

**PREVALENCE OF HUMAN IMMUNODEFICIENCY VIRUS INFECTION AMONG  
PSYCHIATRIC PATIENTS IN SWAZILAND**

by

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## **DEDICATION**

This dissertation is dedicated to:

My sons, Anopa and Anesu, for encouraging me and for understanding when I had to leave them at home to go to school and when I was concentrating on my studies instead of being with them. This accomplishment is yours as well.

## DECLARATION

I declare that **PREVALENCE OF HUMAN IMMUNODEFICIENCY VIRUS INFECTION AMONG PSYCHIATRIC PATIENTS IN SWAZILAND** is my own work and that all sources that I have used or quoted have been indicated and acknowledged by means of a complete reference and that this work has not been submitted before for any other degree at any other institution.

.....

Josephine Ziki

.....

Date

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## ABSTRACT

**Background:** The HIV epidemic is one of the worst to have ravaged the world. The majority of infected people are in Sub-Saharan Africa, with Swaziland having the highest HIV prevalence rate of 26%. Psychiatric patients have not been spared from this HIV epidemic and yet despite this, no studies on the prevalence of HIV infection among this specific population group in Swaziland have been documented. Thus, it was imperative to determine the prevalence of HIV infection among psychiatric patients in Swaziland, and this study sought to do so.

**Objective:** The study aimed to investigate the prevalence of HIV infection among psychiatric patients in Swaziland.

**Methods:** A quantitative cross-sectional research design was used in the study conducted at the National Psychiatric Referral Hospital in the Manzini Region of Swaziland. The data comprised of 307 hospital records of psychiatric patients who were attended to at the National Psychiatric Referral Hospital. The data was captured on a data collection tool and analysed using IBM SPSS 24.

**Results:** The results of the study showed that HIV prevalence among psychiatric patients in Swaziland is 23%. The findings demonstrated a significant association between HIV infection status and the demographic factors of gender, age, marital status, employment status and length of hospital stay ( $p < 0.05$ ). There was no positive association between psychiatric diagnosis and being HIV positive. However, patients with schizophrenia were many among the HIV negative, which was statistically significant at  $p < 0.001$ . A significantly higher proportion of females were infected with HIV than males (33% versus 14%,  $p < 0.05$ ).

**Conclusion:** Psychiatric patients are equally affected by the HIV epidemic. In fighting the HIV epidemic, mechanisms and systems to enhance services aimed at preventing, detecting and managing HIV infection among psychiatric patients are of paramount importance.

## KEY WORDS

Demographic and clinical profiles; HIV prevalence; psychiatric patients; Swaziland

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## DEFINITION OF CONCEPTS

### **HIV infection**

HIV infection refers to infection with the human immunodeficiency virus (HIV). This is a virus that attacks the immune system, the body's natural defence system, impairing its function (World Health Organization 2015). In this study, HIV infection refers to being infected with HIV.

### **Prevalence**

Prevalence is the proportion of persons in a population who have a particular disease or attribute at a specified point in time or over a specified period of time (Centers for Disease Control and Prevention 2012). In this study, prevalence refers to the number of HIV-infection cases among psychiatric patients.

### **Psychiatric patient**

A psychiatric patient is an individual with a diagnosis of a mental health disorder according to the 4<sup>th</sup> edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* or the 5<sup>th</sup> edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-V)* (Stein, Phillips, Bolton, Fulford, Sadler & Kendler 2010). There is a manifestation of behavioural, psychological or biological dysfunction in the individual. Individuals with a mental health disorder who were attended to at the National Psychiatric Referral Hospital were diagnosed according to the *DSM-IV* or *DSM-V* and herein are referred to as psychiatric patients.

### **Population at risk**

Population at risk is a certain segment of a population that is much more exposed to danger or harm compared with the general population (*The Law Dictionary* 2017). In this study, psychiatric patients are the population at risk for HIV infection

## LIST OF ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
AOBS	Acute Organic Brain Syndrome
APA	American Psychiatric Association
BAD	Bipolar Affective Disorder
CDC	Centers for Disease Control and Prevention
DM	Diabetes Mellitus
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
HTN	Hypertension
MDD	Major Depressive Disorder
MSM	men having sex with men
NHRRB	National Health Research Review Board
NPRH	National Psychiatric Referral Hospital
RVD	Retroviral Disease
SMI	Severe Mental Illness
TREC	Turfloop Research Ethics Committee
WHO	World Health Organization

# CHAPTER 1

## INTRODUCTION AND BACKGROUND

### 1.1 INTRODUCTION

The human immunodeficiency virus (HIV) epidemic is one of the worst to have ravaged the world. The World Health Organization (WHO) estimates that there are 36.9 million people living with HIV worldwide, with the majority of the people being in the low- to middle-income countries of Sub-Saharan Africa (WHO 2015). The most affected countries include Swaziland with an HIV prevalence of 26% (Centers for Disease Control and Prevention 2015), Botswana with an HIV prevalence of 23.4% and Lesotho with an HIV prevalence of 23.3%. According to the Joint United Nations Programme on HIV/AIDS (UNAIDS) (2013), South Africa has the highest number of HIV-infection cases worldwide, with about 5.6 million people living with HIV.

In Swaziland, the HIV prevalence is uniform across the four regions of the country, and women are disproportionately affected more than men (Kingdom of Swaziland 2014). The main mode of HIV transmission in Swaziland is sexual intercourse between individuals of the opposite sex. Risk factors for HIV transmission in the country include early sexual debut, multiple and concurrent sexual partners, low and inconsistent use of condoms, inter-generational sex, poverty and income inequality, mobility and migration, commercial sex, gender inequalities, sexual violence and alcohol and drug abuse (National Emergency Response Council on HIV and AIDS 2012). Despite the significant gains achieved through the approaches of HIV treatment and their increasing accessibility globally, the number of persons living with HIV continues to rise (Joint United Nations Programme on HIV/AIDS 2008). The severely mentally ill or psychiatric patients are not spared from the HIV epidemic.

The American Psychiatric Association (2013a) defines psychiatric illness as a syndrome characterised by clinically significant disturbances in an individual's cognition, emotion

control or behaviour that reflect a dysfunction in the psychological, biological or developmental processes underlying mental functioning. Examples of psychiatric illnesses are schizophrenia, schizoaffective disorder, bipolar disorder and psychosis. These illnesses are usually persistent and disabling and require specialised psychiatric treatment as an outpatient or inpatient. Programmes for people with psychiatric illnesses cannot be deemed comprehensive unless they incorporate services aimed at identifying and preventing HIV infection and provide linkages to medical assessment and treatment for patients who are already infected (American Psychiatric Association 2013b).

According to Breuer, Myer, Struthers and Joska (2011), the relationship between psychiatric illness and HIV infection is two-way and multifaceted. Infection with HIV affects mental health by its direct neurobiological action and has an impact on both the patient with the illness and the family (Jayarajan & Chandra 2010). Factors directly associated with psychiatric illness include cognitive impairment and psychotic symptoms that hamper the planned use of precautions to minimise the risk in sexual activity and injection drug use (Goodkin 2016).

No studies on HIV prevalence among this specific population group in Swaziland have been documented to date. With the highest prevalence of HIV in the world being in Swaziland, it is imperative to determine the prevalence of HIV infection among psychiatric patients in order to inform healthcare delivery and contribute to the body of knowledge with regard to the prevalence of HIV infection among psychiatric patients in this country. Well-functioning health systems and policies are needed to fight the HIV pandemic and to reduce the number of new infections, particularly for at-risk groups such as psychiatric patients. The WHO (2016) defines health systems as all organisations, people and actions in which the primary intent is to promote, restore or maintain health. Knowing the prevalence of HIV infection among psychiatric patients in Swaziland will undoubtedly inform service planning, delivery, resource allocation and staff capacitation. Such knowledge will strengthen the responses to legitimate patient

needs and thus ultimately achieve the desired goal of an effective health system. In addition, the socio-demographic and clinical profiles of this specific population group in relation to the prevalence of HIV infection is of interest to the researcher.

## **1.2 RESEARCH PROBLEM**

Despite 68% of the world's burden of HIV infection being in Sub-Saharan Africa (WHO 2016) and psychiatric patients being an at-risk group with regard to HIV infection, few studies have been undertaken in the region specifically to determine the prevalence of HIV infection among psychiatric patients. Studies conducted in the region include those of Acuda and Sebit (1996), Sebit, Tombe, Siziya, Balus, Nkomo and Maramba (2003), Collins, Berkman, Mestry and Pillai (2009), Singh, Berkman and Bresnahan (2009), Maling, Todd, Van der Paal, Grosskurth and Kinyanda (2011), Henning, Kruger and Fletcher (2012) and Lundberg Nakasujja, Musisi, Thorson, Cantor-Graae and Alleback (2013). These studies provide a diverse picture of HIV infection prevalence among psychiatric patients, even within the same country in some cases; for instance, Collins et al. (2009), Henning et al. (2012) and Uys (2013) in South Africa and in Uganda Maling et al. (2011) and Lundberg et al. (2013) had different findings in the same country. Thus data available from other countries cannot be generalised for Swaziland. In Swaziland, surveillance studies on the prevalence of HIV infection among at-risk groups such as men having sex with men (MSM) and sex workers have been carried out (Kingdom of Swaziland 2014). Psychiatric patients have not been spared from the HIV epidemic and are more vulnerable to HIV infection than the general population (Abayomi, Adelufosi, Adebayo, Ighoroje, Ajogbon & Ogunwale 2013). Despite the magnitude of risk for this population, the prevalence of HIV infection among psychiatric patients in Swaziland has not been established.

## **1.3 RESEARCH AIM**

The study aimed to investigate the prevalence of HIV infection among psychiatric patients in Swaziland.

## **1.4 RESEARCH QUESTION**

What is the prevalence of HIV infection among psychiatric patients in Swaziland?

