

Substance Use Prevalence and Outcomes in a Psychiatric Outpatient Population in Southern Gauteng

Dr Maria Lerato Mokwatsi

0404569Y

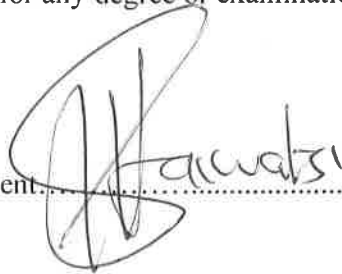
**A research report submitted to the Faculty of Health Science, University of the
Witwatersrand, in partial fulfilment of the requirements for the degree of
Master of Medicine in the branch of Psychiatry**

Johannesburg, 24 February 2020

DECLARATION

I, Dr Maria Lerato Mokwatsi declare that this Research Report is my own, unaided work. It is being submitted for the Degree of Master of Medicine, in the branch of Psychiatry, at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.

Signature of Student.....

A handwritten signature in black ink, appearing to read 'Mokwatsi', written over a dotted line.

Date.....

24/07/2020

PRESENTATIONS ARISING FROM THIS RESEARCH

- Oral presentation

Annual Research Day held by the Department of Psychiatry, University of the Witwatersrand, at Sunnyside Park Hotel, Johannesburg, 19 June 2019

- Poster presentation

Biological Psychiatry Congress 2019, Century City Conference Centre, Cape Town, 20 – 23 September 2019

ABSTRACT

Background: Substance use disorders (SUD) are commonly comorbid with mental illness and worsen outcomes of psychiatric care. Prevalence rates of 40% and 51% have been found for SUDs among psychiatric inpatients in South Africa.

Aim: To ascertain the prevalence of SUD in a community psychiatric setting and its impact on care outcomes.

Method: A retrospective record review was conducted at a community psychiatric clinic in Southern Gauteng.

Results: Of the 368 records included, a SUD was recorded in 45.4% (n=167). Having a SUD was associated with being of a younger age ($p<0.0001$), male ($p<0.0001$), single ($p<0.0001$), having a higher level of education ($p<0.0001$), and a diagnosis of Schizophrenia ($p<0.0001$). Regarding care outcomes, SUD was associated with more missed clinic appointments ($p<0.0001$), more hospital admissions ($p<0.0001$), and a longer duration of hospital stay ($p<0.0001$).

Conclusion: The prevalence of SUD in a community psychiatric setting is similar to that of inpatients. Having a SUD is associated with poorer care outcomes.

ACKNOWLEDGEMENTS

I would like to thank the department of Psychiatry at the University of Witwatersrand, particularly my supervisor Dr Lesley Robertson, for her guidance, support and constructive critiquing. I would also like to thank the staff at Levai Mbatha Community Psychiatric Clinic for their assistance during my data collection period.

TABLE OF CONTENTS

DECLARATION	ii
PRESENTATIONS ARISING FROM THIS RESEARCH	iii
ABSTRACT.....	iv
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES	viii
LIST OF FIGURES	ix
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background	1
1.2 Literature review	2
1.2.1 Comorbid substance use disorders and mental illness (dual diagnosis).....	2
1.2.2 Prevalence of comorbid substance use and mental illness, globally and in Africa ...	4
1.2.3 South African prevalence of substance use disorders and psychiatric comorbidity..	8
1.2.4 Substance use disorders in hospital based psychiatric setting in South Africa	9
1.2.5 Substance use disorder in Community Psychiatric settings in South Africa.....	10
1.3 Motivation for the study	11
1.4 Hypothesis.....	12
1.5 Research questions	12
1.6 Aim of the study	12
1.7 Objectives.....	13
CHAPTER TWO: MATERIALS AND METHODS	14
2.1. Study Design	14
2.1.1 Study Setting.....	14
2.1.2 Study Population.....	15
2.1.3 Sample Size	15
2.1.4 Data collection.....	16
2.1.5 Data Analysis.....	17
2.2 Ethical Considerations.....	18

CHAPTER THREE: RESULTS	19
3.1 Socio-demographic characteristics of the sample	19
3.2 Clinical characteristics of the sample	20
3.3 Missed clinic appointments, hospital admissions, length of hospital stay	24
3.4 Comparison of those with and without a substance use disorder	26
3.4.1 Sociodemographic differences	26
3.4.2 Clinical differences	27
3.5 Differences in missed appointments, hospital admissions and length of hospital stay ..	34
CHAPTER FOUR: DISCUSSION	35
4.1 Prevalence and type of substance use disorder	35
4.2 Socio-demographic characteristics	37
4.3 Comparison of clinical characteristics	38
4.4 Differences in clinical outcomes (missed clinic appointment, hospital admissions and length of stay)	40
4.5 Limitations	41
CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS	42
5.1 Conclusion	42
5.2 Recommendations	42
REFERENCE LIST	44
APPENDIX	47
Appendix 1: Socio-demographic data collection form	47
Appendix 2: Clinical data collection form	48
Appendix 3: Ethics approval letter	49
Appendix 4: Research site permission letter	50
Appendix 5: TurnIt in Report	51

LIST OF TABLES

	Page No.
Table 3.1 Socio-demographic characteristics of the sample	19
Table 3.2 Socio-demographic characteristics of those with and without a substance use disorder	27
Table 3.3 Clinical characteristics of those with and without a substance use disorder	28
Table 3.4 Medical comorbidity in those with and without a substance use disorder	31
Table 3.5 Psychopharmacology in those with and without a substance use disorder	33

