PREVALENCE OF SUBSTANCE USE AMONG PATIENTS WITH MENTAL ILLNESS AT MANKWENG HOSPITAL, LIMPOPO PROVINCE

BY

MOTSEI MELFORD MOLOTO

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SUPERVISOR: DR M E MAFONA

CO-SUPERVISOR: DR PJ MOKOENA-MOLEPO

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DEDICATION

This study is dedicated to my lovely wife, Mapheko, and my beautiful daughters, Naledi Matlou and Basetsana. I appreciate the support they gave me throughout this work. It was not an easy time for them. I am grateful.

DECLARATION

I, Motsei Melford Moloto, hereby declare that this mini dissertation is my own work. The mini dissertation is submitted to the University of Limpopo for the degree of Master of Medicine in Psychiatry. I hereby declare that this work has not previously been submitted by me for any degree at this or any other university, and that all materials contained in this mini dissertation have been duly acknowledged.

---------- September 2023

Signature

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- The Mankweng Hospital Acting Chief Executive Officer for giving me permission to carry out this study.

ABSTRACT

Background: Substance use among mentally ill patients remains a major public health concern worldwide. In recent years there has been growing awareness that patients with mental illness have a higher risk of developing substance use than the general population. Substance use among these individuals often compromises the therapeutic effects of medications, leading to multiple relapses, hospital admissions, poor quality of life and an increased burden of care on limited state resources

Aim: To determine the prevalence of substance use with its associated factors among patients with mental illness admitted to Mankweng Hospital, Limpopo Province.

Method: A retrospective, quantitative and descriptive study has been conducted. This study is a clinical record review of patients admitted to Mankweng Hospital from June 1, 2016, to May 31, 2017. Data collection was carried out over a period of one month (October 2019) by the researcher. A structured data collection tool was used to collect the data. Data was analysed using the Statistical Package for Social Sciences (SPSS version 22). Frequencies, percentage and mean and standard deviation were used to interpret the data. For continuous and categorical variables, student t-test and Pearson Chi-square were used to test for associations between substance use and different mental disorders. A P-value of less than 0.05 was considered statistically significant.

Results: Two hundred and ten psychiatric patients participated in this study. Of these, most (66%) were male and only 34% were female. The most common mental disorders were schizophrenia (25%), substance induced psychotic disorder (19%), bipolar disorder (18%), schizoaffective disorder (13%) and psychotic disorder due to another medical condition (8%). Slightly more than half (53%) (n=112) of the patients had a history of substance use. More non-Christians, than Christians, used substances (69% versus 44%, $p<0.05$). Seventy-five percent of males and 11% females had a history of using substances of abuse. There was no statistically significant association between age,

marital status, employment status, level of education and use of the substances ($p>0.05$).

Conclusion: There was a significantly high prevalence of substance use among the male gender. This study shows a higher prevalence of substance use among individuals diagnosed with substance induced psychotic disorders than other disorders. The findings of this study correlate with many studies, both globally and locally. The differences lie in the exact percentages; however, the high prevalence is a common factor. Patients with mental illness need to be actively screened for substance use; early intervention for co-morbid substance use will help reduce morbidity.

Key words: substance use, mental illness/disorder, comorbidity, prevalence.

ABBREVIATIONS

DUP	Duration of Untreated Psychosis
DSM 5	Diagnostic and Statistical Manual of Mental Disorders, 5th Edition
ID	Intellectual Disability
TREC	Turfloop Research and Ethics Committee
WHO	World Health Organization
SPSS	Statistical Package for the Social Sciences
APA	American Psychiatric Association
MHCA	Mental Health Care Act 17 of 2002

DEFINITION OF KEY CONCEPTS

Mental illness is a syndrome characterised by clinically significant disturbance in an individual's cognition, emotion regulation or behaviour that reflects a dysfunction in the psychological, biological or developmental processes underlying mental function (Kupfer, Regier, Narrow *et a*l.,2013). In this study, mental illness and mental disorder are used interchangeably.

Mental disorder is illness or disease whose manifestations are characterised primarily by behavioural or psychological impairment of function. It is measured in terms of deviation from some normative concept, associated with distress or disease, not just an expected response to a particular event nor is it limited to relations between a person and society (Sadock, Sadock & Ruiz, 2014).

Substance use is the use of any substance of abuse including use disorder which is a cluster of cognitive, behavioural and physiological symptoms indicating that the individual continues using the substance despite significant substance-related problems (Sadock, Sadock & Ruiz, 2014). In this research, it refers to the use and abuse of alcohol or any illicit substance.

Psychiatric patient is a person receiving care, treatment and rehabilitation services or using a health service at a health establishment aimed at enhancing the mental health status of that person. In terms of the Mental Health Care Act no 17 0f 2002, a psychiatric patient is referred to as a Mental Health Care User. In this study, the terms psychiatric patient and MHCU are used interchangeably.

Prevalence is the proportion of individuals who have a disease or disorder at a specific point or period (Burns &, Roos, 2016). This study focuses on period prevalence, the proportion of a population that has the condition at some time during a given period (e.g., 12-month prevalence); it includes people who already have the condition at the start of the study period as well as those who acquire it during that period.

Formula (prevalence):

Period prevalence (ratio) = Number of cases that existed in a given period ÷ Number of people in the population during this period

Comorbidity is the co - occurrence of two or more disorders or diseases (Sadock, Sadock & Ruiz, 2014). In this study comorbidity refers to the combination of a substance use and another mental or physical disorder.

Adolescence refers to the period of human growth that occurs between childhood and adulthood. In this study, adolescence is categorised. It begins at around age 10 and ends around age 21 according to World Health Organization (WHO) and South African National Health Act, act 61 of 2003. This study focuses on late adolescence defined as from age 15 to 21 by the World Health Organization.

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CHAPTER 1

INTRODUCTION, BACKGROUND AND ORIENTATION TO THE STUDY

1.1 Introduction

Substance use among mentally ill patients remains a major public health concern worldwide (Whiteford, Degenhardt, Rehm, Baxter, Ferrari *et al*., 2013; Whiteford, Ferrari, Degenhardt, Feigin & Vos, 2015). In recent years, there has been a growing awareness that patients with mental illness have a higher risk of developing substance use than the general population (Lev-Ran, Le Foll, McKenzie, George & Rehm, 2013; Hartz, Pato, Medeiros, Cavazos-Rehg, Sobell *et al*., 2014; Davis, Tomita, Baumgartner, Mtshemla, Nene *et al*., 2016).

The high rate of co-occurrence of substance use and other psychiatric disorders is demonstrated in a number of studies (Hartz *et al.*, 2014; Weich & Pienaar, 2009). Substance use among individuals with mental illness often compromises the therapeutic effects of medications, leading to multiple relapses, hospital admissions and poor quality of life (Toftdahl, Nordentoft & Hjortho, 2016). Socio-environmental factors like stress, poverty and unemployment may be other factors that increase the risk of comorbidity (Lehman & Dixon, 2016).

Better understanding of the connection between substance use and mental illness could have a significant impact on both the prevention and treatment of the dual diagnosis. The higher vulnerability to substance use among mentally ill patients presents many problems to clinicians treating them. Patients often give false information about substance use and this may create diagnostic dilemmas (Toftdahl, Nordentoft & Hjortho, 2016).

1.2. Background of the study

The presence of comorbid substance use poses a great challenge in the treatment of patients with mental disorders. Comorbid substance use with mental illness is associated with more severe psychotic and depressive symptoms, more recurrent hospitalisations, and poor response to treatment (Davis *et al.*, 2016; Nesvag, Knudsen, Bakken, Høye, Ystrom *et a*l., 2015). There are four hypothesised models that account

for the high prevalence of substance use among mentally ill patients. Firstly, the secondary substance abuse model, secondly, the secondary psychiatric disorder model, the third and fourth models are the common factor model and the bidirectional model. The secondary substance abuse model suggests that the onset of chronic and severe mental illness leads to substance use in many patients. Patients with mental illness experience high levels of frustration, apathy, anxiety, negative feelings and depression which may make them prone to use substances of abuse to escape these feelings (Lehman & Dixon, 2016).