## **1.5 OBJECTIVES**

The objectives for the study are presented below:

- To determine the socio-demographic profiles of psychiatric patients infected with HIV in Swaziland
- To establish the prevalence of HIV infection among psychiatric patients in Swaziland
- To determine the association between demographic profile and psychiatric diagnosis with HIV status

## **1.6 LITERATURE REVIEW**

A literature review involves a critical analysis of published documents on a particular subject matter. Reviewing literature provides an overview of the research regarding the specific subject matter. Literature reviews are crucial because they endeavour to summarise the literature that is available on a subject area and place a research problem into perspective (Aveyard 2014). Reviewing the literature enabled the researcher to determine the research that has been documented on the subject matter. A review of the literature is fully outlined in Chapter 2.

## **1.7 RESEARCH METHODOLOGY**

A quantitative cross-sectional research design was used to establish the prevalence of HIV infection among psychiatric patients in Swaziland through accessing secondary data from the National Psychiatric Referral Hospital. The socio-demographic profiles of psychiatric patients infected with HIV were also considered in the study. In addition, the study analysed the association between HIV infection and variables such as demographic profile and psychiatric diagnosis.

The study was conducted at the National Psychiatric Referral Hospital, which is the only psychiatric hospital in Swaziland and provides psychiatric services for the entire country. The hospital is situated in the city of Manzini in the Manzini Region of Swaziland. The study population consisted of the hospital records of 1 304 psychiatric patients, of which 307 were sampled. The research methodology is outlined fully in Chapter 3.

### **1.8 SIGNIFICANCE OF THE STUDY**

The results of the study may inform service provision and will undoubtedly improve health promotion, prevent diseases and enhance the lives of psychiatric patients living with HIV. In the National HIV Prevention Policy (Swaziland Government, Prime Minister's Office. 2012), evidence-informed programming is highlighted as a critical component in the prevention response and is duly noted as a requirement for preventive measures of HIV infection. Determining the prevalence of HIV infection in psychiatric patients may have a significant role in designing strategies to control the disease, particularly among this specific at-risk population group. This may assist in the fight against the HIV pandemic and work towards eliminating new HIV infections in the country and potentially in other countries or regions. Additionally, the study will also contribute to the knowledge base.

### **1.9 CHAPTER OUTLINE**

Chapter 1: Presents a background of the study and the research framework

Chapter 2: Discusses the reviewed literature and documented studies regarding the prevalence of HIV infection among psychiatric patients

Chapter 3: Outlines the methodology of the research study, which incorporates the research design, the study site, sampling methods used, inclusion and exclusion criteria, the data collection tool and process, data analysis, reliability and validity and bias

Chapter 4: Presents the results of the study

Chapter 5: Focuses on discussing the findings of the study, the limitations of the study, recommendations for further research and the conclusion

## **1.10 CONCLUSION**

This chapter presented a background and introduction to the study, the research aim and objectives, the research question and a summary of the research methodology. The following chapter considers the reviewed literature in detail.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

In the previous chapter, an introduction to the study was given and the research question that the study sought to answer, the study aims and the objectives were outlined. The research methodology and significance of the study were also briefly introduced.

Chapter 2 focuses on the literature that was reviewed for the subject under study. A literature review entails a critical analysis of published documents on a particular subject matter. Reviewing literature provides an overview of the research regarding the specific subject matter. Literature reviews are crucial because they endeavour to summarise the literature that is available on a subject area and place a research problem into context (Aveyard 2014).

This chapter presents a review of the literature that describes how psychiatric patients are a population at risk for HIV infection and investigates the risk factors for HIV infection among psychiatric patients. The chapter also considers literature pertaining to the HIV epidemic, specifically HIV prevalence among psychiatric patients from a global, continental and regional perspective. Demographic profiles are also considered. The literature reviewed was sourced from journals, text books, reports and websites.

#### **2.2 PSYCHIATRIC PATIENTS AS A POPULATION AT RISK**

Psychiatric patients are more at risk for HIV infection than the general population (Goodkin 2016). Epidemiological trends of the HIV epidemic indicate that psychiatric patients may be the most vulnerable and most marginalised subpopulation at risk of HIV infection (APA 2013b). Sulyman, Ayanda, Jibrin, Babaji and Esan (2013) documented

that psychiatric patients are considered a high-risk group for HIV infection and attributed this to poor judgement and irrationality associated with certain psychiatric disorders. Collins, Taylor, Elliott, Ringel, Kanouse and Beckman (2010) also state that psychiatric patients are particularly vulnerable to HIV infection.

Vulnerability of psychiatric patients may not only be due to the symptoms and behaviours associated with their illness but also to poor healthcare access and the reduced ability to care for themselves. Engaging in behaviours such as sharing toothbrushes and shaving equipment also increases their risk of acquiring infections (Crouch & Alers 2006). Healthcare providers and policy makers often do not recognise psychiatric patients' sexual activities as linked to the risk behaviours for HIV infection such as low rates of condom use, buying and selling sex, poorly known partners of undetermined HIV status, multiple partners, coerced sexual encounters and partners who have been identified as injection drug users or HIV infected (American Psychiatric Association 2013b). In addition, the efficacy of anti-psychotic treatment and adherence to treatment is relevant to the risk of blood-borne infections in people with severe mental illness (Goodkin 2016). Furthermore, in a study on the prevalence of hepatitis B (HBV), hepatitis C (HCV) and HIV in psychiatric patients in Turkey, Karabulut (2015) indicated that in general, psychiatric patients have reduced knowledge regarding transmission of infectious diseases and protective measures. In addition, psychiatric patients demonstrate risky sexual behaviours (Karabulut 2015). Karabulut (2015) attributed the raised infection rates among psychiatric patients to poverty, risky environments, risky behaviours and overall poor health.

A study by Singh et al. (2009) aimed at assessing whether psychiatric patients are a vulnerable population with regard to HIV infection in South Africa reveals that adults with psychiatric illness are a vulnerable population and, therefore, prevention and treatment programmes must be tailored to meet their needs. Singh et al. (2009) further state that the strength of association between HIV infection and mental illness is variable and depends on the presence of other risk factors in these populations. Risk

factors common to HIV infection and psychiatric disorders such as substance abuse may act as mediators, moderators, confounders or overlapping risk factors (Singh et al., 2009). Finally, according to Smart (2009), serious mental disorders may make it difficult for persons to find or keep employment and maintain steady relationships. Such persons are more likely to experience periods of homelessness and thus may be coerced to engage in risky behaviour in order to survive.

### **2.3 RISK FACTORS FOR HIV TRANSMISSION IN PSYCHIATRIC PATIENTS**

In the developed world, psychiatric patients who are HIV infected demonstrate various risk factors for HIV infection such as injecting drug abuse and risky sexual behaviours, which explain the increased HIV prevalence (Singh et al. 2009). In the USA, apart from substance abuse and risky sexual behaviour, circumstances known to place people with psychiatric illness at an increased HIV-infection risk involve environmental factors. These environmental factors include: urban areas with a generalised HIV epidemic; poverty due to limited entitlements, which makes it difficult to purchase condoms and promotes the exchange of sexual favours (e.g. for food); and stigma, which together with poverty interferes with access to medical and family planning services (American Psychiatric Association 2013b). In addition, during relapse, mental illness may lead people to engage in practices in which they would not usually partake (Wright, Akhtar, Tosh & Clifton 2012).

The presence of certain psychiatric conditions such as impulse control disorders, hypersexuality associated with mania, psychotic disorders and binge alcohol and drug use increase high-risk behaviour (Crouch & Alers 2006). Risky behaviours include high-risk sexual and drug abuse and use of mood altering substances since these diminish inhibitions such as sexual inhibitions while augmenting impulsivity and impairing judgement. Psychopathological and behavioural changes related to mental disorders such as disinhibition, increased libido and impaired judgement may increase exposure to risky situations (Collins, Holman, Freeman & Patel 2006). Cognitive challenges and negative symptoms may limit the ability to comprehend and retain

information about the cause, treatment and prognosis of HIV infection, which may potentially influence behaviour and attitude towards HIV (Abayomi et al. 2013).

In settings with a generalised epidemic, HIV is firmly established and can be perpetuated by sexual networking alone (Singh et al. 2009). Amirkhanian (2014) describes sexual networking as sexual interactions between various individuals in the manner of a network. The main mode of HIV transmission in Swaziland is heterosexual activity, accounting for 94% of all new HIV infections in the country (World Bank 2009). Risk factors include early sexual debut, multiple concurrent sexual partners, low and inconsistent use of condoms, inter-generational sex, poverty and income inequality, mobility and migration, commercial sex, gender inequalities and sexual violence, low uptake of male circumcision and alcohol and drug abuse (Swaziland Government, 2012). Factors directly associated with psychiatric illness include cognitive impairment and psychotic symptoms that hamper the planned use of precautions in sexual activity and injection drug use (Goodkin 2016).

As Hughes, Bassi, Gilbody, Bland and Martin (2016) document, prevalence studies show that serious mental illness is a risk factor for blood-borne viral infections, including HIV infection. Psychiatric patients engage in behaviours that increase their risk of infection with blood-borne viruses, which include unprotected sex with multiple partners, commercial sex and injecting drug use. Furthermore, risk may result from increased sexuality during an acute phase of psychiatric illness. Co-occurring substance misuse may also lead to sexual risks while intoxicated (Hughes et al. 2016). Although people with psychiatric illnesses have a high risk of contracting blood-borne viral infections, sexual health has largely been neglected by researchers and policy makers involved in mental health (Hughes et al. 2016).

## **2.4 GLOBAL PERSPECTIVE OF HIV PREVALENCE AMONG PSYCHIATRIC PATIENTS**

According to Collins et al. (2009), in settings of low HIV prevalence, psychiatric patients have an elevated prevalence of HIV infection compared with the general population. This is echoed by De Hert, Correll, Bobes, Cetkovich-Bakmas, Cohen, Asai, Detraux, Gautam, Möller, Ndetei, Newcomer, Uwakwe and Leucht (2011) who document that HIV prevalence in people with psychiatric illnesses is generally higher than in the general population, but it varies significantly (1.3–23.9%). De Hert et al. (2011) further state that a high incidence of substance abuse and sexually risky behaviours coupled with reduced knowledge about HIV-related issues contributes to a high HIV prevalence.

