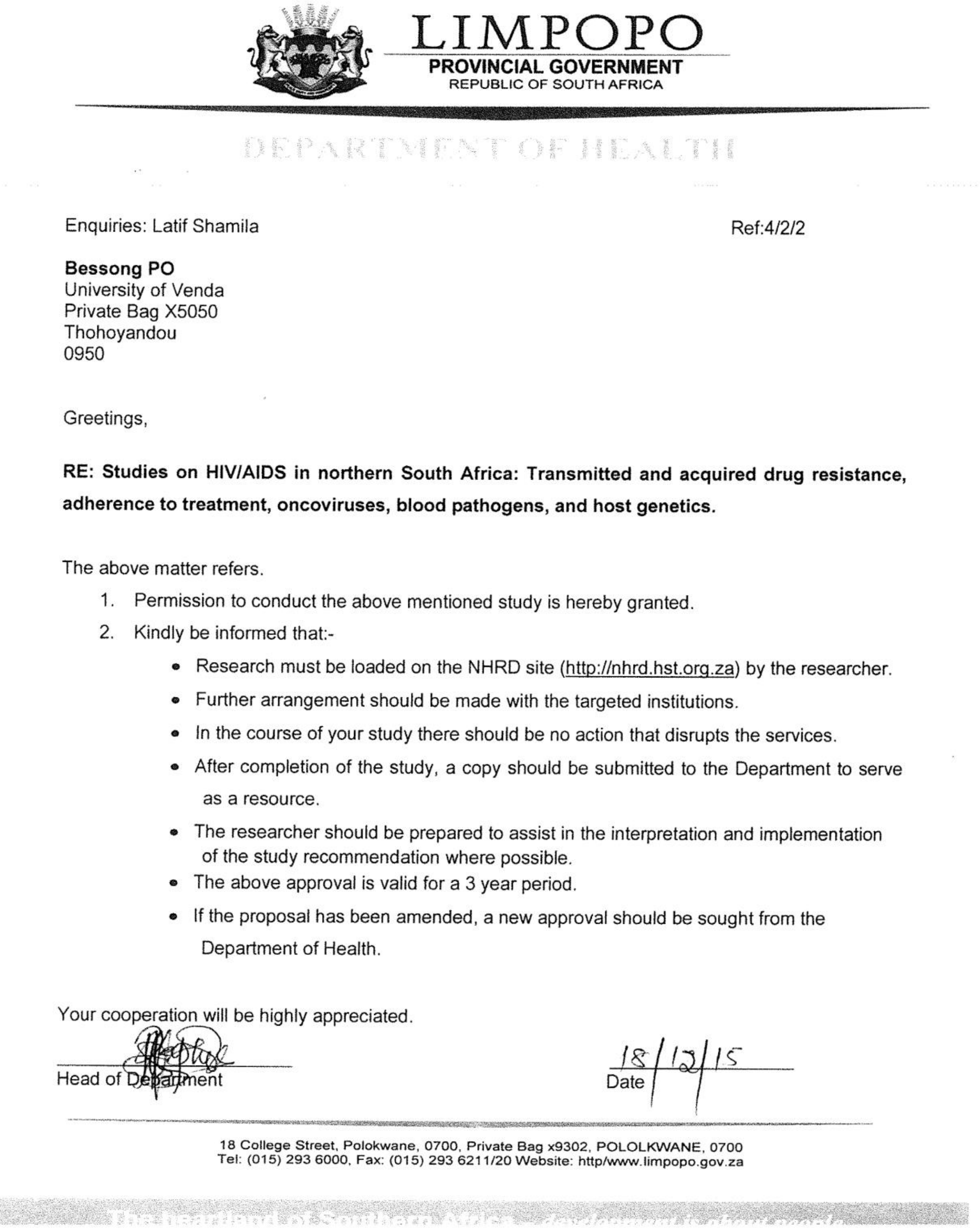
| NAME | INSTITUTION & DEPARTMENT | ROLE |
|---|---|---|
| Prof PO Bessong | University of Venda | Principal Investigator |
| Dr L Mavhandu | University of Venda | Co-Principal Investigator |
| Dr D Tebit | University of Virginia | Co-Investigator |
| Dr T Masebe | University of Venda | Co-Investigator |
| Dr Safi Traore | University of Venda | Co-Investigator |
| Prof B Khoza | University of Venda | Co-Investigator |
| Prof K Kyei | University of Venda | Co-Investigator |
| Mrs A Maphula | University of Venda | Co-Investigator |
| Prof W Garira | University of Venda | Collaborator |
| Prof D Rekosh | University of Virginia | Co-Investigator |
| Prof M-L Hammarskjold | University of Virginia | Co-Investigator |
| Prof D Kedes | University of Virginia | Co-Investigator |
| Ms C Manhaeve | HIV Wellness Clinic Bela Bela | Co-investigator |
| Dr JC Rodriguez | Bela Bela Hospital | Co-Investigator |
| Dr N Ndjeka | National Department of Health | Co-Investigator |
| Mr A Christoffels | South African Bioinformatics Institute | Collaborator |
| Dr R Dillingham | University of Virginia | Co-Investigator |
| Dr V Fakudze | Donald Fraser Hospital | Collaborator |
| Ms N Gujulwa | Donald Fraser Hospital | Collaborator |
| Prof A Bastos | University of Pretoria | Collaborator |
| Dr G Maina | University of Venda | Postdoctoral fellow |