LIST OF FIGURES

	Page No.
Figure 3.1 Age distribution of the sample	20
Figure 3.2 Psychiatric diagnoses	21
Figure 3.3 Substance use disorder (SUD)	22
Figure 3.4 Comorbid medical conditions	22
Figure 3.5 Common comorbidities found within the sample	23
Figure 3.6 Number of psychotropic medicines prescribed	23
Figure 3.7 Psychopharmacology	24
Figure 3.8 Number of missed clinic appointments in the 24-month period	25
Figure 3.9 Number of hospital admissions in the 24-month period	25
Figure 3.10 Average hospital length of stay (LOS)	26
Figure 3.11 Significantly different psychiatric diagnoses among those with and without a substance use disorder	29
Figure 3.12 Number of comorbid medical conditions	30
Figure 3.13 Significantly different medical comorbidities among those with and without a substance use disorder	32
Figure 3.14 Significantly different psychotropic medications in those with and without a substance use disorder	33
Figure 3.15 Number of hospital admissions in the 24-month period	34

CHAPTER ONE: INTRODUCTION

1.1 Background

Substance use is commonly comorbid with mental illness. People with such co-occurrence are reported to have more severe symptoms, functional impairment, and worse treatment outcomes (Morejele, Seban & Seedat, 2012). The substance use may be preceded by or induce mental illness, or the two disorders may be independent. Commonly comorbid mental illness includes depression, bipolar disorder, and psychotic disorders.

The World Health Organisation (WHO) describes psychoactive substance abuse or misuse to include hazardous and harmful use, and psychoactive substance use disorder as encompassing acute intoxication, harmful use, dependence syndrome, withdrawal state, withdrawal state with delirium, psychotic disorder and amnesic syndrome (WHO, 2019). The Diagnostic and Statistical Manual for Mental Disorder, 5th edition (DSM 5) separates substance-related disorders into two groups: substance use disorders and substance-induced disorders (American Psychiatric Association, 2013). A substance use disorder is defined as a pathological pattern of behaviours related to the use of a substance with impaired control, impaired social functioning, hazardous use and/ or evidence of tolerance or withdrawal. Intoxication, withdrawal, and mental health conditions directly attributable to the substance use are regarded as substance-induced disorders

Because of the bi-directional impact of substance use and mental illness, it is important to understand the prevalence of such comorbidity in the clinical setting. Dual diagnosis prevalence rates of 40% to over 50% have been found in inpatient psychiatric units in South Africa (Davis *et al*, 2016; Weich & Pienaar, 2009; Janse van Rensburg, 2010). However, a search of PubMed and of the South African Journal of Psychiatry in July 2018 revealed no literature on substance use disorders in the community psychiatric setting in South Africa. Nevertheless, such comorbidity has important implications for service planning and improvement. This study aims to ascertain the prevalence of substance use disorders among a sample of community psychiatric patients and to document the outcomes in terms of missed clinic appointments and recurrent admissions for psychiatric symptoms.

1.2 Literature review

1.2.1 Comorbid substance use disorders and mental illness (dual diagnosis)

Globally, numerous studies reveal a high prevalence of substance abuse among people seeking psychiatric help, with most suffering from cannabis use (Carrà, Johnson & Bebbington, 2012; Szerman *et al*, 2013; Radhakrishnan, Wilkinson, & D'Souza, 2014). These studies reveal that a higher percentage of substance users are male and fall within the youth bracket. Szerman *et al*. (2013) first introduced the term dual-diagnosis to show the co-existence of both substance abuse and mental disorder. Carrà, Johnson and Bebbington (2012), who explored the clinical impact of substance abuse among patients with schizophrenia in Europe, found that patients with a higher record of substance abuse had longer hospital admissions because their psychosis was more severe. They concluded that substance use was a primary

predictor for longer recovery for patients with schizophrenia and highlighted the need to investigate the impact of substance use on other mental illnesses.

In their review of global burden of disease data, Whiteford *et al.* (2013), noted that substance use in the general population was equally common in men and women. According to their study, alcohol was the most commonly abused substance in patients with mental illness. Men recorded higher rates of substance abuse compared to women, but this was not significant when comparing subjects with different disorders. The rates of active substance abuse were higher among youth. People with a history of lifetime substance use recorded an increase in psychiatric hospitalization.

Piselli *et al.* (2016) examined the prevalence of substance use and re-occurring psychotic disorders among male detainees in Italy. In their study, the prevalence of substance use disorder was high among detainees with depression and those who suffered from bipolar disorder. Younger male detainees recorded a significantly higher percentage in the use of substances compared to those who were older.

Amin-Esmaeili *et al.* (2016) studied substance use and psychiatric comorbidity in Iran. They found the most common substance in the Iranian population to be opium followed by nicotine. A high rate of these substances was common in psychiatric patients. However, the odds of using these substances were higher in women than in men. Approximately half of patients with psychotic disorders had opioid dependence and had their treatment needs unattended. In Taiwan, Liao *et al.* (2017) also found a positive correlation between substance use and psychiatric disorders. This study

showed positive correlation between high percentage substance use and the male population.

Substance use disorders have been found to be prevalent particularly among people with schizophrenia. A review article by Green *et al.* (2007) found that nearly 50% of patients with schizophrenia have comorbid substance use, most frequently alcohol and cannabis use. Research by Sara *et al.* (2014) conducted at a New South Wales Hospital among patients with Schizophrenia also found that the use of cannabis (29.0%), alcohol (25.7%) and stimulants (13.9%) was common. The study also found that stimulant use was more common in young male adults, who live in urban areas. The risks of frequent mental health admissions, community mental health contact and decline in socio-economic areas were also noted in patients with comorbid substance use.

1.2.2 Prevalence of comorbid substance use and mental illness, globally and in Africa

Across the globe, an estimated 22 to 44% of adult psychiatric inpatients are known to have problems with either illicit substances or alcohol use with half that number fully relying on illicit substances (Maruish, 2017). Most of the affected population is usually from urban setting. In hospitals offering specialized care, about 60 to 80% of the patients admitted have past experiences with substance use before admission (Maruish, 2017). From this information an estimated 20% of the inpatients actually get the exact treatment for their substance use (Maruish, 2017). As much as such statistics is supported by a number of studies the aetiology of substance use by people with severe mental illness is still not clear.