In the USA, the prevalence of HIV among people with psychiatric illness reflects the prevalence of the virus in poor and socially marginalised parts of the population, particularly in urban areas (Collins et al. 2009). The disproportionately high HIV prevalence among men and women with psychiatric illness in these areas is thought to reflect the high prevalence of coexisting conditions such as injection drug use and substance abuse in addition to high-risk sexual behaviours (Collins et al. 2009). An American study among the psychiatric population at Duke Hospital in North Carolina documented that HIV infection was present in 1.2% of psychiatric outpatients, approximately four times the HIV prevalence of the background adult population (Beyer, Taylor, Gersing & Krishnan 2007).

In an American study that estimated HIV prevalence and risk factors among persons receiving psychiatric treatment in Philadelphia, Pennsylvania and Baltimore, Blank, Himelhoch, Balaji, Metzger, Dixon, Rose, Oraka, Davis-Vogel, Thompson and Heffelfinger (2014) found that HIV prevalence for individuals receiving psychiatric services was approximately four times higher than for the general population. A positive association between psychiatric symptom severity and HIV infection was also noted, suggesting that engaging persons with psychiatric illness in appropriate psychiatric treatment may be crucial in HIV prevention (Blank et al. 2014).

In a study of the prevalence of HBV, HCV and HIV infections among patients in a psychiatric hospital in Greece, Kakisi, Grammatikos, Karageorgopoulos, Athanasoulia, Papadopoulou and Falagas (2013) indicate an HIV prevalence for psychiatric patients of 4.8%, approximately four times higher than the general population. The study also shows a positive correlation between psychiatric symptom severity and HIV infection, indicating that engaging psychiatric patients in appropriate mental health treatment may be important in HIV prevention.

Similar to other developed countries, adults with psychiatric illness in Brazil have elevated rates of HIV infection relative to the general population (Wainberg, McKinnon, Mattos, Pinto, Mann, de Oliveira, de Oliveira, Remien, Elkington & Cournos 2007). However, until recent times, psychiatric patients in Brazil have not been a priority of HIV prevention initiatives despite ongoing risk behaviours in the population (Wainberg, Guimarães, McKinnon, Cournos, Machado, Melo, Campos & Milton 2014). An HIV prevalence of 1.7% has been reported among psychiatric patients in India (Carey, Ravi, Chandra, Desai & Neal 2007). The major risk behaviour among psychiatric patients in India is unprotected heterosexual intercourse, which reflects the common mode of transmission in that country (Carey et al. 2007).

Although most of the literature points to a heightened risk of HIV infection in persons with psychiatric disorders, Gibson, Jackson, Abel, Wright-Pascoe, Clarke, Gilbert and Barton (2010) found otherwise. In a study of HIV prevalence among psychiatric inpatients with neuropsychiatric and central nervous system disorders in Jamaica, the findings suggested a reduced risk of HIV infection among psychiatric patients (Gibson et al. 2010). However, such results are not without precedent. In a systematic review of HIV and psychiatric disorders, Collins et al. (2006) documented that in developing countries, HIV-infection rates among psychiatric patients ranged from 0% to 28.3% and that these rates reflected no significant difference when compared with the rates among the background population. Collins et al. (2006) suggest that higher levels of family

involvement and institutionalised care of psychiatric patients in lower income countries may moderate risk behaviour and subsequently HIV-infection risk.

## **2.5 CONTINENTAL AND REGIONAL PERSPECTIVES OF HIV PREVALENCE AMONG PSYCHIATRIC PATIENTS**

In Africa, studies have been carried out by Acuda et al. (1996) in Zimbabwe, Mashaphu and Mkize (2007), Collins et al. (2009), Singh et al. (2009) and Henning et al. (2012) in South Africa, Omoregie, Efam, Ihongbe, Ogefere and Omokaro (2009) in Nigeria and Maling et al. (2011) and Lundberg et al. (2013) in Uganda to establish HIV prevalence among psychiatric patients. Contrary to findings in high-income countries, in South Africa, the rates of HIV prevalence among the general population were as high as those among psychiatric patients.

According to Collins et al. (2009), in areas where HIV prevalence is low, people with psychiatric illness have a high prevalence of HIV infection. For instance, in Nigeria Sulyman et al. (2013) documented an HIV prevalence of 6.9% among psychiatric patients, which was significantly higher than the HIV prevalence of the background population of 3.2%. In a study of HIV prevalence among men and women admitted to a South African public psychiatric hospital, Collins et al. (2009) documented that in hyper-endemic countries such as South Africa, rates of HIV prevalence among psychiatric patients are generally equivalent to those of the general population at 26.5%. Collins et al. (2009) continue stating that in a hyper-endemic country such as South Africa with little injecting drug abuse, the high HIV prevalence in the general population makes it likely that the virus can be acquired shortly after sexual initiation. Despite people with psychiatric illness possibly engaging in high-risk sexual behaviours more than the general population, in this context, the result is that the HIV prevalence largely matches that of the general population (Collins et al. 2009). A relatively low HIV prevalence of 11% among psychiatric patients in South Africa was established by Henning et al. (2012). This prevalence is less than one-half of the HIV prevalence results reported in the other three earlier studies conducted in South Africa. In a study to

investigate the prevalence and clinical presentation of HIV-infected psychiatric female patients admitted to an acute ward of a hospital in East London, South Africa, Uys (2013) found a prevalence of 12%; co-morbid substance abuse was common.

A study in Zimbabwe on HIV prevalence among psychiatric patients by Acuda and Sebit (1996) revealed an HIV prevalence rate of 23.8%. Similar findings were made by Mashaphu and Mkize (2007) in South Africa. Omoregie et al. (2009) established a prevalence rate of 15.5% in a cross-sectional study of HIV prevalence among psychiatric patients in Benin City, Nigeria. Studies in Uganda by Maling et al. (2011) and Lundberg et al. (2013) found an HIV prevalence rate among psychiatric patients of 18.4% and 11.3% respectively. The study by Maling et al. (2011) used a sample of first-time psychiatric admissions only, which may not be representative of the population of people with severe mental illnesses.

A study of HIV infection among psychiatric outpatients in Sub-Saharan Africa conducted in Malawi by Lommerse, Stewart, Chilimba, Van der Akker and Lund (2013) shows an HIV prevalence of 14.8%, an inclination towards a lower HIV prevalence among this population. In this cross-sectional study in Malawi, Lommerse et al. (2013) established that men attending the clinic were significantly less likely to be infected than their male counterparts in the general population. The results of this study differ from those found in high-income countries, which suggests that mental illness is a risk factor for acquiring HIV in low-income countries with a high prevalence of HIV and in countries in which the prevalence among those with mental illness matches the prevalence among the general population. Statistical analysis showed no association between other demographic factors such as age, marital status, educational level, income generation, type of work and the risk of acquiring HIV (Lommerse et al. 2013). In addition, women were three times more likely to be infected with HIV than men. The research concluded that HIV prevalence among this population group was lower than among the general population in which the rate of HIV infection was high and the uptake of preventive measures and the levels of HIV services were low (Lommerse et al. 2013).

A study by Maling et al. (2011) in Uganda on HIV prevalence and risk factors for HIV infection among first-time psychiatric admissions documents a prevalence rate of 18.4%. Factors that were independently associated with HIV-1 seropositivity were female gender and older age (41+ years). Their results express that HIV prevalence is high among patients with severe mental illness and that HIV adds to the burden of mental illness in countries in Sub-Saharan Africa that exhibit a high prevalence of HIV (Maling et al. 2011). A recent study conducted in Swaziland by Nkambule, Nuwagaba-Biribonwoha, Mnisi et al. (2017) revealed an HIV prevalence of 27%.

In an extensive systematic review and meta-analysis to approximate the prevalence of blood-borne viral infections in people with severe mental illness, Hughes et al. (2016) concluded that the prevalence of blood-borne viral infections, HIV included, in people with psychiatric illness was elevated compared with the general population in places with a low prevalence of blood-borne viruses such as the USA and Europe. In regions with a high prevalence of blood-borne viruses (HIV in Africa and HBV and HCV in Asia), Hughes et al. (2016) found the prevalence to be at parity with the general population. The pooled HIV prevalence was highest in Africa at 19%, followed by 2% in Europe and 6% in the USA. Hughes et al. (2016) concluded that severe mental illness is unlikely to be a single risk factor and that the risk of blood-borne viral infection is probably multifactorial and associated with low socioeconomic status, drug and alcohol misuse, ethnic origin and gender.

## **2.6 DEMOGRAPHIC PROFILES**

The rate of HIV infection differs among demographic groups (Gibson et al. 2010). In a study at Weskoppies Hospital in South Africa, Henning et al. (2012) documented an HIV prevalence of 11% that was found to be significantly associated with gender and duration of admission. No substantial association between HIV infection and psychiatric diagnoses or intravenous drug use was found.

The study by Lundberg et al. (2013) in Uganda revealed that females had a higher risk of HIV infection than males, with an HIV prevalence of 7.3% for men and 14.3% for women. In the same study, older patients (40–49 years) demonstrated a higher HIV-infection risk than younger patients (18–29 years). No correlation between HIV infection and place of residence, marital status, income, education, occupation, psychiatric diagnosis or history of previous admission was established (Lundberg et al. 2013).

In Swaziland, the HIV prevalence in the general population is uniform across the four regions of the country although women are disproportionately affected more than men with prevalence rates of 31% and 20% respectively. Women are almost twice as likely as men to be infected with HIV (Central Statistical Office Swaziland 2008). Vulnerability to sexual exploitation and high-risk sexual behaviour has been described in women with psychiatric illness in low-income countries and in women with epilepsy (Birbeck, Chomba, Atadzhanov, Mbewe & Haworth 2007).

## **2.7 CONCLUSION**

Literature on HIV prevalence among psychiatric patients was reviewed to provide insight for this study. The literature revealed that generally, HIV prevalence among psychiatric patients tends to be higher than that of the background population in areas demonstrating low HIV prevalence such as those found in developed countries. In developing countries, HIV prevalence among psychiatric patients is largely equivalent to that of the background population. The following chapter outlines the research methodology used in this research.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

In the preceding chapter, literature pertaining to this study on HIV prevalence among psychiatric patients was reviewed. This chapter presents the research methodology of the study. The methodology of a research study encompasses the research design, study setting, population, inclusion and exclusion criteria, sampling, data collection, data analysis, validity and reliability, bias and ethical considerations.