ISSUED BY:
UNIVERSITY OF VENDA, RESEARCH ETHICS COMMITTEE

Date Considered: October 2015
Decision by Ethical Clearance Committee Granted
Signature of Chairperson of the Committee: ..........................................
Name of the Chairperson of the Committee: Prof. G.E. Ekosse

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

# APPENDIX 7: APPROVAL LETTER FROM DEPARTMENT OF HEALTH



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH

Enquiries: Latif Shamila

Ref:4/2/2

**Bessong PO**
University of Venda
Private Bag X5050
Thohoyandou
0950

Greetings,

**RE: Studies on HIV/AIDS in northern South Africa: Transmitted and acquired drug resistance, adherence to treatment, oncoviruses, blood pathogens, and host genetics.**

The above matter refers.

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.
    - In the course of your study there should be no action that disrupts the services.
    - After completion of the study, a copy 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 3 year period.
    - If the proposal has been amended, a new approval should be sought from the Department of Health.

Your cooperation will be highly appreciated.

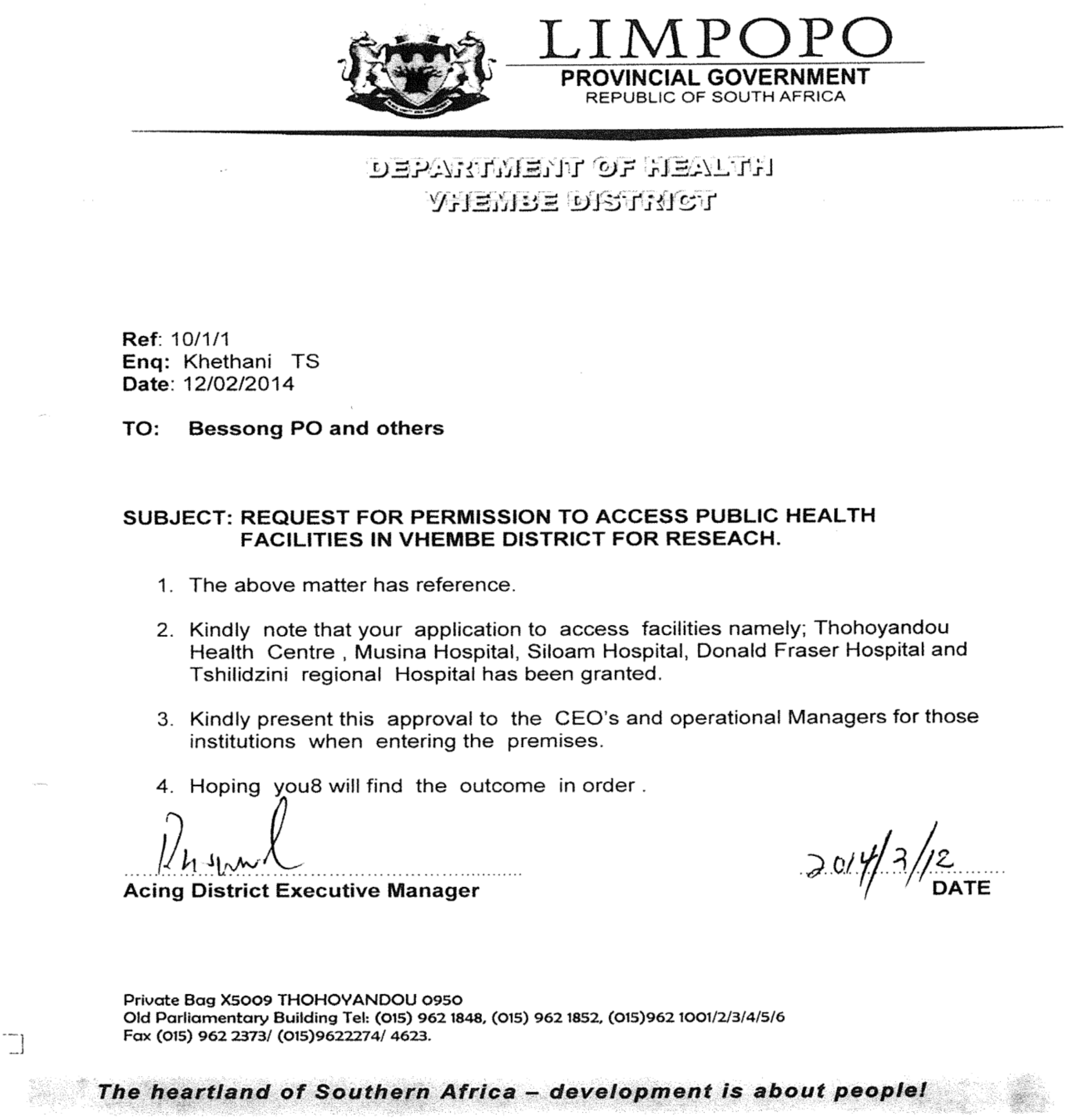
Head of Department

18/12/15
Date

18 College Street, Polokwane, 0700, Private Bag x9302, POLOLKWANE, 0700
Tel: (015) 293 6000, Fax: (015) 293 6211/20 Website: http/www.limpopo.gov.za

The heartland of Southern Africa – development is about people

## APPENDIX 8: APPROVAL LETTER FROM VHEMBE DISTRICT



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH
VHEMBE DISTRICT