A study was carried out in San Francisco, California, on dual diagnosis patients (Tasman *et al.* 2015). The outcome for individuals seeking chemical dependency treatment with or without co-occurring psychiatric disorders was examined for a period of 1 year. Dual-diagnosis patients were observed to have high prevalence of medical and family problems compared to other patients. It was determined that undergoing psychiatric services parallel to chemical dependency could be of great help to dual-diagnosis patients.

In Australia, a study on substance use in patients who have acute mental illness was conducted with interviews and clinical history being used to collect information (Cohen *et al.* 2013). The study established that drug and alcohol misuse were responsible for hastening, intensifying and prolonging psychiatric disorders, which were then followed by different social problems. The focus on the study was directed at acute mental illness only since the conditions for chronic mental illness was difficult to ascertain due to different contributing factors other than substance use.

A study performed within a general hospital in Taipei, Taiwan, focused on the prevalence and type of substance abuse (Trivedi & Tripathi , 2015). Study outcomes indicated that 18% of the patients who had mood disorders had achieved the criteria used diagnosing psychoactive substance use disorder. Sedative substance use disorder stood at 10.2% followed by alcohol at 6.1%. In major depression patients, sedative prevalence was 35.7% higher than what was displayed in bipolar disorder patients.

A study by Miles *et al.* (2003) in a South London community clinic amongst people with comorbid substance use and psychotic disorder, found that 34% were using alcohol, 22% were using both alcohol and cannabis and 12% were using cannabis alone. In research carried out by Wusthoff *et al.* (2011) in a community-based psychiatric setting in Norway, the findings pointed out those patients with substance use disorder were more likely to be male, single and living alone. Although the prevalence of psychotic disorders was not increased amongst those with substance use disorder, and that of anxiety and mood disorders was less, substance users had higher rates of aggressive and disruptive behaviour, self-injury and social problems. They were however less likely to receive outpatient treatment and had less improvement with regards to recovery from psychological symptoms compared to patients with no substance use disorder.

In a multi-level study by Appiah *et al.* (2017) in Ghana, patients attending outpatient clinics in psychiatric hospitals were observed. It was found out that 65% of the sample population had hazardous use of alcohol, with a high risk of attracting mental disorders, particularly in men rather than women. In a different study within the Kenyan population, Gakinya (2015) focused on psychiatric patients at the Moi Teaching and Referral Hospital in Eldoret. Substance abuse and psychiatric comorbidities were evaluated by six researchers. This study revealed a high comorbidity rate of substance use both in the general psychiatric wards and in units of drug rehabilitation. Among the patients that were admitted at the hospital, fifteen suffered from schizophrenia while 12 had bipolar disorder. Four had depression and seven suffered from acute psychotic episode. From their research, there was

evidence of high co-morbidity of alcohol use and other substance dependence particularly with cat, opiate and sedatives and these were accompanied with mood, panic and other psychiatric disorders.

Sepehrmanesh, Ahmadvan, and Moraveji (2014) conducted a study from Mathari hospital in Kenya to find out the correlation between co-occurrence of psychiatric disorders and the use of substances. In their research, the association between substance abuse and mental illness was positive in Mathari hospital, Nairobi. There were increasingly higher rates of substance abuse in male patients compared to females. The most common substances that were used by this population were alcohol, cannabis and tobacco.

In a study to determine the pattern of substance use and hospitalization as a result of psychiatric disorders in Nigeria, Bakare and Isah (2016) showed that 69% of all psychiatric admissions were of individuals who had used psychoactive substances earlier in their lives. The results in this study were slightly higher than those revealed in other studies and in the general population. Ambikile and Masunga (2017) studied the psychiatric population of Tanzania to find the correlation between prevalence of substance use and comorbidity of psychiatric disorders. In their study, a higher percentage of heroin addicts received attention at emergency psychiatric services at the Temeke centre. Although the study population was small and specialized, the focus of this study focused on what organizations are doing to reduce the risks of substance abuse. There are limited studies performed in Tanzania regarding substance use in psychiatric patients and therefore it would be difficult to

gather evidence to form an informing policy. The authors highlighted a need for more research on substance use comorbidity in Tanzania

In summary, with regards to Africa, information concerning the level of mental health is scarce. Collection and gathering of data within the continent has been inconsistent and to some extent non-existent. Identifying areas of need, which help in achieving, informed decisions concerning policy direction, have proved to be difficult. As a result, the information gap that exists has led to the continuous neglect of mental health issues as well as the unmet need for service aimed at mental health problems within the society. In Tanzania, the magnitude of substance use and psychiatry has yet to be clearly estimated through comprehensive scientific studies. It is with no doubt that a good number of the country's citizens abuse drugs. In a bid to elevate its current situation, the government has initiated programs which focus on mental health for refugees, disaster affected and indigenous populations but none has been designed to cater for substance dependence. Additionally, the level at which the problem has escalated particularly in psychiatric patients is still unknown. Even when the affected users end up in hospitals, they are still faced with the problem of proper dual diagnosis and management.

1.2.3 South African prevalence of substance use disorders and psychiatric comorbidity

The South African Community Epidemiology Network on Drug Use (SACENDU) Project is an alcohol and other drug surveillance system, which is operational in 9 provinces in South Africa. The data is obtained from substance rehabilitation centres and do not include information pertaining mental illness. Alcohol remained the

dominant substance of use in the Eastern Cape, Kwazulu-Natal and Central Region (Combined Northern Cape and North West). Between 14% Gauteng and 38% Central Region of persons accessing treatment services reported alcohol as the primary substance of use. Cannabis is still the most common illicit substance used amongst youth attending specialist treatment centres. Between 33% (Eastern Cape) and 50% (Gauteng) of patients attending specialist treatment centres had cannabis as their primary and secondary drug of use. Methamphetamines (MA) remains the most common primary substance reported by patients in the Western Cape, although there was a slight decrease from 30% in 2017b to 28% (Dada *et al.* 2019).