A South African study of adolescents presenting with psychotic disorders and co-morbid substance use reports high prevalence rates of substance use, with 76% using cannabis, 45% alcohol, 47% methamphetamine, 15% methaqualone and 17% using other drugs (Lachman, Nassen, Hawkridge & Emsley, 2012). Substances like cannabis, alcohol and illicit drugs were found to have a negative impact on brain development during adolescence, leading to an increase in mental health conditions (Taukoor, Paruk, Karim & Burn, 2017).

Despite many epidemiological studies showing the increased comorbidity of substance use and mental illness, these studies were never conducted in Limpopo province. An understanding of the prevalence of substance use in our population is essential to help recognise these comorbidities. The implications of comorbidity are significant and raise important questions that are unlikely to have simple answers. The most important questions to be answered are as follows: Why do substance use and other mental disorders so often co-occur? Do different psychiatric disorders have differing relationships with various substances of abuse? To address these, a study to assess the prevalence of substance use among patients with mental illness and associated factors is proposed.

1.3 Problem statement

The co-morbid substance use among hospitalised mentally ill patients has emerged as a major public health problem in developing countries (Weich & Pienaar, 2009; Sepehrmanesh, Ahmadvand & Moraveji, 2014) and is associated with problematic

behaviour, criminal offences and poor treatment outcomes (Hartz *et al.,* 2014; Davis *et al.*, 2016).

In Limpopo, a rural province in South Africa, there is scarce information about mental health issues and little is known about the epidemiology of substance use among mentally ill patients admitted to the Mankweng Hospital psychiatric unit under the provisions of Mental Health Care Act 17 of 2002 (MHCA). On average, the unit admits 25-35 patients per month and approximately 400 per year according to information obtained from a clerk in the hospital administration offices(personal communication with the hospital information officer).Understanding the connection between substance use and mental illness in this setting could have a significant effect on both the prevention and treatment of any dual diagnosis of substance use and mental illness.

1.4 Significance of the study

To assess the prevalence of substance use among mentally ill patients in the Limpopo province, the researcher chose to conduct this study, anticipating an outcome that would be of importance to the Limpopo Department of Health for it to realise the urgent need for substance misuse programmes for at-risk individuals and to introduce dual diagnosis intervention programmes for individuals with both mental illness and substance use. This study could benefit the whole community of the Limpopo province by ensuring the implementation of the Prevention of and Treatment for Substance Abuse Act (Act No. 70 of 2008).

The above-mentioned Act regulates and promotes programmes that give effect to the prevention of substance abuse and discourage the experimental use of substances so that they do not lead to abuse/use disorder. It promotes the assessment of the prevalence of substance abuse in the community, the education of individuals and raising awareness about the dangers of substances of abuse, building capacity of persons likely to be affected, like the mentally ill. Furthermore, the Act identifies specific groups, like people with disabilities, to be targeted for prevention. Moreover, this study may open an opportunity for more substance-related issues to be explored through further studies.

1.5 Research Questions

The following research questions are considered in the current study:

- What is the prevalence of substance use among mentally ill patients admitted to Mankweng Hospital?
- What is the association between substance use and different mental disorders among mentally ill patients admitted during the study period?
- What is the association between substance use and the socio-demographic factors of patients admitted to Mankweng Hospital?

1.6 Aim of the study

The study aims to determine the prevalence of substance use among patients with mental illness admitted to Mankweng Hospital, Limpopo Province.

1.7 Research Objectives

The objectives of this study are:

- To describe the prevalence of substance use among the mentally ill treated at Mankweng Hospital;
- To assess the association between substance use and different mental disorders among the mentally ill admitted during the study period;
- To assess the relationship between substance use and socio-demographic factors of patients treated in the psychiatric unit, Mankweng Hospital.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter discusses relevant literature reviewed, using a variety of sources such as scholarly journals, internet search engines and books. To develop a strategic plan for the prevention of mental illness and the care of psychiatric patients, it is important to determine the prevalence and factors associated with substance use among hospitalised psychiatric patients. Substance use comorbidity with mental illness causes many problems including increased severity of illness, legal problems, decreased medication adherence, higher relapse rates and more hospitalisations (Conway, Swendsen, Husky, Jian-Ping & Merikangas, 2016).

2.2 Prevalence of substance use among mentally ill patients

There is growing concern nationally and internationally about the high prevalence of co-occurrence of substance use and mental disorders (Hartz *et al*., 2014). Different studies reveal a great variation in terms of the prevalence of substance use. A cross-sectional study among 210 hospitalised mentally ill patients in Iran reports a prevalence of substance use of 36.7% (Sepehrmanesh, Ahmadvand & Moraveji, 2014). Similarly, Weich and Pienaar (2009), in their study conducted in South Africa, found a co-morbidity of substance use of 51% among mentally ill patients. Another study in South Africa conducted in three large state mental health hospitals reported a prevalence of 77.8% lifetime use of drugs (Botha *et al.,* 2010).

A multicentre study, conducted in five different countries, found that 19% of the patients with mental illness had a history of substance use (Frasch *et al.,* 2013). A study conducted among patients who relapsed and had been re-admitted to a Neuro-Psychiatric Hospital in Lagos, Nigeria, found a prevalence of 25.5% for all substances (Gbiri, Badru, Ladapo & Gbiri, 2011). In a study conducted in Sri Lanka, the prevalence of substance use disorders among mentally ill patients was 43% (Hapangama, Kuruppuarachchi & Pathmeswaran, 2013).

A United States study, to compare substance use in individuals with schizoaffective disorder, schizophrenia, bipolar disorders with psychotic features and the general population, reveals that individuals with these severe mental illnesses have an higher risk of smoking, heavy alcohol use and heavy marijuana and recreational drug use than the general population. All races and sexes in this group of individuals have a significantly elevated risk for substance use (Harts *et al.*, 2014). More patients with mental illness tend to misuse substances than in the general population; this has been found in many studies (Lev-Ran, Le Foll, McKenzie, George & Rehm, 2013; Hartz *et al*., 2014; Davis *et al*., 2016).

2.3 Types of substance used by mentally ill patients

The South African Stress and Health (SASH) Survey (2004) found that alcohol (38,7%), tobacco smoking (30%) and cannabis (8,4%) were the most common substances used (Van Heerden, Grimsrud, Seedat, Myer, Williams *et al.*, 2006). Davis *et al*., report the following percentages of the most commonly used substances: alcohol (81.6%), tobacco (75.6%) and cannabis (49.4%) (Davis *et al.*, 2016). A study conducted to investigate the clinical correspondence of cannabis use in adolescents in Durban, South Africa, comparing cannabis users and non-users reveals that the cannabis users present at a younger age and with significantly longer duration in adolescents with pre-diagnosis symptoms (Paruk, Burns & Caplan, 2013).

In a study conducted in Norway to compare the prevalence and pattern of comorbid substance use disorders between patients with schizophrenia, bipolar disorder and depressive illness, middle-aged men with bipolar disorder had the highest prevalence of alcohol use disorder and young men with schizophrenia had the highest prevalence of non-alcohol drug use disorder, all except sedative use disorders were more prevalent in patients with schizophrenia than in other groups. Cannabis use disorder was found among 8.8 % of men with schizophrenia (Nesvag *et al.*, 2015). The South African Stress and Health study reveals a similar cumulative incidence of tobacco, alcohol and cannabis use across age cohorts ((Van Heerden *et al.*, 2009).

2.4 Factors associated with substance use among mentally ill patients

Many factors have been found to be associated with substance use among psychiatric patients; these include socio-demographic factors and specific mental disorders.

Socio-demographic factors

Several studies have reported that patients with comorbid substance use and mental disorders were younger than those without any history of substance use (Weich & Pienaar, 2009; Taukoor, Paruk, Karim & Burn, 2017). In addition, one study found that substance use was also associated with being unmarried and a lack of education (Davis *et al.,* 2016). There is evidence that greater religious involvement, such as organisational or non-organisational religiosity and some religious affiliations are associated with less use of alcohol, nicotine and illicit drugs (Lucchetti, Granero Lucchetti, 2014).