#### **3.2 RESEARCH DESIGN**

The study design was quantitative cross-sectional and utilised secondary data obtained from hospital records. According to Creswell (2014), quantitative research is a means for testing objective theories by examining the relationship among variables. A cross-sectional study involves employing a single point of data collection for each participant or system being studied (Mosby's Medical Dictionary 2009).

#### **3.3. STUDY SETTING**

The study was conducted at the National Psychiatric Referral Hospital, the only psychiatric hospital in Swaziland and provides psychiatric services for the whole of the country. The hospital is situated in the city of Manzini in the Manzini Region of Swaziland, 2 km to the west of Manzini Central Business District. The hospital has a bed capacity of 192 and provides care to both in- and outpatients in addition to community mental health services through outreach services and home visits. The map in Figure 3.1 below shows the location of the National Psychiatric Referral Hospital in Manzini.



**Figure 3.1: Location of the National Psychiatric Referral Hospital in Manzini**

Source: Google Maps (2017)

### **3.4 STUDY POPULATION**

The study was conducted among psychiatric patients in Swaziland. The target population for this study were records of psychiatric patients aged 18–49 years who were attended to at the National Psychiatric Referral Hospital and were tested for HIV infection. The total number of patients for the period January to December 2016 was 1 304.

#### **3.4.1 Inclusion criteria**

All records for psychiatric patients within the age group of 18–49 years and with a known HIV status were included in the study. The age group of 18–49 years is the most sexually active age group (Kuznetsov, Wiseman, Ruzcka, Zippel & Kuznetsov 2011) and thus is at risk of sexually transmitted infections, including infection with HIV.

### 3.4.2 Exclusion criteria

Records of psychiatric patients such as children and the elderly who were attended to at the National Psychiatric Referral Hospital but who were not within the age group of 18–49 years were excluded from the study. This enabled comparisons of the study findings with other studies since most HIV-prevalence studies and documentation involve this age group as well as for comparisons regarding the HIV prevalence with the background population. Psychiatric patient records without a known HIV status were also excluded.

### 3.5 SAMPLING

According to Almeda, Capistrano and Sarte (2010), sample size can be calculated using Slovin's Formula. Thus, the sample size was determined as follows:

Slovin's Formula states that  $n = N/(1+(N \times e^2))$

where  $n$  = sample size of the adjusted population

$N$  = population size

$e$  = accepted level of error set at 0.05

Calculated

$$\begin{aligned}n &= N/(1+(N \times e^2)) \\n &= 1304/1 + 1304 \times (0.05)^2 \\&= 1304/ (1 + 3.26) \\&= 1304/4.26 \\&= 306.10\end{aligned}$$

Sample size  $n = 307$

Using Slovin's Formula, a sample of 307 psychiatric patients' records was calculated, and the consecutive sampling method was employed to obtain the required number of records. With the consecutive sampling method, each consecutive eligible record is included in the study (Tassie, Malateste, Pujades-Rodríguez, Poulet, Bennett, Harries,

Mahy, Schechter, Souteyrand & Dabis 2010). In this study, the first psychiatric patient hospital record was randomly selected and then consecutive records that were eligible were included until the required sample size was achieved.

### **3.6 DATA COLLECTION**

Data collection focuses on gathering information relevant to the research purpose or research question in order to answer the research question (Creswell 2008). In this study, data was extracted retrospectively from the records of psychiatric patients on socio-demographic characteristics, clinical profile and HIV status using an adapted standardised data collection tool. The study utilised secondary data from the hospital records of psychiatric patients at the National Psychiatric Referral Hospital. The data collection tool was adapted from Beke (2015).

In adapting the data collection tool to fit this study, certain components were removed. Components regarding habits, criminal charges and details of HIV antiretroviral treatment were removed since they were not relevant in answering the research question or meeting the objectives of the study. New elements were incorporated in order to meet the second and third objectives of this study. The components added in the data collection tool were hospital status, inpatient length of hospital stay and outcome. Hospital status referred to the category of the patient in the hospital (i.e. whether the patient was an inpatient, outpatient, acute patient or chronic patient). Length of stay referred to the number of months a patient had been admitted in the hospital. Outcome referred to whether a patient was still admitted, discharged or transferred to another healthcare facility. The data collection tool is attached as Annexure 1.

### **3.7 DATA ANALYSIS**

Data was analysed using International Business Management Statistical Package for Social Sciences version 24 (IBM SPSS 24). Descriptive analysis of the data was also

done. The statistical significance was set at  $p < 0.05$ . The chi-square test was used for the comparisons between HIV status and the categorical variables. Data is presented in the form of frequency tables, pie charts and bar graphs to summarise the study findings.

For purposes of analysing the data, age was categorised into four groups: 18–25 years; 26–32 years; 33–40 years; and 41–49 years. Geographical region of residence was also considered and analysed to determine HIV prevalence among psychiatric patients according to region.

### **3.8 VALIDITY**

Validity refers to the degree to which an instrument measures what it is intended to measure (Twycross & Shields 2004). The data collection tool was adapted from the validated instrument of Beke (2015). In this study, the data collection tool was adapted in consultation with a biostatistician.

### **3.9 RELIABILITY**

According to Bless and Higson-Smith (2000), the reliability of an instrument is the degree of consistency with which the instrument measures the attributes it is intended to measure. It is the extent to which results are consistent or accurate over time. A measurement is deemed reliable if the measurement can produce similar results when used again in similar circumstances. In this study, reliability was ensured by collecting the data in a consistent manner using the same data collection tool. Inter-rater reliability was established by presenting the data collection tool to experts in psychiatry for review before the actual data collection. Thus, reliability was ensured by piloting the data collection tool and modifying it accordingly.

### **3.10 PILOT STUDY**

In the pilot study, the data collection tool was pre-tested using the hospital records of 20 psychiatric patients. The collected sample data was analysed before the actual data collection commenced. The data collection tool was modified with the removal of the section regarding religion since information on this aspect was not available in 95% of the piloted hospital records of the psychiatric patients.

### **3.11 BIAS**

Gordis (2008) defines bias as any systematic error in the design, implementation or analysis of a study that results in an erroneous approximation of an exposure's effect on the risk of disease. Bias was avoided in this study by including all records that met the inclusion criteria until the required sample size was reached.

### **3.12 ETHICAL CONSIDERATIONS**

Research ethics can be described as norms for conducting research; they govern the standard of conduct for scientific research. Research ethics are crucial in safeguarding the dignity, rights and welfare of research participants. Ethical behaviour assists in protecting individuals, communities and the environment (Israel 2015).

This section takes into consideration the ethical issues involved in conducting this study. Firstly, it details the process that was followed in obtaining approval to conduct the research from the University of Limpopo and the relevant institutions in Swaziland. Secondly, the ethical issues pertinent to this study such as protecting anonymity and confidentiality, protecting the rights of the patients and minimising potential risk of harm are considered.

### **3.12.1 Scientific integrity of the researcher**

Researchers have a duty to the discipline of science with regard to the manner in which they conduct and document research (De Vos, Strydom, Delpont & Fouche 2011). The proposal for the research was granted ethical clearance by Turfloop Research Ethics Committee (TREC) prior to commencing the data collection. The ethical clearance granted is attached as Annexure 2. Ethical clearance obtained from TREC was presented to the National Health Research Review Board (NHRRB) on application for ethical approval in Swaziland. The letter attached as Annexure 3 was used in applying for ethical clearance from the NHRRB. Ethical clearance from the NHRRB is attached as Annexure 4. Guidelines for undertaking quantitative research provided by the University of Limpopo and supervisors were followed.

### **3.12.2 Protecting the rights of the institution**

After obtaining ethical clearance from the NHRRB in Swaziland, the researcher sought permission from the Ministry of Health in Swaziland to conduct the study using the letter attached as Annexure 5. The researcher was informed by the NHRRB that the Research Protocol Clearance Certificate issued by the NHRRB also served as permission from the Ministry of Health because the NHRRB is the department that is responsible for research in the Ministry of Health. The clearance certificate is attached as Annexure 4. The rights of the institution were observed by acquiring permission from the management of the National Psychiatric Referral Hospital (Annexure 6) prior to carrying out the study. Permission was sought from the management of the National Psychiatric Referral Hospital to access the hospital records of the psychiatric patients and to conduct the study in the hospital using the letter attached as Annexure 6 and the TREC ethical clearance certificate attached as Annexure 2. The letter granting permission from the NPRH is attached as Annexure 7. Information regarding the institution was kept confidential by keeping the completed data collection tool locked away to prevent unauthorised access.

### **3.12.3 Protecting rights of participants and minimising potential risk of harm**

No human beings were involved in this study; only the hospital records of psychiatric patients were used. Once ethical clearance was obtained from TREC and the NHRRB, permission to conduct the study was sought from the management of the National Psychiatric Referral Hospital, as indicated in the letter attached as Annexure 6.

### **3.12.4 Protecting anonymity and confidentiality**

According to the National Commission for the Protection of Human Subjects of Biomedical and Behavioural Research (2012), confidentiality and anonymity are concerned with respect and protection regarding research participants. The information collected for this research project was kept confidential. The researcher ensured that any identifying details of patients were not documented anywhere in the data collection process. The data collection tool did not indicate names; numbers were assigned to the data collection sheet to identify individual records. To date, completed data collection tools have been stored in a lockable cabinet.

## **3.13 CONCLUSION**

This chapter focused on the research methodology used for the study of HIV prevalence among psychiatric patients in Swaziland, which was conducted at the National Psychiatric Referral Hospital in Manzini. A retrospective quantitative cross-sectional research design was used in the study. The population for the study comprised hospital records of psychiatric patients. Sampling, inclusion and exclusion criteria were herein described, and data collection was discussed. Methods of data analysis were outlined in this chapter, and issues of reliability and validity were presented. Ethical considerations were also outlined. The following chapter presents the results of the study, and an analysis of the results is given.