The South African Stress and Health study, a population based mental health survey, found a lifetime prevalence of any substance use disorder of 13.3% and a 12-month prevalence of 5.8% (Herman *et al.* 2009). Using data from the South African Stress and Health study, Saban *et al.* (2014) explored the relationship between SUD and common mental illness in adults aged between 18 and 30 years. The odds of having any anxiety or mood disorder were significantly higher amongst those reported ever using tobacco products, alcohol, cannabis or other substances than those who did not.

1.2.4 Substance use disorders in hospital based psychiatric setting in South Africa

In a retrospective record review in a general hospital psychiatric unit, Janse van Rensburg (2010) found that approximately 40% of patients admitted in 2007 were diagnosed with a substance use disorder. Specific associations with the psychiatric

diagnosis were however not explored. Ten years later at the same hospital, in a cross-sectional study using the AUDIT (Alcohol Use Disorders Identification Test) and the DUDIT (Drug Use Disorders Identification Test), Anic (2018) found a prevalence of SUD of 67% among the psychiatric inpatients. Those with a SUD were more likely to be male, less than 40 years of age, and to have been brought to hospital by police or an ambulance rather than a family member. Some of the main presenting symptoms included aggression, psychosis as well as mania, which mainly required involuntary admissions, with a mean of 14 days hospital stay.

An interview based study by Weich and Piennar (2009) revealed that 51% of patients admitted to a specialist psychiatric hospital in the Western Cape had a substance use disorder. Using the WHO ASSIST (Alcohol, Smoking and Substance Involvement Screening Test) questionnaire in a cross-sectional survey of 87 psychiatric inpatients at a regional hospital in KwaZulu Natal, Davis *et al.* (2016) found 54% had used alcohol in the preceding three months and 43% had used cannabis. Most of the patients with substance use were male (54%), with a mean age of 34.5 years. Botha *et al.* (2009) found that the substances of choice amongst study participants at three large state mental health hospitals in the Western Cape were cannabis followed by methamphetamines.

1.2.5 Substance use disorder in Community Psychiatric settings in South Africa

On searching Pubmed and the South African Journal of Psychiatry, no South African literature regarding substance misuse in the community psychiatric setting was identified. Pubmed was searched three times on the 6th September 2018 with no date or publication restrictions. The first search, with the terms “substance abuse

psychiatry South Africa” yielded no results. Changing the terms to “substance use and community psychiatry in South Africa” yielded 31 results, of which none were relevant to community based psychiatric services. A third search with the terms “community psychiatry AND South Africa” retrieved 17 results dating back to 1962, of which none discussed substance misuse. An online search of the South African Journal of Psychiatry using the term “substance use” retrieved 89 articles, of which none were related to the community psychiatric setting.

While some South African studies may have been missed with the search of Pubmed and the South African Journal of Psychiatry, it is evident that there is a paucity of research in the community psychiatric setting. This is possible related to the poorly developed community psychiatric services, and that almost all psychiatric care in South Africa is hospital based (Robertson, Chiliza, Janse van Rensburg & Talatala 2018).

1.3 Motivation for the study

Substance use is common among psychiatric patients in international and South African studies. It also tends to worsen the outcomes of psychiatric treatment and impacts on the types of care offered. Although the community-based setting may offer opportunities for early identification and rehabilitation, there is a paucity of research on substance use comorbidity among ambulatory psychiatric patients in the community setting in South Africa. Thus, there is a need to understand the profile of patients attending community psychiatric clinics with respect to substance use disorders.

1.4 Hypothesis

It was hypothesised that there would be a high prevalence of comorbid substance use among patients with chronic mental illness in the community psychiatric care setting, and that the comorbidity would be associated with worse clinical outcomes as compared with those without substance use.

1.5 Research questions

What is the prevalence of substance use amongst people attending a community psychiatric clinic? How would the patients compare with patients attending the same clinic without a history of substance use in terms of socio-demographic profile, psychiatric diagnosis and medical comorbidity?

Would those patients with a history of substance use have poor clinical outcomes in terms of more missed clinic appointments, more hospital admissions and increased length of hospital stay?

1.6 Aim of the study

The aim of this study was to estimate the prevalence of substance use disorders in a community psychiatric clinic patient population, and to explore socio-demographic and clinical differences between those with and those without a substance use disorder.

1.7 Objectives

There were three objectives as follows:

- To describe the socio-demographic profile and clinical correlates of a sample of patients attending a community psychiatric clinic for treatment of mental illness.
- To document the presence and type of substance use amongst the sample as documented in the clinical records.
- To compare those with and without a recorded history of substance use in terms of socio-demographic details, clinical profile, number of missed clinic appointments, frequency of hospital admissions, and duration of hospitalisation for psychiatric symptoms.

CHAPTER TWO: MATERIALS AND METHODS

2.1. Study Design

This study was a retrospective review of a sample of clinical records at a community psychiatric clinic in southern Gauteng. Adults, 18 years and above who attended the Community Psychiatric Clinic for a minimum of 24 months were included.

2.1.1 Study Setting

The study was conducted at Levai Mbatha Community Health Centre in Evaton, a township south of Johannesburg, in Sedibeng district of Gauteng. Ambulatory specialist psychiatric services are rendered at this clinic in association with the University of the Witwatersrand, Department of Psychiatry. The community served by the health care centre is almost all Black African, mostly South Sotho speaking, from a lower socio-economic background with an official unemployment rate of 34.7% and youth unemployment rate of 45% recorded in the 2011 National Census (Statistics South Africa, 2011). The psychiatric clinic at Levai Mbatha Community Health Care Centre has approximately 1200 active adult patients. The clinic has one permanent professional psychiatric nurse and 3 nursing assistants. A psychiatric nursing service is provided daily with issuing of repeat medication. Two visiting psychiatric registrars provide a psychiatric doctor service weekly. A Clinical Psychologist attends to booked patients once a week. This site was chosen as the study as it is a large community clinic, which serves other smaller clinics around the community.