A study in Thailand found that being male, young, having a low level of education, being unemployed and being diagnosed with schizophrenia were high-risk factors associated excessive substance use (Tantirangsee & Assanangkornchai, 2015). Patients who had a co-occurrence of substance use (SU) with mental illness were mostly male with a lower educational level, unemployed and lacked social support (Hapangama, Kuruppuarachchi & Pathmeswaran, 2013). Elderly patients with mental illness run the risk of poor health outcomes in many areas with heavier alcohol use (Blow, 2014). Results from the South African Stress and Health study to determine the patterns of substance use in South Africa reveal that there are statistically significant associations between being male and substance use (Saban *et al.,* 2014). Moreover, it was found that coloured and white people were more likely than black people to use alcohol, tobacco and other illicit drugs (Van Heerden *et al*., 2009).

Clinical Factors

Mentally ill adolescents are at greater risk of SU, and those who are psychotic may be at an even higher risk (Paruk *et al*., 2018; Hollen & Ortiz, 2015). Individuals with severe

mental illness die approximately 25 years earlier than the general population and the cause of this early death is largely due to medical illness that can be associated with excessive substance use (Crump, Winkleby, Sundquist & Sundquist, 2013). Moreover, suicide and injury are more common among patients with chronic mental illness; about 60% of premature deaths in patients with schizophrenia are due to medical conditions caused by modifiable risk factors such as smoking, alcohol use and other drug use or abuse (Crump *et al.,* 2013).

The South African Stress and Health (SASH) Survey indicates significant associations between substance use, mood and anxiety disorders, with a particularly strong relationship between cannabis use and mental disorder. The results reinforce the argument that comorbid substance use and mental disorders constitute a major public health burden (Saban *et al.,* 2014).

Other studies indicate that substance use among mentally ill is commonly associated with severe mental illnesses like psychotic disorders and bipolar disorders (Paruk *et al*., 2009). Patients with co-occurring disorders tend to have a more severe course of illness, severe health and social consequences and problems in treatment outcomes than clients with a single disorder. It has been found that separate treatments for both substance use/abuse and other psychiatric disorders are effective in reducing substance use and in improving behavioural, familial and psychosocial outcomes (Morisano, Babor & Robaina, 2014).

A study to determine the prevalence and impact of substance use among adolescents in transition to adulthood with serious mental health conditions, as well as predictors and consequences of substance use in this population, reveals evidence that substance use and related problems may be more prevalent among emerging adults with serious mental health conditions than those without these conditions (Sheidow, McCart, Zajac & Davis, 2012).

American Indians and Alaskan Natives were found to have high rates of substance use and mental illness associated with nicotine dependence (Moghaddam, Dickerson, Yoon & Westermeyer, 2014). Prior history of mental illness has also been shown to be a risk factor for substance use and misuse (Conway *et al.,* 2016).

A study in Denmark focusing on SU among individuals with severe mental disorders found that SU was associated with at least a threefold elevated risk of completed suicide and suicide attempts compared with mentally ill individuals having no SU (Østergaard, Nordentoft & Hjorthøj, 2017). Moreover, mental illness on its own, without substance use, is already regarded as a risk factor for suicide. SU is further significant risk factor.

2.5 Reasons for substance use

Many studies have common findings that patients with mental illness have a high prevalence of substance abuse (Whiteford *et al*., 2013; Lev-Ran *et al*., 2013; Hartz *et al.,* 2014; Davis *et al*., 2016). In Australia, a study indicates that tobacco and alcohol were primarily used to cope, while cannabis was used for pleasure. In addition, people with psychotic disorders were more likely than people with depression to use tobacco for coping and for pleasure (Thornton, Baker, Lewin, Kay-Lambkin, Kavanagh *et al*., 2012).

Furthermore, mentally ill people typically lack social outlets to a greater extent than the general population or people without mental illness. However, most substance abuse occurs in social settings. Using or abusing substances with others may be a convenient way of meeting social needs. Moreover, substance abusers generally tend to have higher tolerance for the odd behaviours of their fellows in social settings. Mentally ill patients with comorbid SU tend to gain acceptance of their illness in social groups of substance/drug abusers. These patients also tend to have fewer opportunities for fulfilment and pleasure. The use of substances may give them an easy and quick solution to these needs (Lehman *et al.,* 2016). Higher exposure to opportunities to obtain substances among people with mental illness may further contribute to the co-morbidity of SU and mental illness (Liang, Lenton, Allsop & Chikritzhs, 2011).

2.6 Summary of literature review

Studies, locally and globally, indicate that the prevalence of substance use or abuse among mentally ill is significantly high. It is commonly associated with severe mental illnesses (Hartz *et al.,* 2014; Paruk *et al.,* 2009). Patients with mental disorders and comorbid substance use tend to experience a more severe course of illness, severe

social consequences and greater problems in treatment outcomes than patients with mental illness alone. Moreover, there are psychosocial factors and certain psychiatric disorders that are found to be closely related with substances of abuse (Morisano, Babor, Robaina, 2014).

CHAPTER 3
RESEARCH METHODOLOGY

3.1. Introduction

This chapter outlines the methodology of the study. It describes the study design, study setting, study population, inclusion and exclusion criteria, sampling procedure and sample size, data collection and analysis, validity, reliability, bias and ethical considerations.

3.2 Study design

This is a retrospective, quantitative and descriptive study. It is a study that explains the phenomena according to numerical data and uses the data collected and analysed to describe the subject under discussion (Gelo, Braakmann & Benetka, 2008; Swarts, De la Rey, Duncan, Townsend & Neil, 2016). The study uses the records of psychiatric patients admitted to Mankweng Hospital from June 1, 2016 to May 31, 2017.

3.3 Study setting

NB: See the map below:

Figure 1: Mankweng Hospital and patient catchment areas

The study is conducted in a psychiatric ward at the Mankweng Hospital which is situated in the Capricorn District of the Limpopo Province, in South Africa. The hospital admits adults and late adolescents with mental illness according to the admissions' categories of the Mental Health Care Act (MHCA No 17 of 2002). The patients were referred from health facilities in other parts of the province. On average, the unit admits 25-35 patients per month and approximately 400 per year. Information about the number of admissions per month was obtained from a clerk in the hospital administration offices. A hard copy

of admission statistics was provided. Four hundred and twenty-three patients were admitted during the study period according to the admission statistics

3.4 Study population:

A study population is a large collection of individuals or objects which is the main focus of a scientific query (Swarts *et al*., 2016). The current study population comprises all four hundred and twenty-three patients admitted to the psychiatric ward at Mankweng Hospital during the study period.

Inclusion criteria are made up of:

- The clinical records of all the adult patients aged 15 to 65 who were admitted to the psychiatric ward during the study period. These patients' records were included regardless of whether it was the patient's index episode or a recurrent episode.
- Male and female patients meeting eligibility criteria were included. The clinical diagnosis of a mental disorder as per DSM 5 (Kupfer *et al.,* 2013) had to be present for patients to be included in the study.

Exclusion criteria

- The clinical records of the patients who did not have a DSM 5 (Kupfer *et al*., 2013) psychiatric diagnosis.
- Patient records with incomplete recording of data or missing charts were excluded.

3.5 Sampling procedure and sampling size

Sampling is the process of selecting participants from a group or population to become the foundation for estimating and predicting the outcome of the population as well as for detecting any unknown piece of information (Gelo *et al.,* 2008; Swarts *et al.,* 2016). A sample is the sub-unit of the population involved in research (Gelo *et al*., 2008; Swarts *et al.,* 2016). A minimum sample size of 206 (approximated to 210) was required for this study. This was calculated based on the number of patients (n=423) admitted to the psychiatric ward of the Mankweng Hospital, as explained under the study setting above, and a sampling error of 5%.