## CHAPTER 4

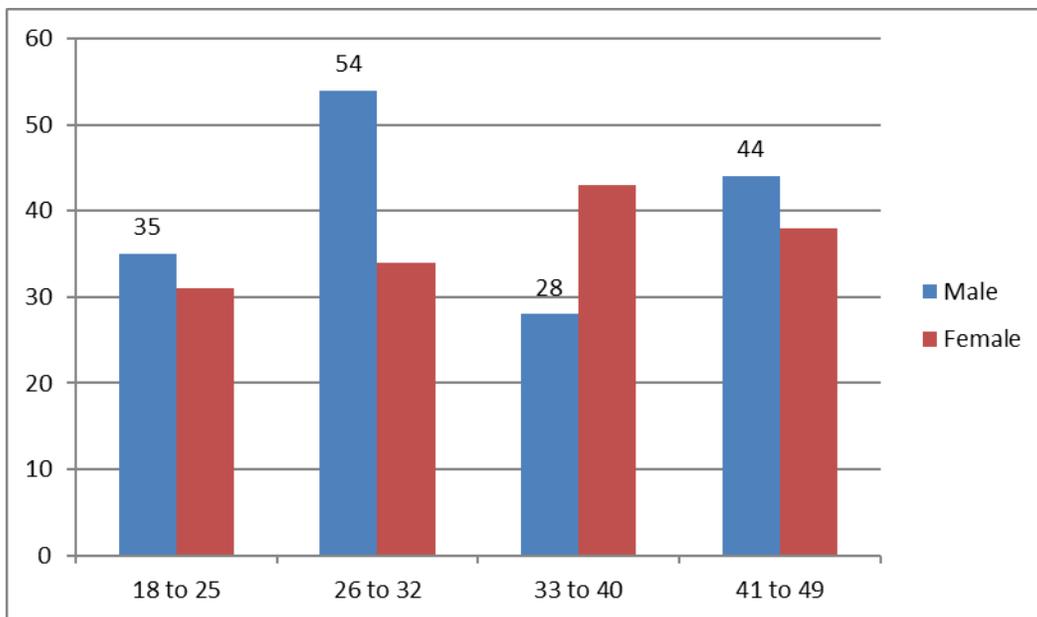
### PRESENTATION AND INTERPRETATION OF THE RESULTS

#### 4.1 INTRODUCTION

In the previous chapter, the methodology used for the study was outlined. In this chapter, the results of the study are presented and interpreted. Chapter 4 is divided into three subsections, namely: (1) demographic characteristics of the patients; (2) psychiatric diagnosis and prevalence; and (3) association between demographic factors and HIV infection.

#### 4.2 DEMOGRAPHIC CHARACTERISTICS OF PATIENTS

For the study, 307 hospital records of psychiatric patients were selected. Of these, 52% of the selection pertained to males and 48% to females (Figure 4.1).



**Figure 4.1: Distribution by gender and age**

The age distribution of the psychiatric patients is shown in Figure 4.1. The patients were generally fairly distributed across all age groups, with 21% in the age group of 18–25 years, 29% (the majority) in the age group of 26–32 years and 23% in the age group of 33–40 years. The remaining 27% were aged between 41 years and 49 years. The median age was 33 years with standard deviation of 9.34192 and variance of 87.272.

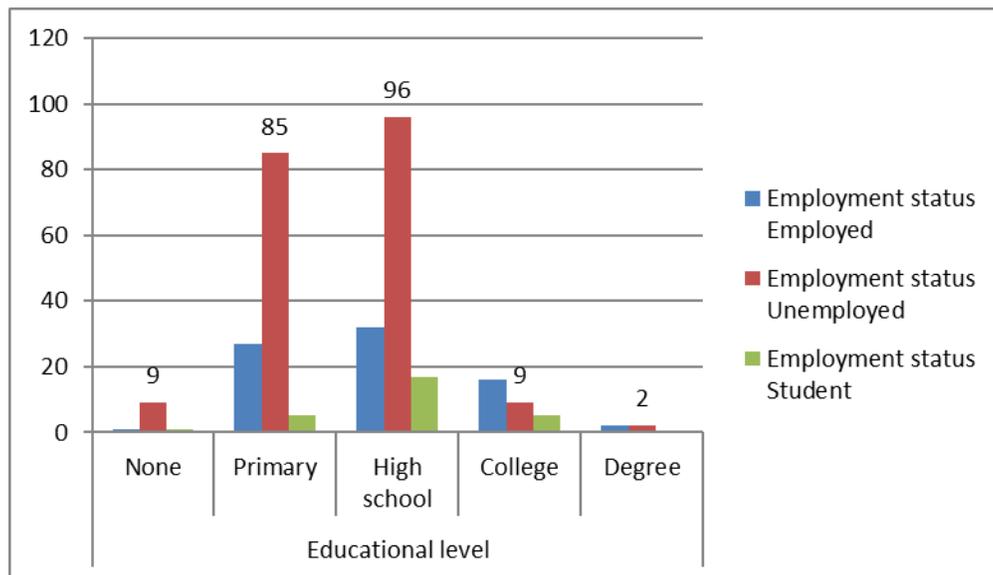
**Table 4.1: Frequency distribution by marital status, region, patient type and length of stay**

	Number	%
<b>Marital status</b>		
Single	184	60
Married	65	21
Divorced	14	5
Widowed	11	4
Separated	22	7
Cohabitation	11	6
<b>Region</b>		
Hhohho	61	20
Manzini	147	48
Shiselwini	47	15
Lubombo	52	17
<b>Patient type</b>		
Inpatient Acute	67	22
Inpatient Chronic	72	24
Outpatient Acute	119	39
Outpatient Chronic	49	16
<b>Length of stay (months)</b>		
1–3	95	68
4–6	6	4
6 or more	38	27

The frequency distribution for marital status, region, patient type and length of stay for the patients are presented in Table 4.1. The majority (60%) of the patients were single and 21% were married. The remaining patients were separated (7%), divorced (5%), widowed (4%) and cohabitating (4%). Regarding frequency distribution of patient type and length of stay, 55% of the patients were outpatients and 45% were inpatients (Table

4.1). Of the patients admitted (n=139), the majority (68%) stayed in the hospital for three or less months (Table 4.1).

Pertaining to the regions, in Swaziland, there are four geographical regions, namely the Hhohho Region, Manzini Region, Shiselwini Region and Lubombo Region (Table 4.1). The results show that almost one-half of the patients (48%) whose records were reviewed in this study were from the Manzini Region. The remaining patients were distributed relatively equally among the other three regions. Most (73%) of the patients were from rural areas and the remainder (27%) were from urban areas (Table 4.1).

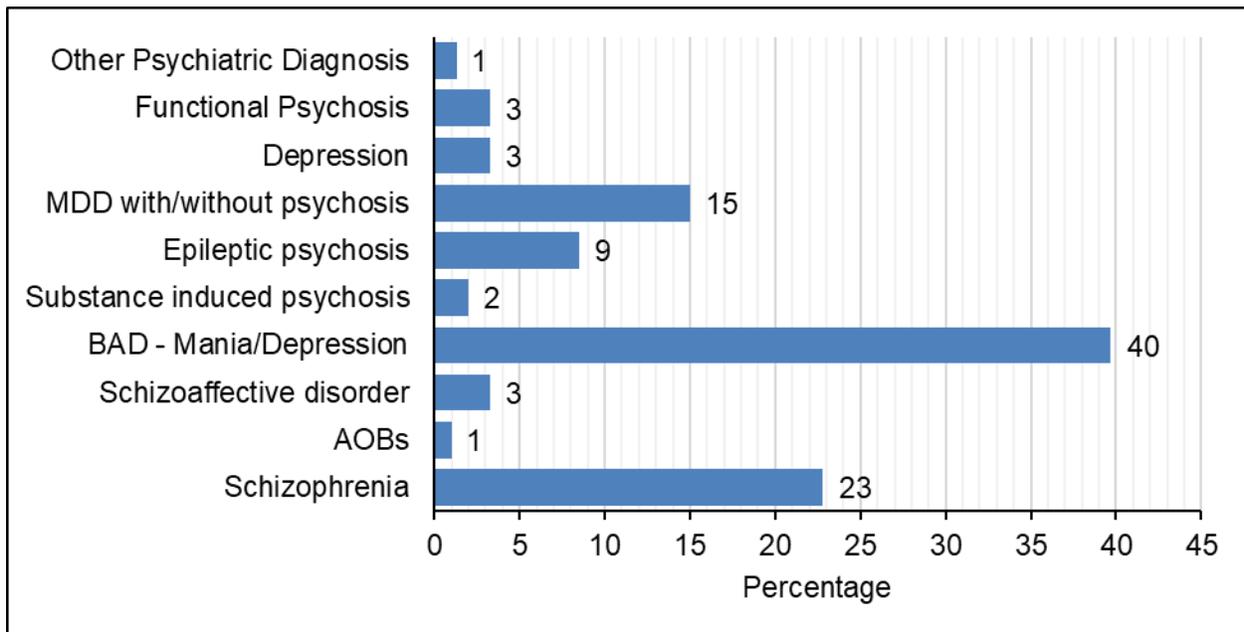


**Figure 4.2: Distribution by level of education and employment status.**

Figure 4.2 shows the employment status of the patients as well their level of education. The largest proportion (66%) of the patients was unemployed while 25% of the patients were employed. The remaining (9%) of patients were students. Pertaining to educational level, almost one-half (47%) of the patients had attained a high school qualification, 38% had only completed primary education, 10% had a college education, 1% had been awarded a degree while 4% had received no formal education at all (Figure 4.2).

### 4.3 PSYCHIATRIC DIAGNOSIS AND OTHER ILLNESSES

The majority (40%) of the patients had a diagnosis of bipolar affective disorder (BAD) (mania/depression), 23% had a diagnosis of schizophrenia and 15% had a diagnosis of major depressive disorder with or without psychosis (Figure 4.3). Epileptic psychosis diagnosis accounted for 9% of the cases. A few (9%) patients were diagnosed with other illnesses (Table 4.2).