2.1.2 Study Population

The study population comprised the medical records of adult patients who were attending the Community Psychiatric clinic

Inclusion Criteria

Clinical records of psychiatric patients 18 years or older who have at least a 24-month history at the clinic, and who are still active clinic attendees (defined as having attended at least once in the past 6 months). This enabled us to monitor trends in clinic visits and hospital admission, which gave an indication of treatment compliance.

Exclusion Criteria

Clinical records of the following patients were excluded:

- Patients under the age of 18.
- Patients with no psychiatric diagnosis.
- Patients whose first visit to the clinic was less than 24 months before data collection commenced.

2.1.3 Sample Size

Sample size estimation is based on the key research question to be answered, in this case the estimation of the proportion of patients with substance use disorder. Based on an estimate of 60% patients with substance use disorder, 5% precision and the 95% confidence level, sample size of 369 would be required using an estimation of the clinic population as 1200.

Sample size for prevalence was determined using the formula:

$$n = \frac{Z^2 P(1 - P)}{d^2}$$

where n = sample size,

Z = Z-statistic for the chosen level of confidence,

P = expected prevalence or proportion

d = precision (20)

Sampling Strategy

In order to obtain this sample size, systematic sampling was used once an estimate of the number of available qualifying patients has been made. The number of active files at Levai Mbatha is approximately 1200 and is filed according to the birth dates. An estimate of the number of eligible clinical records was made through examining a random selection of 20 patient files. To ensure that a representative sample was selected, every third clinical file was selected for data collection. If not eligible, the next file meeting the inclusion criteria was selected.

2.1.4 Data collection

The information collected was as follows:

Socio-demographic data

- Age at date of data collection
- Sex
- Population group: Black, White, Coloured or Indian
- Relationship status: single, in a relationship, divorced/ separated/ widowed,
- Level of education: primary, some secondary, matric, tertiary

- Employment status: employed or unemployed
- Disability grant: yes or no

Clinical data

- Primary psychiatric diagnosis (including if a diagnosis of SUD is made)
- Comorbid psychiatric diagnosis (including if this is SUD diagnosis)
- Type of substance used if a substance use disorder is present
- Personality traits-cluster A, B, C
- Other medical conditions

Current pharmacotherapy, hospital admissions in the preceding 24 months-
number and duration of admission

- Missed clinic appointments / medicine collection in the preceding 24 months.
(Every patient attends the nursing appointment monthly. The visit is recorded on the back folder of the file. Any missed appointment is noted on the nursing review. Nursing records are also kept in the notes, within the files. We were only be able to see if there has been more than one missed appointment)

2.1.5 Data Analysis

The data were analysed descriptively using categorical variables, which were summarized by frequency and percentage tabulation and illustrated by bar charts. Missing data were denoted as such in the relevant tables or graphs. Continuous variables were summarized by the mean, standard deviation, median and interquartile range.

The X^2 test was used to assess the relationships between substance user group (user/non-user) and categorical study variables. Fisher's exact test was used for 2 x 2 tables or where the requirements for the X^2 test could not be met. The strength of the associations was measured by Cramer's V and the phi coefficient respectively. The relationship between substance user group and continuous study variables was assessed by independent samples t-test. Where the data do not meet the assumptions of these tests, a non-parametric alternative, and the Wilcoxon rank sum test was used. The strength of the associations was measured by the Cohen's d for parametric tests and the *r-value* for the non-parametric tests. Data analysis was carried out in SAS. The 5% significance level was used.

2.2 Ethical Considerations

A study number was assigned to each patient record. Anonymity of the patients was ensured by having no link between the study number and identifying patient information and by using the age of the patient rather than date of birth in the data. Permission to conduct the research at Levai Mbatha Community Health Care Centre was requested from the Sedibeng Health District research co-ordinator. Ethics approval was obtained from the Humans Research Ethics Committee at the University of the Witwatersrand, number M171046

CHAPTER THREE: RESULTS

3.1 Socio-demographic characteristics of the sample

Data was collected on 368 adult patients, of whom just over half (55.2%) were male and almost all (99.2%) were black (Table 1). Over three quarters (76.6%, n=282) were single of whom 0.05%, (n=15) were widowed or divorced. 43.5% (n=160) of the study group had achieved some secondary schooling, but not matric, while 28.5% had only primary schooling. Although 86.7% (n=319) were unemployed, only 40.8% (n=150) of the study sample were recorded to have been in receipt of a disability grant. The sample was predominantly of a younger age, the age range was 18 to 76 years old (Figure 3.1), with a median age of 37 years (standard deviation 12.5 years).

Table 3.1 Socio-demographic characteristics of the sample

Variable	Category	N = 368	%
Sex	Female	176	47,8
	Male	192	52,2
Population Group	Black	365	99,2
	Coloured	3	0,8
Relationship status	Single	282	76,6
	In a relationship	86	23,4
HLOE	Primary	105	28,5
	Secondary	160	43,5
	Matric	95	25,8
	Tertiary	8	2,2
HLOE (grouped)	Primary	105	28,5
	Secondary	160	43,5
	Matric/Tertiary	103	28,0
Employment status Missing data=7	Unemployed	319	86,7
	Employed	42	11,4
Disability Grant	No	218	59,2
	Yes	150	40,8