Systematic sampling method was used whereby every second patients' file record was chosen for patients admitted during the study period. Patient records were allocated numbers according to the date of admission and put under lock and key in a cabinet. The formula below was used to calculate the sample size for the study (Morgan & Krejcie, 1970):

$$= \frac{}{1 + \quad ^2}$$

Where

- n is the sample size
- N is the population size of psychiatric patients admitted to Mankweng Hospital
- e is the sampling error (5%)

$$= \frac{423}{1 + \ 423(0.05)^2}$$

$$= 206$$

3.6 Data collection and analysis

Data collection procedure

Data was collected over a period of one month (October 2019) by the researcher. A structured data collection tool was used to collect the data (see Annexure 1). The tool was developed based on the study by Taukoor *et al* (Taukoor *et al.,* 2017).

The tool comprises sections A and B. Section A consists of the demographic data of the psychiatric patients, such as age, gender, race, marital status, highest level of education, place of residence and occupation/employment.

Section B is comprised of a list of psychiatric diagnoses according to the DSM 5 (Kupfer *et al.,* 2013). Their disorders, past psychiatric history, history of substance use, list of substances of abuse and how information about substances was obtained. Data was collected from the Mankweng hospital psychiatry ward, using patients' records from 1 June 2016 to 31 May 2017.

Data analysis

Data was analysed using the Statistical Package for Social Sciences (SPSS version 22). Descriptive statistics, in the form of frequencies, percentages and mean and standard deviation were used to interpret the data. For continuous and categorical variables, the student t-test and Pearson Chi-square were used to test for associations between substance use and different mental disorders. A P-value of less than 0.05 was considered statistically significant.

3.7 Reliability, validity and bias

Reliability

Reliability is the accuracy and consistency, reproducibility and stability of the measuring instrument each time it is used under similar circumstances (Swarts *et al*., 2016). Reliability in this study was assured by using a structured data collection tool derived from a study carried out in Durban, South Africa, to determine the prevalence of, and associated risk factors for, substance use in adolescents with mental illness attending a mental health service (Taukoor *et al.,* 2017).The structured data collection tool was checked by the statistician and consultants and the Head of the Department of Psychiatry.

Validity

Validity is the extent to which a measurement instrument actually measures what it is meant to measure (Swarts *et al*., 2016). More formally, it can be defined as being the most accurate approximation of the truth or falsity of a given inference, proposition or conclusion. The data collection tool showed high intrinsic validity as the items in the tool evaluated the designated trait and, by implication, rendered accuracy to findings.

Bias

Bias is the undetected influences, that may occur at any stage of the research process, that may alter or conceal the relationships between variables (Swarts *et al.,* 2016). It is any deviation from the truth in data collection, data analysis, interpretation and publication which may lead to false conclusions (Swarts *et al.*, 2016). In this study, information bias could have been encountered since patients may deliberately give

wrong information about their usage of substances of abuse and health professionals might not have asked about other substances of abuse that are not known to cause mental illness.

3.8. Ethical Considerations

Ethical clearance

Ethical approval was obtained from the Turfloop Research Ethics Committee (TREC) before data was collected. The project number is TREC/185/2019: PG (Annexure 2). Permission to conduct the study was obtained from the Limpopo Provincial Department of Health Research Committee, approval number LP-201908-016 (Annexure 3). Further permission was obtained from the Mankweng Hospital Chief Executive Officer (Annexure 4), in order to access the clinical records.

Confidentiality

Patients' files were traced from the hospital records using file numbers. Participants' information was accessed by the researcher only and details of the participants were not discussed with anyone. All participant records/ files were kept under lock and key by the researcher.

Anonymity

The study does not include the names of the participants to ensure confidentiality, anonymity and privacy. Participant records/ files have been given specific numbers/ identifiers. Moreover, data collection sheets do not have patients' names, but their allocated numbers.

CHAPTER 4

PRESENTATION AND INTERPRETATION OF THE FINDINGS

4.1 Introduction

In the previous chapter, the methodology used for the study is outlined. In this chapter, the results of the study are presented and interpreted. The main objective of this study is to determine the prevalence of substance use among patients with mental illness at the Mankweng Hospital. The chapter is divided into the following subsections: (1) demographic information of the participants, (2) prevalence of substance use among the mentally ill patients, (3) relationship between substance use and socio-demographic factors and (4) association between substance use and different mental disorders.

4.2 Demographic information of the participants

Two hundred and ten psychiatric patients participated in this study. Of these, most (66%) were male and only 34% were female.

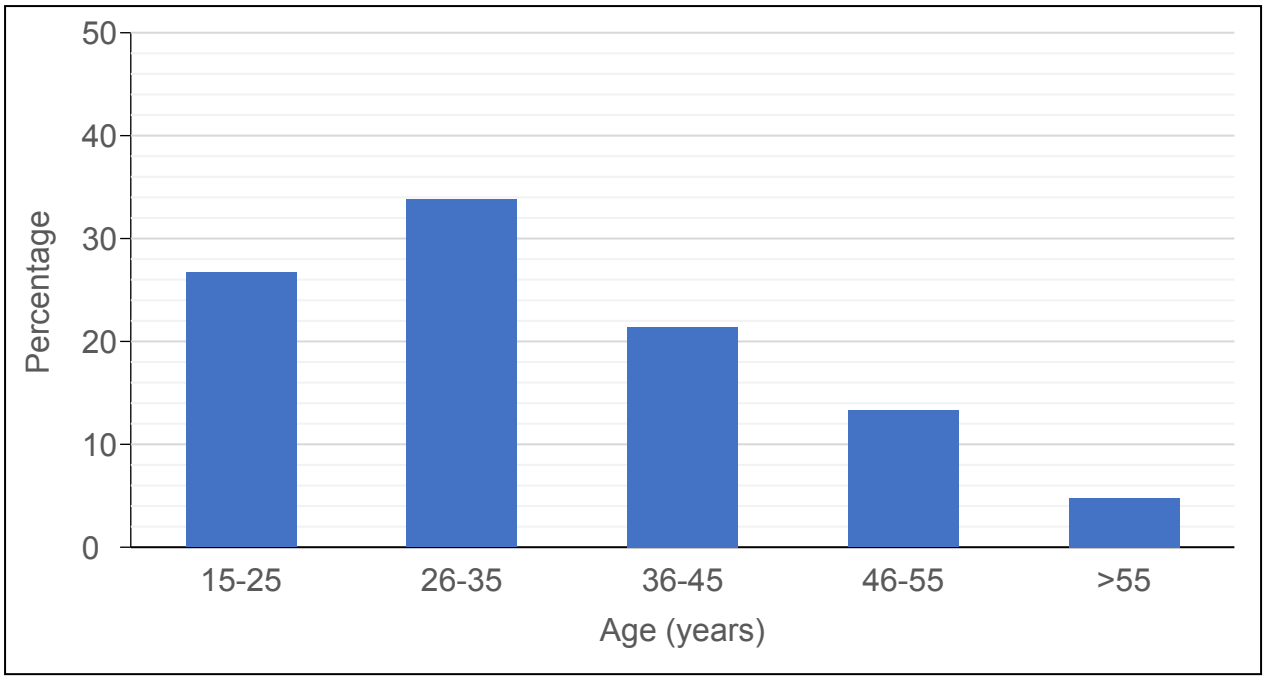

Figure 2: Distribution by age (years)

Figure 2 illustrates the age distribution of the participants. More than a quarter (34%) of the patients were in the age group 26-35, followed by those aged 15-25 (27%). A greater proportion 99% (n=208) of the respondents were African, 90% (n=189) were unemployed and 64% (n=135) were Christian.