**Figure 4.3: Distribution by psychiatric diagnosis**

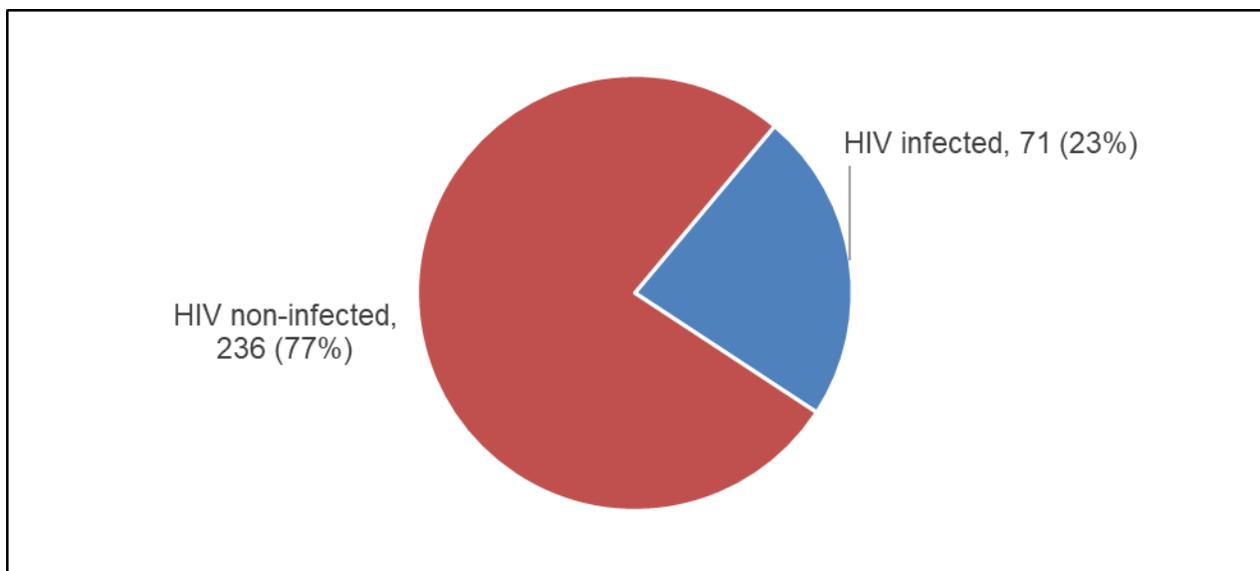
**Table 4.2: Frequency distribution by other illnesses**

	Number	%
Hypertension	16	57%
Diabetes	4	14%
Other	8	29%

(n=28)

#### 4.4 ASSOCIATION OF PREVALENCE AND DEMOGRAPHIC FACTORS WITH HIV INFECTION

Figure 4.4 indicates that 23% of the patients were infected with HIV. The association between HIV status and demographics is shown in Table 4.3. A significantly higher proportion of females were HIV infected than males (33% versus 14%,  $p < 0.05$ ). A greater proportion of the patients in the age group of 33–40 years were HIV infected compared with the other age groups ( $p < 0.05$ ).



**Figure 4.4: Prevalence of HIV infection**

Pertaining to the relationship between HIV infection and demographic factors (Table 4.3), gender, age, marital status, employment and length of hospital stay were significantly associated with HIV infection ( $p < 0.05$ ). There was no relationship between geographical region, residential area or education and HIV-infection status ( $p > 0.05$ ).

**Table 4.3: Association between HIV-infection status and demographic profile**

	n	HIV non-infected n=236 (%)	HIV-infected n=71 (%)	p- value
Gender				
Male	161	138(86)	23(14)	<0.001
Female	146	98(67)	48(33)	
Age (years)				
18–25	66	59(89)	7(11)	<0.001
26–32	88	65(74)	23(26)	
33–40	71	44(62)	27(38)	
41–49	82	68(83)	14(17)	
Geographical region				
Hhohho	61	52(85)	9(15)	0.223
Manzini	147	107(73)	40(27)	
Shiselwini	47	35(75)	12(25)	
Lubombo	52	42(81)	10(19)	
Marital status				
Single	184	152(83)	32(17)	0.005
Married	65	44(68)	21(32)	
Divorced	14	11(79)	3(21)	
Widowed	11	10(91)	1(9)	
Separated	22	11(50)	11(50)	
Cohabiting	11	8(73)	3(27)	
Residential area				
Urban	82	60(73)	22(27)	0.353
Rural	225	176(78)	49(22)	
Employment status				
Employed	78	53(68)	25(32)	0.044
Unemployed	201	158(79)	43(21)	
Student	28	25(89)	3(11)	
Level of education				
None	11	8(73)	3(27)	0.731
Primary	117	89(76)	28(24)	
High school	145	114(79)	31(21)	
College	30	23(77)	7(23)	
Degree	4	2(50)	2(50)	
Hospital Status				
Inpatient Acute	67	56(84)	11(16)	0.001
Inpatient Chronic	72	65(90)	7(10)	
Outpatient Acute	119	78(66)	41(34)	
Outpatient Chronic	49	37(76)	12(24)	
Length of hospital stay				
1–3 months	95	83(87)	12(13)	0.002
4–6 months	6	5(83)	1(17)	
6 months or more	38	33(87)	5(13)	

With regard to the relationship between HIV infection and psychiatric disorders (Table 4.4), there is no positive association between psychiatric diagnosis and being HIV positive. However, patients with schizophrenia were many among the HIV negative, which is statistically significant at p-value <0.001.

**Table 4.4: Association between HIV-infection status and psychiatric diagnosis**

	n	HIV non-infected	HIV-infected	p-value for trend
Schizophrenia	70	63(90%)	7(10%)	<0.001
Schizoaffective disorder	10	10(100%)	-	0.078
BAD (mania/depression)	122	96(78.7%)	26(21.3%)	0.540
Epileptic psychosis	26	15(15.7%)	11(42.3%)	<0.001
MDD with/without psychosis	46	31(67.4%)	15(32.6%)	0.098
Depression	10	6(60%)	4(40%)	0.198
Functional psychosis	10	7(70%)	3(30%)	0.600

Table 4.5 below shows that age, gender and Marital status were significant predictors of HIV status of psychiatric patients { $p=.008; .021;.050$ } respectively; Odds Ratios { $.301; 2.939; .546$ } respectively.

**Table 4.5: Binomial Logistic Regression analysis between HIV status and socio-demographic profile of patients**

Variables	P value	OR
Age	.008	.301
Gender	.000	2.939
Marital Status	.021	.546
Education level	.701	.900

## **4.5 CONCLUSION**

In this chapter, the results of the study were presented and interpreted. In the following chapter, the findings of the study are discussed and compared with previous studies.

## **CHAPTER 5**

### **DISCUSSION, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

In this chapter the findings of the present study are discussed and compared with other studies. The strengths, limitations and recommendations of the study are also considered.

The objectives of the study are as follows:

- To determine the socio-demographic profiles of psychiatric patients infected with HIV in Swaziland
- To establish the prevalence of HIV infection among psychiatric patients in Swaziland
- To determine the association between demographic profile and psychiatric diagnosis with HIV status

#### **5.2 PREVALENCE OF HIV AMONG PSYCHIATRIC PATIENTS IN SWAZILAND**

In the present study, the prevalence of HIV infection among psychiatric patients was 23%, which is slightly below the rate of 27% in the general population of Swaziland (Nkambule et al. 2017). HIV infection prevalence among psychiatric patients in this study is comparable to that of the general population possibly due to the fact that the main mode of HIV transmission in Swaziland is sexual intercourse, accounting for 94% of all new HIV infections in the country (World Bank 2009), of which psychiatric patients are part of the sexual network.

Studies in Sub-Saharan Africa have reported the HIV prevalence among psychiatric patients to range from 6% to 20% (Henning et al. 2012; Lundberg et al. 2013; Maling et al. 2011; Sulyman et al. 2013). A meta-analysis found the prevalence of HIV among psychiatric patients to be at parity with the general population in regions with a high prevalence of HIV, HBV and/or HCV (Hughes et al. 2016). The reasons for the higher

prevalence in the study by Hughes et al. (2016) are not documented; however, the higher prevalence could be the result of substance misuse (Bauer-Staeb, Jörgensen & Lewis 2017). The higher HIV prevalence among the psychiatric patient population relative to the background population in the study by Hughes et al. (2016) may also be attributed to the fact that psychiatric patients sometimes experience cognitive impairment and psychotic symptoms. Cognitive impairment and psychotic symptoms may hamper the planned use of precautions in sexual activity and limit the ability to comprehend and retain information about the causes of HIV infection, the treatment and the prognosis, and this may potentially influence behaviour and attitude towards HIV (Abayomi et al. 2013; Goodkin 2016; Sulyman et al. 2013).

### **5.3 ASSOCIATION BETWEEN DEMOGRAPHIC FACTORS OF PSYCHIATRIC PATIENTS AND HIV**

#### **5.3.1 Gender**

In the present study, a significantly higher proportion of females than males were infected with HIV. This finding is consistent with other studies that show more female than male psychiatric patients to be HIV infected (Lommerse et al. 2013; Lundberg et al. 2013). The study by Lommerse et al. (2013) documents that women were three times more likely to be HIV infected than men.

Studies on the prevalence of HIV in the general population in Swaziland also indicated that females were more likely to be infected with HIV than males (Nkambule et al. 2017). The main reasons for a greater proportion of women being infected with HIV than men are multifactorial; however, sexual violence against women and multiple sexual partnerships may contribute to the high prevalence of HIV infection in women (Gracia 2014; Kajubi, Green, Hudes, Kanya & Ruark 2011). Moreover, vulnerability to sexual exploitation and high-risk sexual behaviour have been described for women with psychiatric illness in low-income countries and for women with epilepsy (Birbeck et al. 2007).