**Ref**: 10/1/1
**Enq:** Khethani TS
**Date**: 12/02/2014

**TO:** **Bessong PO and others**

**SUBJECT: REQUEST FOR PERMISSION TO ACCESS PUBLIC HEALTH FACILITIES IN VHEMBE DISTRICT FOR RESEACH.**

1. The above matter has reference.
2. Kindly note that your application to access facilities namely; Thohoyandou Health Centre , Musina Hospital, Siloam Hospital, Donald Fraser Hospital and Tshilidzini regional Hospital has been granted.
3. Kindly present this approval to the CEO's and operational Managers for those institutions when entering the premises.
4. Hoping you8 will find the outcome in order .

.........................................................
**Acing District Executive Manager**

2014/3/12
**DATE**

Private Bag X5009 THOHOYANDOU 0950
Old Parliamentary Building Tel: (015) 962 1848, (015) 962 1852, (015)962 1001/2/3/4/5/6
Fax (015) 962 2373/ (015)9622274/ 4623.

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

## APPENDIX 9: LETTER FROM THE EDITOR

**6 December, 2018**

This is to certify that I, **Dr P Kaburise,** have proofread the research report titled - **MENTAL HEALTH AND ADHERENCE OF HIV-DIAGNOSED PATIENTS TO ANTIRETROVIRAL THERAPY IN VHEMBE DISTRICT, LIMPOPO PROVINCE -** by **Manenzhe Tovhowani (student number:11620281).** I have indicated some amendments which the student has undertaken to effect, before the final document is submitted.

**Dr P Kaburise (0794927451 / 0711138079)**

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**Dr P Kaburise: BA (Hons) University of Ghana (Legon, Ghana); MEd University of East Anglia (Cambridge/East Anglia, United Kingdom); Cert. English Second Language Teaching, (Wellington, New Zealand); PhD University of Pretoria (South Africa).**