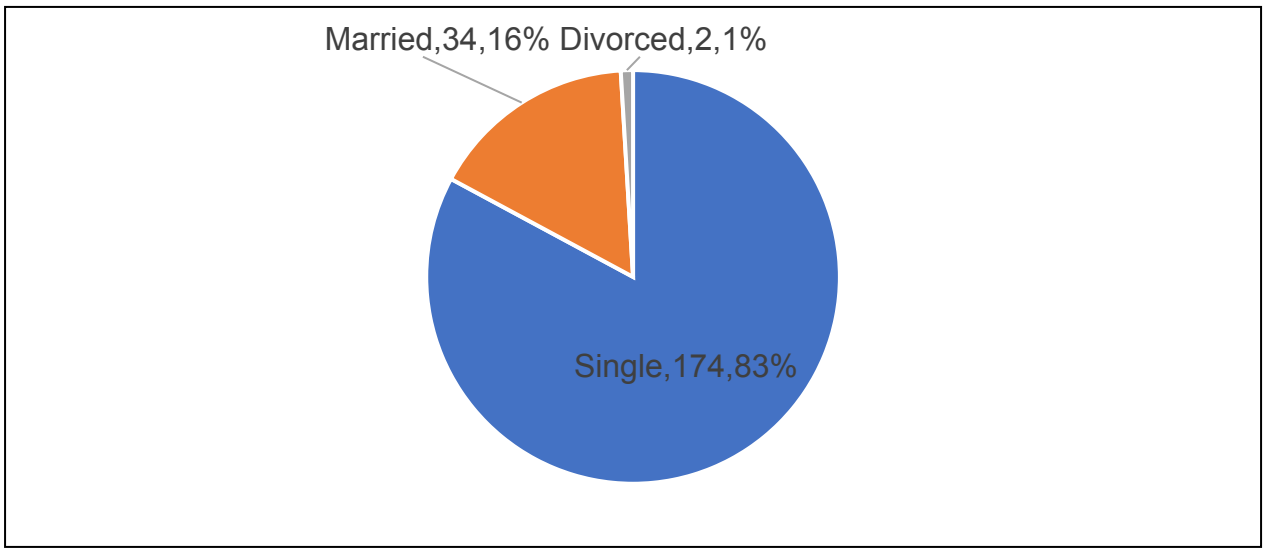

Figure 3: Distribution by marital status

Figure 3 presents the distribution of marital status. Eighty-three percent of the patients were single and only (16%) were married.

Most (69%) of the participants had secondary education and only (14%) had tertiary education (Figure 4). The patients' level of education is illustrated in Figure 4.

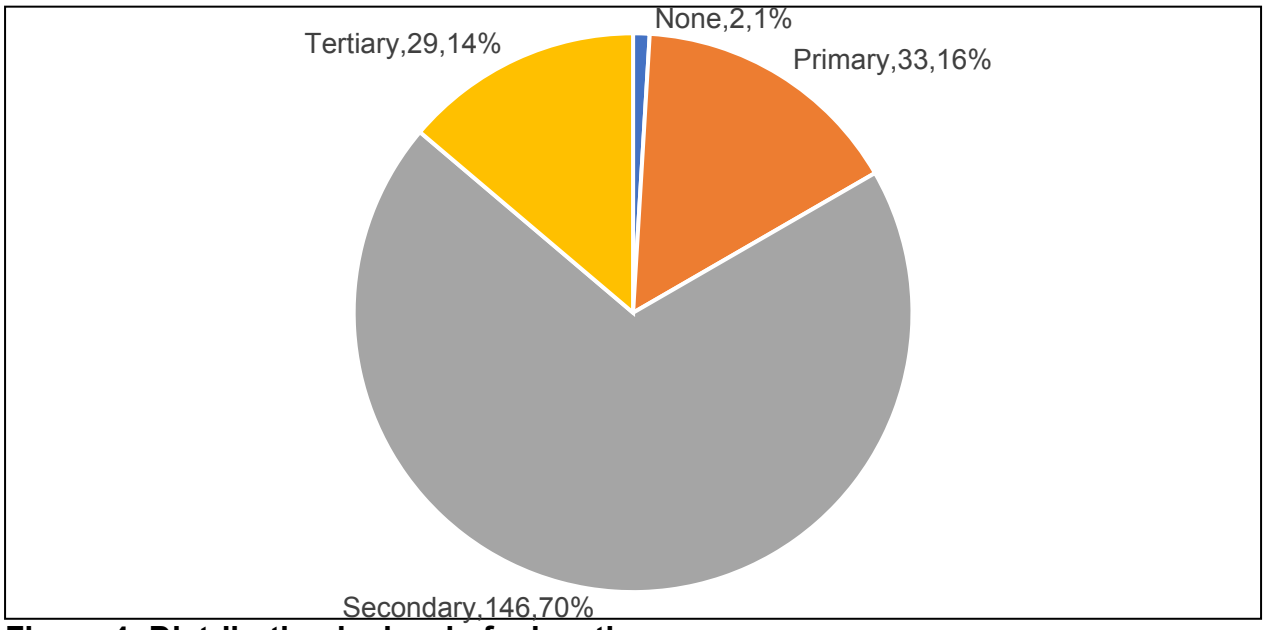

Figure 4: Distribution by level of education

With regard to the prevalence of DSM 5 disorders, a quarter of the patients had schizophrenia (25%), followed by substance induced psychotic disorder (19%), bipolar 1 disorder (18%), schizoaffective disorder (13%) and psychotic disorder due to another medical condition (8%) (Figure 5). More than two thirds (71%) had a recurrent episode and only 29% had first episode presentations. The most (80%) common method used to obtain information was collateral.

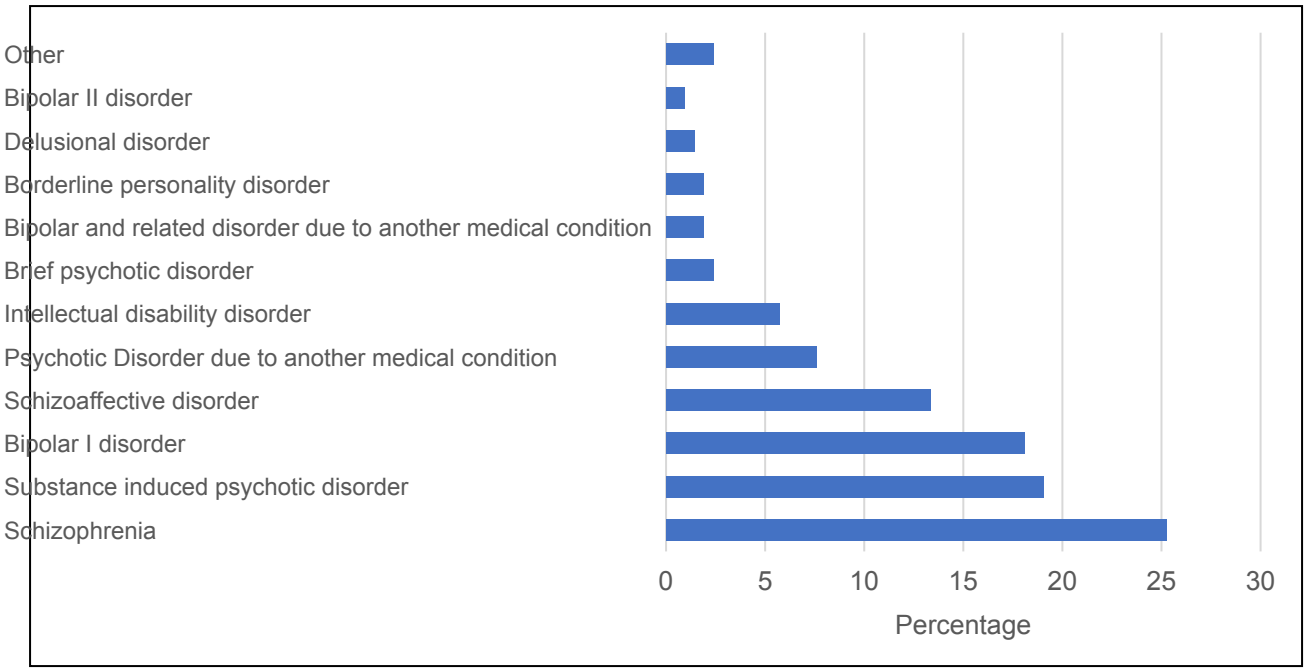

Figure 5: Distribution by mental disorders

4.3 Prevalence of substance use among the mentally ill patients

Fifty three percent (n=112) of the patients had a history of substance use. The most commonly used substances are shown in Figure 6. Cannabis, alcohol and nicotine were the most commonly used substances.