HLOE=highest level of education

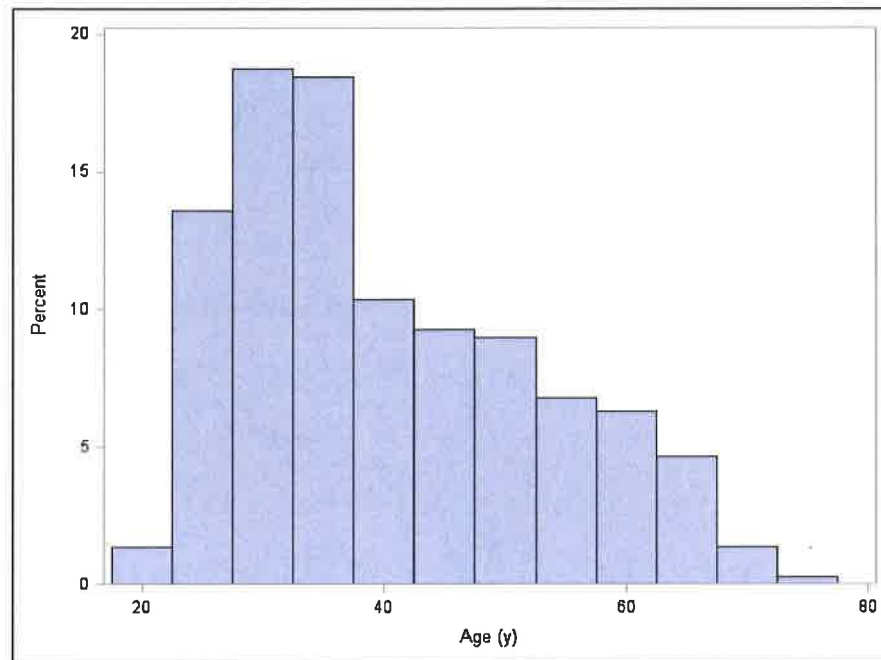
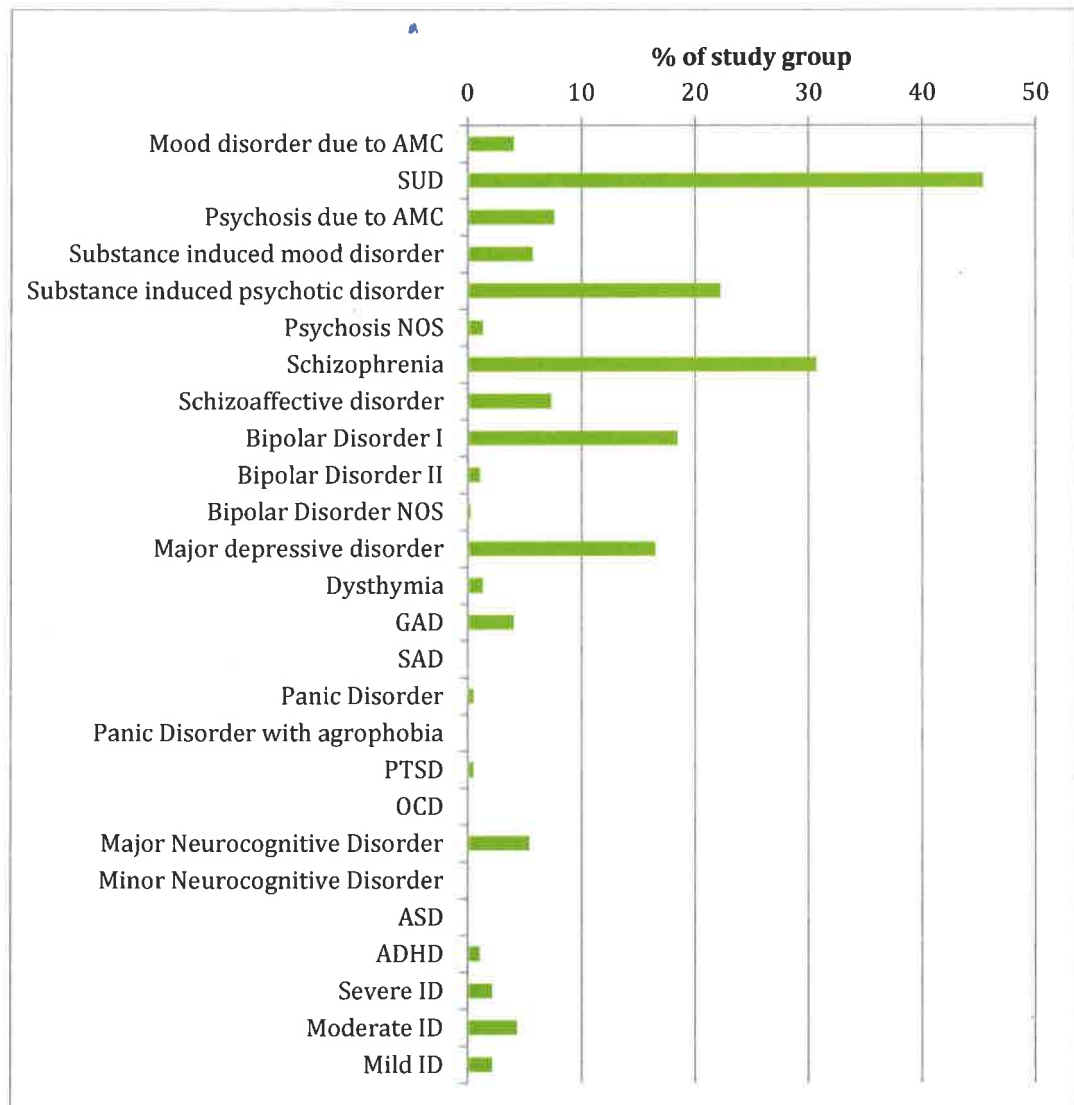


Figure 3.1 Age distribution of the sample

3.2 Clinical characteristics of the sample

The psychiatric diagnoses are presented in Figure 3.2. The most common diagnoses were SUD (45.4%) and schizophrenia (30.7%). Regarding personality disorders, 17 (4.6%) of the patients had Cluster B traits, and there were no patients with Cluster A or C traits. The total percentage of psychiatric diagnosis in Figure 3.2 is greater than 100% because of comorbidity of psychiatric conditions.