### **5.3.2 Age**

Lundberg et al. (2013) found in their study that the prevalence of HIV was higher in patients aged 40–49 years than patients in the age group of 18–29 years. In contrast, the results of the present study indicated that patients in the age group of 33–40 years demonstrated the most (38%) HIV-positive cases. This can be attributed to the fact that this age group is within the most sexually active age range and thus is more prone to contracting HIV through sexual networking.

### **5.3.3 Marital status**

With regard to marital status, the results of this study showed that separated and married patients had a higher prevalence of HIV infection. The result can be attributed to married women in Swaziland having limited say over decisions such as use of condoms. This emanates from gender inequality and powerlessness among women as well as limited practice of safe sex (Marron, 2011). Similarly, a study by Mayaphi, Martin, Olorunju, Williams, Quinn, and Stoltz (2018) in South Africa found that HIV infection was most prevalent among married participants. These findings are in contrast to findings by Ginindza, Stefan, Tsoka-Gwegweni, Dlamini, Jolly, Weiderpass, Broutet and Sartorius (2017) which indicate that being married is a protective factor with regards to sexually transmitted infections, of which HIV is.

### **5.3.4 Employment status**

The results of the present study revealed that employment status is significantly associated with HIV infection ( $p < 0.005$ ); a greater proportion (61%) of the HIV-infected patients were unemployed. This finding is comparable with the National HIV Prevention Policy: Swaziland (2012), which highlights that poverty is a risk factor for HIV infection in Swaziland (Swaziland Government 2012). The policy further documents that poverty is associated with the increase of HIV prevalence among socioeconomically vulnerable populations (Swaziland Government 2012).

### **5.3.5 Psychiatric diagnosis**

Studies found that patients infected with HIV are twice as likely to present with depressive symptoms as compared to the general population (Dos Santos & Wolvaardt 2016). Arseniou, Arvaniti and Samakouri (2014) reported that depression is highly prevalent among HIV-infected patients. In the present study, no significant relationship between depression and HIV was observed; however, depression was more common in the HIV-infected psychiatric patients than in the non-infected patients.

### **5.3.6 Patient type**

The prevalence of HIV was shown to be higher in the acute outpatient category. This finding seems to concur with the documentation of Chow and Priebe (2013) and Pandarakalam (2015), which suggests that institutionalised care of psychiatric patients serves as a safekeeping function for psychiatric patients and secures the safety of vulnerable patients. This may moderate risk behaviour and the subsequent risk of HIV infection. However, there has been a shift in the model of care from institutionally focused care to community care with an emphasis on reintegration and rehabilitation (Chakraborti & Gagenragad 2015).

## **5.4 CONCLUSION**

In conclusion, the prevalence of HIV infection among psychiatric patients in this study was relatively high and most common in women aged 33–40 years who are either separated or married, are unemployed and are acute outpatients. Efforts and services aimed at preventing and managing the HIV pandemic should engage the psychiatric patient population in much the same way as the general population, and possibly more robustly since psychiatric patients comprise an at-risk group.

## **5.5 RECOMMENDATIONS**

### **5.5.1 Research**

Further exploration of the factors behind the elevated HIV-infection rates among female psychiatric patients compared with male patients is recommended. Areas for further study

could include establishing reasons for HIV infection prevalence is lower among psychiatric patients compared to the general population in Swaziland.

### **5.5.2 Practice**

Prevention, detection and management of HIV infection are paramount in fighting the HIV pandemic, and the engagement of all sections of the population, psychiatric patients included, is crucial. It is recommended that HIV education, prevention, detection and treatment services such as male medical circumcision, pre-exposure prophylactic treatment, anti-retroviral therapy for HIV positive patients continue to be offered at points of care in order to fight HIV. Because HIV transmission in Swaziland is mainly through sexual intercourse, integration of sexual health services in mental health settings is also recommended. Encouraging patients to remain engaged with sexual and reproductive health services fosters ongoing health education and the uptake of risk-reduction interventions (Bekker & Hosek 2015). Enhancing detection and management of HIV in psychiatric patients not only benefits the psychiatric patient population but also the population at large. Additional efforts are needed to address these factors to reduce the HIV-infection burden in psychiatric patients.

As Singh et al. (2009) documented, adults with psychiatric illness are a vulnerable population and, therefore, prevention and treatment programmes must be tailored to meet their needs. This implies ongoing health education as a preventive measure, provision of and access to resources that enable safe sex such as condoms and provision of intensive follow-up support and adherence-promoting interventions. These will contribute to realising the goal of eliminating new infections and halting the spread of HIV among both psychiatric patients and the general population.

In line with the Sustainable Development Goals set by the United Nations of ending the HIV/AIDS epidemic by 2030 (United Nations 2016), strengthening the integration and provision of HIV services with adequate follow-up support for mental health is

recommended. It is also recommended that HIV counselling and testing services be offered consistently to clients; certain files that were excluded from the present study had no documentation on HIV status or whether the patient had opted out of the service.

### **5.5.3 Education**

In their study, Nkambule et al. (2017) indicated a reduction in the incidence of HIV in Swaziland. This is towards the realisation of the United Nations Sustainable Development Goal of reversing or halting the spread of HIV/AIDS (United Nations 2016). To maintain this trend, psychiatric patients as a key population must be engaged more robustly. Psychiatric patients sometimes experience cognitive impairment and psychotic symptoms that hamper the planned use of precautions in sexual activity (Goodkin 2016; Sulyman et al. 2013). Thus, education on preventing HIV contraction and transmission needs to be provided continuously, and resources to facilitate safe sex need to be made available, thus working towards reducing HIV incidence and halting the spread of HIV.

## **5.6 CONTRIBUTIONS OF THE STUDY**

The study was able to establish the HIV prevalence rate among psychiatric patients in Swaziland and determine the association between demographics and HIV infection in this country, neither of which has been previously documented. In the National HIV Prevention Policy: Swaziland (Swaziland Government: Prime Minister's Office 2012), evidence-informed programming is highlighted as a critical component in the prevention response and is duly noted as a requirement for preventive measures of HIV infection. Thus, the findings of this study can be used in service planning, development and resource allocation, which are all crucial for a health system that is well equipped to fight the spread of HIV and halt new infections. The information may also be used in supporting the need for designing policies to control the disease, particularly among this

specific at-risk population group. The results also showed that psychiatric patients are affected by the HIV pandemic at a similar rate to the general population in Swaziland.

## **5.7 STRENGTHS AND LIMITATIONS OF THE STUDY**

The strengths of this study are firstly its ability to establish the prevalence of HIV infection among psychiatric patients in Swaziland and to date, no studies on HIV prevalence among this specific population group have been documented. In addition, this study was able to engage an often forgotten and marginalised population group and highlight that psychiatric patients are equally affected by the HIV pandemic.

Similar to other studies, this study has limitations. The study used secondary data and thus, the researcher had no control over how the primary data was collected. Another limitation of the study is that results from cross sectional studies are often not conclusive.

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## ANNEXURES

### Annexure 1: Data collection tool

<b>Date:</b>				<b>Unique number</b>				
<b>Data captured by:</b>								
<b>A: Demographics</b>								
	<b>Characteristic</b>	<b>Value</b>						<b>Comment</b>
1	<b>Sex</b>	Male		Female				
2	<b>Age</b>							
3	<b>Marital Status</b>	Single	Married	Divorced	Widowed	Separated	Cohabitation	
4	<b>Educational level</b>	None	Primary	High school	College	Degree		
<b>B: Social</b>								
5	<b>Residence</b>	<b>Name</b>			Urban		Rural	
6	<b>Occupation</b>							
7	<b>Employment status</b>	Employed		Unemployed		Student		
<b>C: Clinical</b>								
8	<b>Psychiatric diagnosis</b>							
9	<b>Other diagnosis</b>							
10	<b>Hospital status</b>	Inpatient	Acute		Outpatient	Acute		
			Chronic			Chronic		
11	<b>Inpatient length of hospital stay</b>	<b>Date of admission</b>		<b>Date of Discharge</b>				
<b>D: HIV</b>								
12	<b>HIV status</b>	Negative		Positive				
<b>E: OUTCOME</b>								
13	Still admitted		Transferred		Discharged		Deceased	

## Annexure 2: Ethical Clearance from Turfloop Research Ethics Committee



**University of Limpopo**  
Department of Research Administration and Development  
Private Bag X1106, Sovenga, 0727, South Africa  
Tel: (015) 268 2212, Fax: (015) 268 2306, Email:noko.monene@ul.ac.za

### TURFLOOP RESEARCH ETHICS COMMITTEE CLEARANCE CERTIFICATE

**MEETING:** 31 August 2017  
**PROJECT NUMBER:** TREC/246/2017: PG

**PROJECT:**

**Title:** Prevalance of Human Immunodeficiency Virus infection among psychiatric patients in Swaziland  
**Researcher:** J Ziki  
**Supervisor:** Dr SF Matlala  
**Co-Supervisor:** Dr TS Ntuli  
**School:** Health Care Sciences  
**Degree:** Masters in Public Health

  
**PROF. TAB MASHEGO**  
CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

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

**Note:**

- i) Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee.
- ii) The budget for the research will be considered separately from the protocol.  
PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.

*Finding solutions for Africa*

**Annexure 3: Letter for applying for ethical clearance from the National Health  
Research Review Board**

Enq : Ziki J

BOX C2298

Cell : 0026876811359

The Hub

Email : [josymagumbezi@gmail.com](mailto:josymagumbezi@gmail.com)

Manzini, Swaziland

05 October 2016

National Health Research Review Board

Box 5

Mbabane

Dear Sir/Madam

**RE: REQUEST FOR ETHICAL CLEARANCE TO CONDUCT RESEARCH STUDY**

I, Josephine Ziki, an Occupational Therapist at the National Psychiatric Referral Hospital hereby apply for ethical clearance to conduct a research study titled "Prevalence of HIV infection among psychiatric patients in Swaziland". The research study is conducted in partial fulfilment of the requirements for the attainment of a Master of Public Health at the University of Limpopo. The study will be conducted under the supervision of Dr Matlala SF. and Dr Ntuli TS. from the Department of Public Health at the University of Limpopo.

The aim of the study is to investigate the prevalence of HIV infection among psychiatric patients in Swaziland and the objectives are:

- To establish prevalence of HIV infection among psychiatric patients in Swaziland.