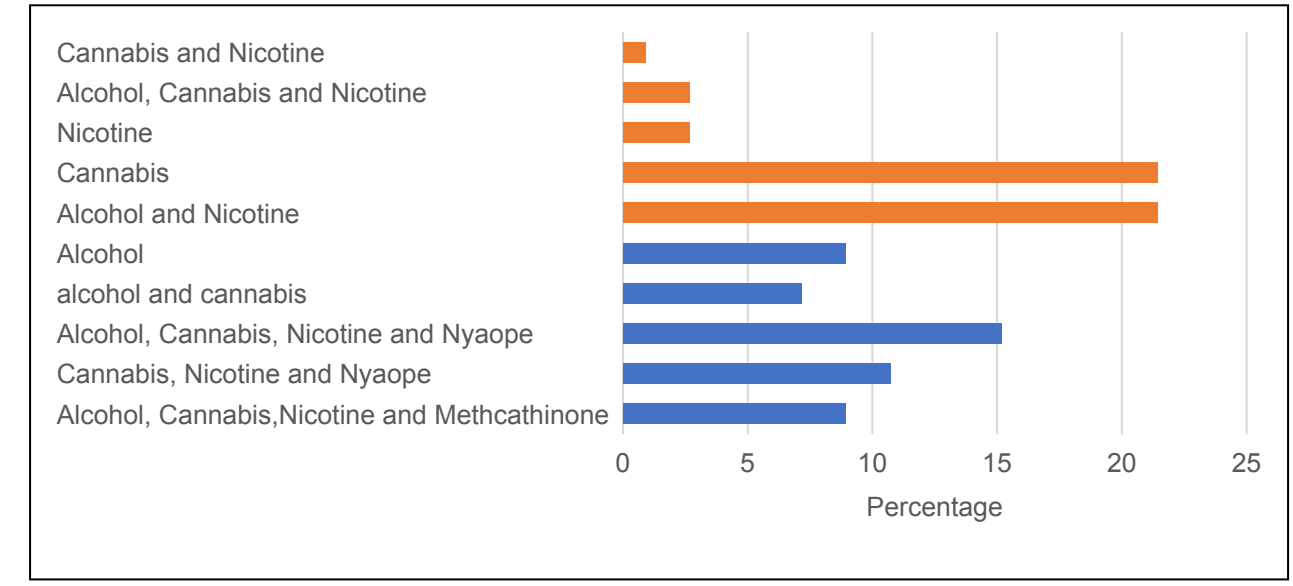

Figure 6: Distribution by substance use

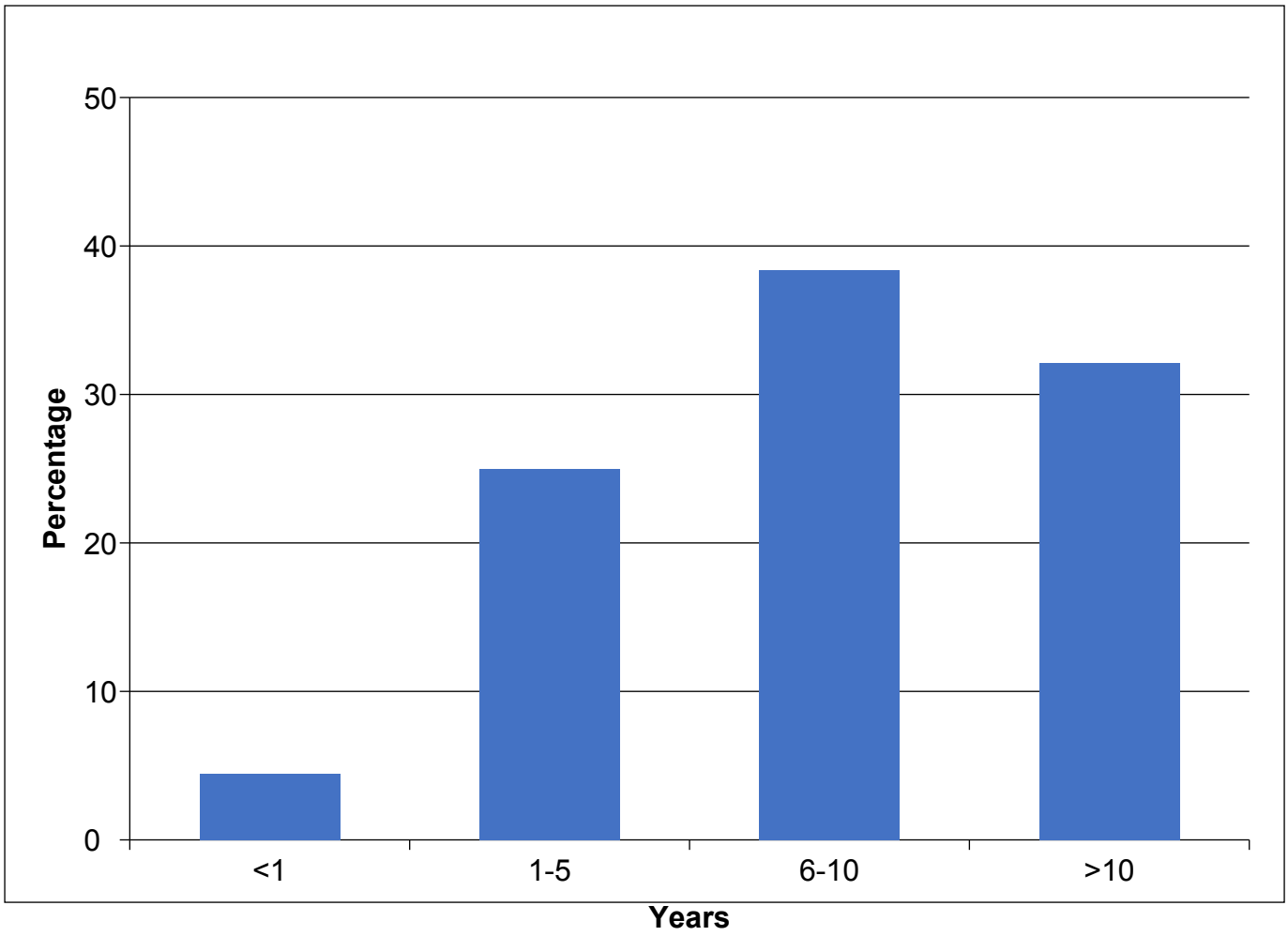

Figure 7: Duration of substance use

Figure 7 shows that among mentally ill patients who use substances of abuse, almost 40 % have been using for 6 to 10 years, followed by just above 30% of those who had used substances for more than 10 years; 24% had used substances for between 1 and 5 years while only less than 10% had used for less than a year.

4.4 Relationship between substances used and socio-demographic factors

The association between the history of substance use and selected demographics is shown in Table 1. Gender was associated with substance use. More males (75%) had used substances than females (11%). This difference was statistically significant ($p<0.05$). Similarly, more non-Christian patients than Christians used substances (69% versus 44%, $p<0.05$). There was no significant association between age, marital status, employment status, level of education and use of the substances ($p>0.05$).