ADHD=attention deficit hyperactivity disorder, GAD=generalised anxiety disorder, SAD=schizoaffective disorder, PTSD=post-traumatic stress disorder, ASD=autism spectrum disorder, ID=intellectual disability, NOS=not otherwise specified, AMC=another medical condition.

Figure 3.2 Psychiatric diagnoses

Among the 167 patients with a SUD, the most commonly abused substances were cannabis, alcohol and nicotine (Figure 3.3).

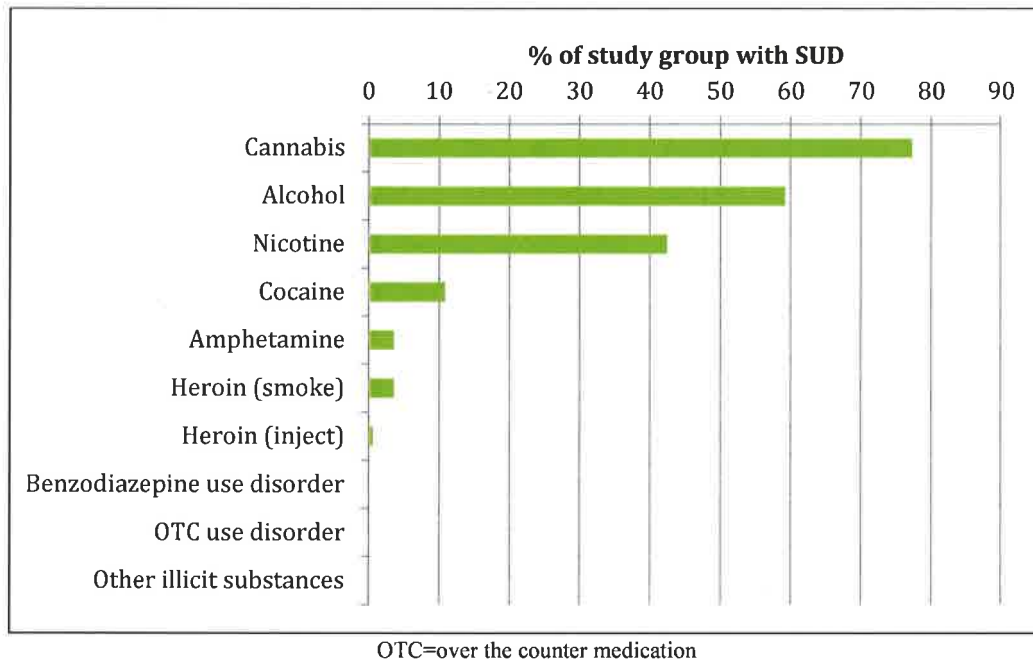


Figure 3.3 Substance Use Disorder (SUD)

At least one medical comorbidity was present in a third of the sample (Figure 3.4). The most common comorbid conditions were hypertension (13.3%) and HIV infection (13.0%) in (Figure 3.5).

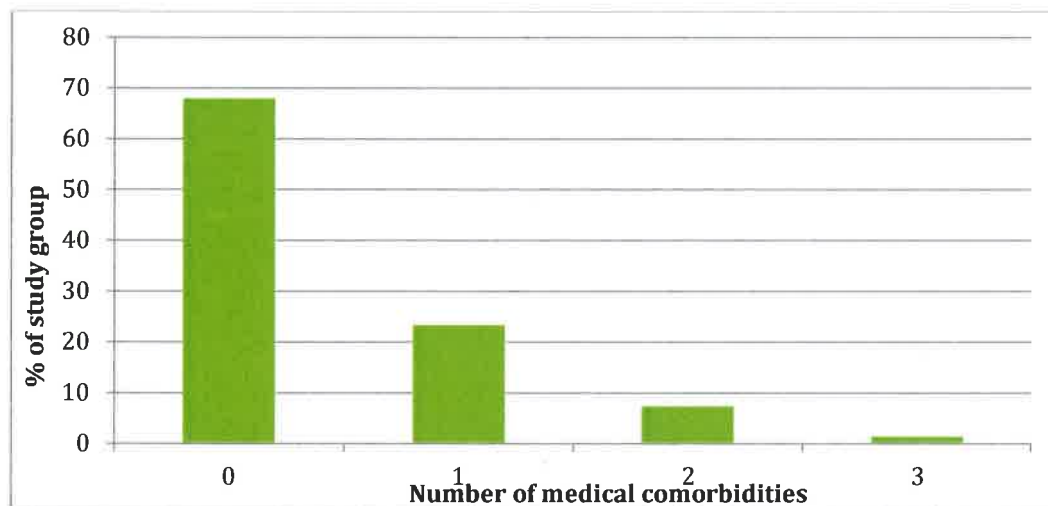
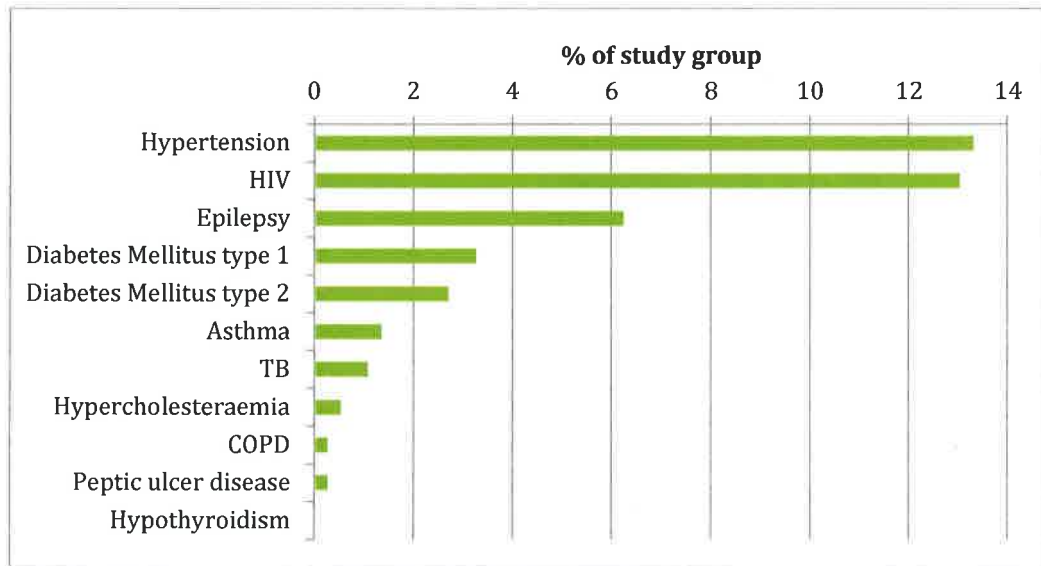