- To determine socio-demographic profiles of psychiatric patients with HIV in Swaziland.
- To determine association between demographic profile, diagnosis and HIV status.

For these aim and objectives to be realised, it is necessary to collect data through gathering data from psychiatric patient hospital records on patient HIV status.

Anonymity and confidentiality will be ensured by providing neither the names nor the identities of the patient records in the research project. Confidentiality will be ensured during data collection sessions so that nobody will be able to associate the provided information with participants.

The results of the study may inform service provision and undoubtedly improve health promotion, prevent diseases and enhance the lives of psychiatric patients with regards to HIV infection. In the National HIV Prevention Policy Swaziland 2012, evidence-informed programming is highlighted as a critical component in the prevention response and is duly noted as a requirement of HIV prevention measures. Determining the prevalence of HIV in psychiatric patients may have a significant role in designing strategies to control the disease, particularly among this specific at-risk population group. This may assist in the fight against HIV pandemic and work towards eliminating new infections of the HIV epidemic in the country and potentially other countries or regions. Additionally, the study will also contribute to the knowledge base.

A summary of the research findings will be made available. Should any further clarity or explanation be required with regard to this research study, please feel free to contact me.

Thanking you in advance.

Yours sincerely

Josephine Ziki (Research student)

## Annexure 4: NHRRB ethical clearance



### Research Protocol clearance certificate

Type of review	Expedited	<input checked="" type="checkbox"/>		Full Board	<input type="checkbox"/>	<input type="checkbox"/>
Name of Organization	STUDENT					
Title of study	PREVALENCE OF IMMUNODIFICIENCY VIRUS INFECTION AMONG PSYCHIATRIC PATIENTS IN SWAZILAND					
Protocol version	1.0					
Nature of protocol	New	<input checked="" type="checkbox"/>		Amendment	<input type="checkbox"/>	<input type="checkbox"/>
List of study sites	NATIONAL PSYCHIATRIC REFERRAL HOSPITAL, MANZINI					
Name of Principal Investigator	JOSEPHINE ZIKI					
Names of Co- Investigators	N/A					
Names of steering committee members in the case of clinical trials	N/A					
Names of Data and Safety Committee members in the case of clinical trials	N/A					
Level of risk (Tick appropriate box)	Minimal	<input checked="" type="checkbox"/>		High	<input type="checkbox"/>	<input type="checkbox"/>
Clearance status (Tick appropriate box)	Approved	<input checked="" type="checkbox"/>		Disapproved	<input type="checkbox"/>	<input type="checkbox"/>
Clearance validity period	Start date	14/11/2017		End date	14/11/2018	
Signature of Chairperson						
Date of signing	15/11/2017					
Secretariat Contact Details	Name of contact officers	Ms Simangele Maseko				
	Email address	<a href="mailto:kaluamasl@gmail.com">kaluamasl@gmail.com</a>				
	Telephone no.	(00268) 24040865/24044905				



**Annexure 5: Letter requesting permission from the Ministry of Health Swaziland to conduct the study**

Enq : Ziki J

BOX C2298

Cell : 0026876811359

The Hub

Email : [josymagumbezi@gmail.com](mailto:josymagumbezi@gmail.com)

Manzini, Swaziland

05 October 2016

Director of Health Services  
Ministry of Health Swaziland

Box 5

Mbabane

Dear Sir/Madam

**RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH STUDY**

I, Josephine Ziki, an Occupational Therapist at the National Psychiatric Referral Hospital hereby request permission to conduct a research study titled “Prevalence of HIV infection among psychiatric patients in Swaziland”. The research study is conducted as part of the requirements for the attainment of a Master of Public Health at the University of Limpopo. The study will be conducted under the supervision of Dr Matlala SF. and Dr Ntuli TS. from the Department of Public Health at the University of Limpopo.

The aim of the study is to investigate the prevalence of HIV infection among psychiatric patients in Swaziland and the objectives are:

- To establish prevalence of HIV infection among psychiatric patients in Swaziland.

- To determine socio-demographic profiles of psychiatric patients with HIV in Swaziland.
- To determine association between demographic profile, diagnosis and HIV status.

For these aim and objectives to be realised, it is necessary to collect data through gathering data from psychiatric patient records on patient HIV status.

Anonymity and confidentiality will be ensured by providing neither the names nor the identities of the patient records in the research project. Confidentiality will be ensured during data collection sessions so that nobody will be able to associate the provided information with participants.

The results of the study may inform service provision and undoubtedly improve health promotion, prevent diseases and enhance the lives of psychiatric patients with regards to HIV infection. In the National HIV Prevention Policy Swaziland 2012, evidence-informed programming is highlighted as a critical component in the prevention response and is duly noted as a requirement of HIV prevention measures. Determining the prevalence of HIV in psychiatric patients may have a significant role in designing strategies to control the disease, particularly among this specific at-risk population group. This may assist in the fight against HIV pandemic and work towards eliminating new infections of the HIV epidemic in the country and potentially other countries or regions. Additionally, the study will also contribute to the knowledge base. The research will therefore commence as soon as permission is granted.

A summary of the research findings will be made available. Should any further clarity or explanation be required with regard to this research study, please feel free to contact me.

Thanking you in advance.

Yours sincerely

Josephine Ziki (Research student)

**Annexure 6: Letter requesting permission from the National Psychiatric Referral Hospital to conduct the study**

Enq : Ziki J

BOX C2298

Cell : 0026876297448

The Hub

Email : [josymagumbezi@gmail.com](mailto:josymagumbezi@gmail.com)

Manzini, Swaziland

05 October 2016

The Management

National Psychiatric Referral Hospital

Box 24

Manzini

Dear Sir/Madam

**RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH STUDY**

I, Josephine Ziki, Occupational Therapist, do hereby request for permission to conduct a research study titled "Prevalence of HIV infection among psychiatric patients in Swaziland" at the National Psychiatric Referral Hospital. The research study is undertaken in fulfilment of the requirements for the attainment of a Master of Public Health degree at the University of Limpopo. The study will be conducted under the supervision of Dr Matlala SF. and Dr Ntuli TS. from the Department of Public Health at the University of Limpopo.

The aim of the study is to investigate the prevalence of HIV infection among psychiatric patients in Swaziland and the objectives are:

- To establish prevalence of HIV among psychiatric patients in Swaziland.
- To determine socio-demographic profiles of psychiatric patients with HIV in Swaziland.

- To determine association between demographic profile, diagnosis and HIV status.

For these aim and objectives to be realised, it is necessary to collect data through gathering data from psychiatric patient hospital records on patient HIV status and socio-demographic characteristics.

Anonymity and confidentiality will be ensured by providing neither the names nor the identities of the patient records in the research project. Confidentiality will be ensured during data collection sessions by not recording identifying patient details on the data collection tool or anywhere.

The results of the study may inform service provision and undoubtedly improve health promotion, prevent diseases and enhance the lives of psychiatric patients with regards to HIV infection. In the National HIV Prevention Policy Swaziland 2012, evidence-informed programming is highlighted as a critical component in the prevention response and is duly noted as a requirement of HIV infection prevention measures. Determining the prevalence of HIV in psychiatric patients may have a significant role in designing strategies to control the disease, particularly among this specific at-risk population group. This may assist in the fight against HIV pandemic and work towards eliminating new infections of the HIV epidemic in the country and potentially other countries or regions. Additionally, the study will also contribute to the knowledge base. The research will therefore commence as soon as permission is granted.

A summary of the research findings will be made available. Should any further clarity or explanation be required with regard to this research study, please feel free to contact me.

Thanking you in advance.

Yours sincerely

Josephine Ziki (Research student)

## Annexure 7: Permission letter from NPRH

Telegrams:  
Telex:  
Telephone: (+268 -5055170)  
Fax: (+268-5057032)



P.O. BOX 424  
MANZINI  
SWAZILAND

### NATIONAL PSYCHIATRIC HOSPITAL

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12 September 2017

Josephine Ziki  
Box C2298  
The Hub  
Manzini

Dear Josephine

**RE: PERMISSION TO CONDUCT RESEARCH STUDY AT THE NPRH**

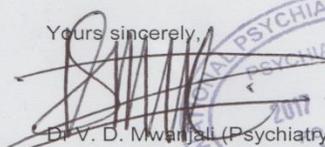
The above caption refers.

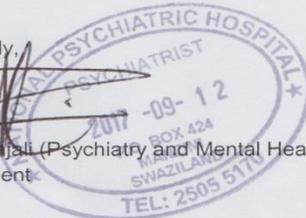
I acknowledge receipt your letter for application for permission to conduct a research study at the National Psychiatric Referral Hospital entitled "Prevalence of HIV infection among psychiatric patients in Swaziland", using patient hospital records.

Permission to carry out the research at the hospital using patient hospital records is hereby granted. It is expected of you to adhere to high ethical standards, ensuring confidentiality and anonymity.

The hospital is glad to participate in this study and contribute to this research. We look forward to hearing the results of the study.

Yours sincerely,

  
Dr. V. D. Mwanjali (Psychiatry and Mental Health Specialist)  
For Management



## Annexure 8: Letter from editor



30 ACTON AVENUE  
HELENA HEIGHTS  
SOMERSET WEST  
7130

PHONE: 021 8552099  
searle.edit@gmail.com

7 March 2018

To whom it may concern:

This serves to certify that I, Lydia Searle, performed the copy edit on the document entitled "PREVALENCE OF HUMAN IMMUNODEFICIENCY VIRUS INFECTION AMONG PSYCHIATRIC PATIENTS IN SWAZILAND". The document was received 27 February 2018. The edited document was returned 7 March 2018. Citation format and language, grammar, punctuation and layout issues were addressed according to the style required by the University of Limpopo using MSWord Review (Track Changes) function. The reference list and annexures were not included in the edit.

I am not accountable for any changes made to this document by the author or any other party subsequent to my edit.

Yours faithfully,

Lydia Searle

Member: Professional Editors' Guild RSA (PEG)

Member: Academic and Non-Fiction Authors' Association of South Africa (ANFASA)