Table 1: Association between substances use and demographics

	N	Substance used		χ	n	p-value
		Yes	No			
Gender						
Male	138	104(75)	34(25)	78.5	1	<0.001
Female	72	8(11)	64(89)			
Age (years)						
15-25	56	31(55)	25(45)	2.4	4	0.655
26-35	71	38(54)	33(46)			
36-45	45	24(53)	21(47)			
46-55	28	16(57)	12(43)			
>55	10	3(30)	7(70)			
Marital status						
Single	174	97(56)	77(44)			0.064*
Married	34	13(38)	21(62)			
Divorced	2	2(100)	0(0)			
Employment status						
Employed	21	11(52)	10(48)	0.0085	1	0.927
Unemployed	189	101(53)	88(47)			
Level of education						
None	2	2(100)	0(0)			0.130*
Primary	33	16(49)	17(51)			
Secondary	146	83(57)	63(43)			
Tertiary	29	11(38)	18(62)			
Religion						
Christian	135	60(44)	75(56)	12.0	1	<0.001
Non-Christian	75	52(69)	23(31)			
Episode						
First	62	33(53)	29(47)	0.0004	1	0.984
Recurrent	148	79(53)	69(47)			
Method used to obtain information						
Collateral	170	79(47)	91(53)			<0.001*
Patient	21	14(67)	7(33)			
Laboratory	19	19(100)	-			

Fisher's exact*

NB: Non-Christian: refers to any religion other than Christianity

4.5 Association between substance use and different mental disorders

The relationship between substances use and the top five mental disorders is shown in Table 2. A significantly greater proportion of patients with substance-induced psychotic disorder used substances than the other groups ($p<0.05$). There was no significant difference in the distribution of substances use amongst patients with schizophrenia, bipolar I disorder, schizoaffective disorder, psychotic disorder due to another medical condition and the other groups ($p>0.05$).

Table 2: **Association between substance use and mental disorders**

	Substance used		p-value
	Yes	No	
Schizophrenia	22(42)	31(58)	0.056
Substance induced psychotic disorder	40(100)	0(0)	<0.001
Bipolar I disorder	16(42)	2258)	0.151
Schizoaffective disorder	19(68)	9(32)	0.108
Psychotic Disorder due to another medical condition	6(38)	10(62)	0.204

4.6 Conclusion

In this chapter, the results of the study are presented and interpreted. In the next chapter, the findings of the study are discussed and compared with previous studies in developed and developing countries.

CHAPTER 5

DISCUSSION, LIMITATIONS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

In the previous chapter, the results of the study are presented and interpreted. In this chapter the results of the study are discussed and compared with relevant literature on substance use among psychiatric patients. The chapter is divided into: (1) introduction (2) prevalence of substance use among the mentally ill patients, (3) relationship between substance use and socio-demographic factors, (4) association between substance use and different mental disorders, (5) limitations, (6) conclusion and (7) recommendations.

5.2 Prevalence of substance use among the mentally ill patients

In the present study, slightly more than half (53%) of the patients had a history of substance use. This finding is similar to the results of a study conducted by Weich and Pienaar (2009) in South Africa which reports that 51% of mentally ill patients had a history of substance use. However, the prevalence reported in their study is greater than what has been reported in other studies (Sepehrmanesh *et al.,* 2014; Frasch *et al.*, 2013; Gbiri *et al.*, 2011; Hapangama *et al.*, 2013). One study in South Africa reports a prevalence of 77.8% (Botha *et al.,* 2010). The reason for the higher prevalence in this last-mentioned study is not documented. However, it could be because the study was carried out in urban and sub-urban areas, where a variety of substances of abuse is more readily available than in rural areas such as where Mankweng hospital is situated.

Another reason for the lower prevalence rate than that reported by Botha *et al.* (2010) may be due to the fact that Mankweng Hospital caters mostly for the poor, who cannot afford some of the substances of abuse available in urban and sub-urban areas.

Types of substance use

Substances of abuse that were mostly used were cannabis, alcohol and nicotine. This correlates with other studies conducted elsewhere (Van Heerden *et al.*, 2006; Davis *et al.*, 2016). A South African study conducted in Durban also found alcohol and cannabis to be the substances most commonly used by the mentally ill (Taukoor *et al.*, 2017). However, a Cape Town study found that cannabis and crystal methamphetamine were the commonest used substances of abuse (Saban *et al*., 2014). Unlike the current study, research in Cape Town showed that heroin and crystal methamphetamine were the most common substances for which treatment was sought (Saban *et al*., 2014). The findings of this study might also have been influenced by geographical factors and the local pattern of substance abuse. Different geographical areas have varying types of common substances of abuse. Moreover, cannabis seems to be a common substance of abuse globally. A survey of patterns of substance use among the general population in South Africa, reveals that the prevalence of alcohol use was 38.7%, tobacco smoking 30.0%, cannabis use 8.4% and of other drug use 2.0%, and of extra-medical psychoactive drug use 19.3% (Van Heerden *et al.*, 2009).

5.3 Relationship between substance use and socio-demographic factors

This study shows that more males with mental illness use substances than females with mental illness. The study shows that 75% of males use substances compared to 11% of females. The disproportionately higher number of males as seen here is similar to that reported globally (Tantirangsee *et al.*, 2015; Hapangama *et al.*, 2013). The South African Stress and Health (SASH) Survey (2002-2004) found that males were more likely than females to use substances of abuse. These findings may possibly demonstrate the stereotypical norms of male socialisation with regard to nicotine smoking and alcohol use (Saban *et al.,* 2014). However, recent evidence suggests that, as traditional gender roles start to become more equal, the prevalence of substance use by females might approach that of males (Saban *et al*., 2014).

In this study, of the 210 patients who were included, 189 were unemployed and 101 (53%) of these 189 patients were using substances. These findings correlate with other studies which show an increased prevalence of substance use among patients with mental illness who were unemployed, unmarried and who had a lower level of education

(Davis *et al*., 2016; Weich & Pienaar, 2009). Socio-environmental factors like, poverty and unemployment may be further factors that increase the risk of comorbidity of mental illness and substance abuse (Lehman & Dixon, 2016). Mental illness on its own may cause impaired socio-occupational functioning, which then leads to poverty and substance use; hence, the increased prevalence among the unemployed. Of the total of the 210 participants, the majority (82%) were unmarried, 16% were married and 0,95% were divorced. Of the single/unmarried patients, 56% had a history of substance use, 100% of divorced (only 2 patients) also used substances and only 38% of married individuals used substances. The findings in this study are consistent with the studies mentioned above, though are not statistically significant (Davis *et al.,* 2016; Weich & Pienaar, 2009; Lehman & Dixon, 2016).

The findings regarding the level of education were similar to those of other local and international studies previously mentioned. In the current study, 100% of those without any formal education used substances. The prevalence of substance abuse was 49% among those with primary qualifications and 57% with secondary qualifications. Only 38% of those with tertiary qualifications used substances. Although not statistically significant, these findings with regard to education are consistent with Davis *et al.'s* (2016) study, which showed a higher prevalence of substance use among mentally ill patients with lower levels of education.

In this study there is also a significant greater prevalence of substance use among individuals who are not affiliated to any Christian religious group than among those who are Christian. This correlates with the findings of another study which found that an intense Christian religious involvement tends to be associated with less use of substances of abuse (Lucchetti & Granero Lucchetti, 2014). In South Africa, for followers of the Rastafarian religion the use of dagga has a ritualistic significance of high sacrament, very much like Holy Communion is in many Christian churches. Rastafarians smoke dagga as often as possible and its use is mandatory at all meetings and services (De Vos, 2001).

Moreover, there is a new church by the name of Gabola which came to the religious landscape of South African in 2017. The church theology and practices are centred on

drinking all sorts of alcoholic beverages during church services and referring to some scriptures in the Bible as a way of emphasising that alcohol is accepted by the Christian faith (Dube, 2019).

5.4 Association between substance use and different mental disorders

This study shows a higher prevalence of substance use among individuals diagnosed with substance induced psychotic disorders than in other disorders. Comorbidities of substance use and mental illness may reflect several relationships, including self-medication for side effects, precipitating factors or direct causation and may vary between types of substances and mental disorders (Hartz *et al.,* 2014). In this study, a greater prevalence of substance use, which is not statistically significant, was noted in individuals diagnosed with schizoaffective disorder (68%), followed by schizophrenia (42%) and bipolar I disorder (42%). Other researchers have reported significant relationships between substance use and mental disturbances such as psychotic disorders and bipolar disorders (Taukoor *et al.*, 2017; Hartz *et al.,* 2014; Paruk *et al.,* 2009). The prevalence of substance use was 25.1 % in schizophrenic patients, 20.1 % in patients with bipolar disorder and 10.9 % in patients with depressive illness (Nesvag *et al.*, 2015). However, differences may be due to under reporting (Paruk et al., 2009).

5.5 Study Limitations

The main limitations of this study are its retrospective design, with information bias contributing to missing data and the quality of available hospital records. Enquiry of substances was at times limited to substances that are known to cause mental illness, and the fact that the laboratory screening of substances of abuse in this setting is limited to the urinary testing for cannabis only, rather than the multi-drug tests used in most centres. The lack of a broader and more objective drug screen is a serious concern and has to be improved so that health care providers and policy makers can reach a more comprehensive understanding of the pattern of substance abuse in this setting, as well as in the rest of the province.

Other aspects of substance use were not explored. For example, the reasons why mentally ill patients abuse substances, the choice of a particular substance over another, age of onset of the abuse and accessibility to substance rehabilitation

programmes or centres. Information bias could have also been introduced by the fact that the substance use history was mostly obtained through patient self-reporting and collateral information which created room for under-reporting. This study, however, does provide insight into the prevalence of substance use among mentally ill patients in the Mankweng Hospital and surrounding places.

5.6 Conclusion

This study is an exploratory study to understand the prevalence and pattern of substance use at the Mankweng Hospital. The use of substances has been shown to have a negative impact on compliance with treatment prescribed for mental disorders. Mentally ill individuals have also been shown to self-medicate with substances to counter the side-effects of psychotropic medication, or if they have mental disorders that are not improving, e.g., when a patient has persistent insomnia related to depression, or is anxious. Thus, there is a need for mental health care providers to actively explore why mentally ill individuals use substances, so that the underlying reasons may be addressed, given that comorbid substance use complicates treatment and is associated with poor treatment outcome of mental disorders (Toftdahl *et al*., 2016, Davis *et a*l., 2016). The prevalence of SU among patients with mental illness must be undertaken seriously by clinicians and health authorities in the province.

This study reveals a significantly high prevalence of substance use, especially within the male gender. Patients with mental illness need to be actively screened for substance use; early intervention for co-morbid substance use would help reduce morbidity.

The significantly high prevalence of cannabis use established through this study may be expected to increase, given the decriminalisation of cannabis by the South African Constitutional Court on 18 September 2018 and the continuous campaign by the Dagga Party for cannabis to be legalised(Lubaale & Mavundla, 2019).The outcome of this study should encourage preventive efforts to reduce the use of substances of abuse among the mentally ill population. Moreover, special treatment options focusing on harmful use of substances must be offered to reduce the burden on both the patients and their caregivers.

5.7 Recommendations

Further studies are recommended to look at comparisons of substances used among the mentally ill with the general population, substance use relations with the rate of re-admissions/treatment compliance, criminal offenses among this group of patients and the general quality of life for individuals with mental illness comorbid with substance use.

The results of this study indicate an urgent need for substance misuse programmes for mentally ill individuals and the introduction of dual diagnosis intervention programmes in the region. Better screening methods are needed in the health facilities for genuine interventions to improve the quality of life for people with mental illness.

The implementation of the Prevention of and Treatment for Substance Abuse Act (Act No. 70 of 2008) is recommended. This act promotes prevention of substance use and early intervention services. It focuses on identification of individuals, families and communities at risk; screening for problematic substance use to facilitate early detection and appropriate interventions; enabling affected persons to recognise the warning signals of substance abuse and conditions related thereto. The Act provides families and communities with information to enable them to access resources and professional help. The high prevalence of substance use in this group of patients is a serious concern which needs urgent attention.

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ANNEXURE 1: DATA COLLECTION SHEET (STRUCTURED)

RESEARCH TOPIC: PREVALENCE OF SUBSTANCE USE AMONG PATIENTS WITH MENTAL ILLNESS AT MANKWENG HOSPITAL, LIMPOPO PROVINCE

ID								
Section A: Socio-demographics								
Age		Years			Gender		Male	
							Female	
Race			African		Marital Status		Single	
			White				Married	
			Coloured				Divorced	
Employment Status			Employed		Level of education		None	
			Unemployed				Primary	
							Secondary	
Religion:							Tertiary	
B: CLINICAL DATA								
DSM 5 DIAGNOSIS (Tick the relevant box) Schizophrenia Schizoaffective disorder								

Brief psychotic disorder

Delusional disorder

Substance induced psychotic disorder

Psychotic disorder due to another medical condition

Bipolar I disorder

Bipolar II disorder

Major depressive disorder

Bipolar and related disorder due to another medical condition

Substance induced bipolar and related disorder

Unspecified bipolar and related disorder

Antisocial personality disorder

Borderline personality disorder

Post-traumatic stress disorder

Substance intoxication

Substance withdrawal

Any other diagnosis (specify)

Past Psychiatric History

First episode		Yes		
		No		
		Unknown		
Substances of abuse				
History of Substance use		Yes		
		No		
Name of substance	Tick	Duration of use		
Alcohol				
Cannabis				
Nicotine				
Nyaope				
Others, Specify				
How information above obtained			Collateral	
			Patient	
			Laboratory	

ANNEXURE 2: ETHICS CLEARANCE CERTIFICATE

University of Limpopo
Department of Research Administration and Development Private Bag
X1106, Sovenga, 0727, South Africa
Tel•. (015) 268 3935, Fax: (015) 268 2306, Email: anastasia.ngobe@ul.ac.za

TURFLOOP RESEARCH ETHICS COMMITTEE

ETHICS CLEARANCE CERTIFICATE

MEETING: 6 August 2019

PROJECT NUMBER: TREC/185/2019: PG

PROJECT:

Title: Prevalence of Substance Use Among Patients with Mental Illness at Mankweng Hospital, Limpopo Province.

Researcher: MM Moloto
Supervisor: Dr ME Mafona
Co-Supervisor/s: Dr PJ Mokoena-Molepo
School: Health Care Sciences
Degree: Master of Medicine

OF P MASOKO
AIRPERSON: TURFLOO

PROF P MASOKO
CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

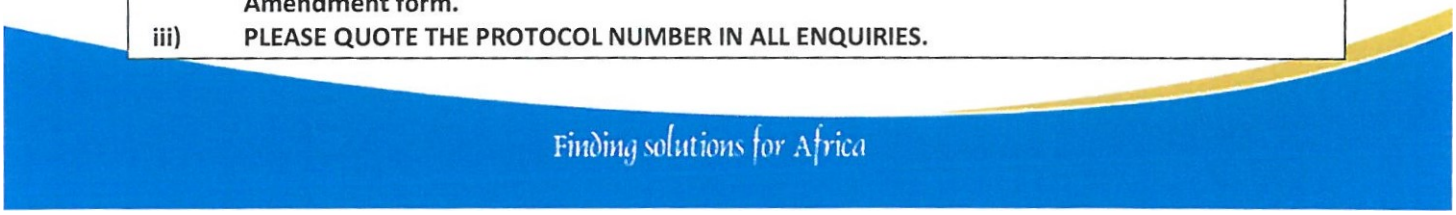
The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: REC-0310111-031

Note:

i) **This Ethics Clearance Certificate will be valid for one (1) year, as from the abovementioned date. Application for annual renewal (or annual review) need to be received by TREC one month before lapse of this period.**

ii) **Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee, together with the Application for Amendment form.**

iii) **PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.**



ANNEXURE 3 : PERMISSION TO CONDUCT RESEARCH IN DEPARTMENTAL FACILITIES

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH

Ref : LP 201908 016
Enquires : Mrs PN Motimele
Tel : 015-293 6028
Email : Phoebe.Mahlokwane@dhsd.limpopo.gov.za

Melford Moloto

PERMISSION TO CONDUCT RESEARCH IN DEPARTMENTAL FACILITIES

Your Study Topic as indicated below;

Prevalence of Substance use among patients with mental illness at Mankweng.

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

Head of Department

27.09.19
Date

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

ANNEXURE