Figure 3.4 Comorbid medical conditions



HIV=Human immune-deficiency virus, TB=tuberculosis, COPD=chronic obstructive pulmonary disease,

Figure 3.5 Common comorbidities found within the sample

The number of Psychotropic medicines per patient is shown below. 1.1% of the patients were reported as having no medication, while patients predominantly had 2 medications (45.7%) as shown in Figure 3.6

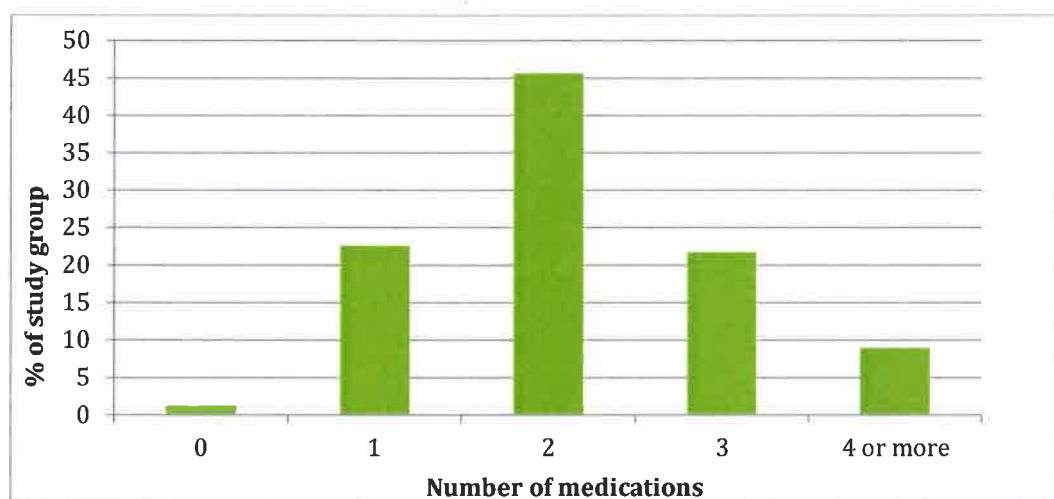


Figure 3.6 Number of psychotropic medicines prescribed

The most common psychiatric medication group was second generation antipsychotic, risperidone on the Primary Health Care Essential Medicine List

(42.9%) as shown in Figure 3.7, followed by anticonvulsants (e.g. Sodium Valproate, Carbamazepine and Lamotrigine). The most common other medication group was ARVs (9.2%).

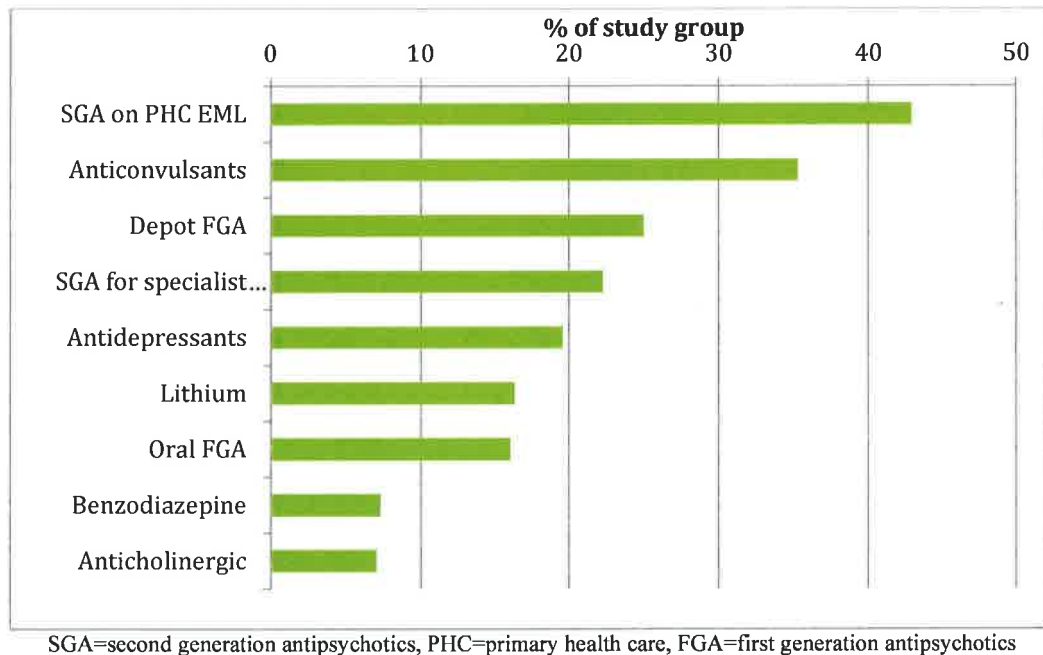


Figure 3.7 Psychopharmacology

3.3 Missed clinic appointments, hospital admissions, length of hospital stay

The distribution of the missed clinic appointments over the 24-month period is shown in Figure 3.8. Just over 30% of the sample had no missed appointments, and the median number of missed appointments was 4 (IQR 2-7; range 0-27).

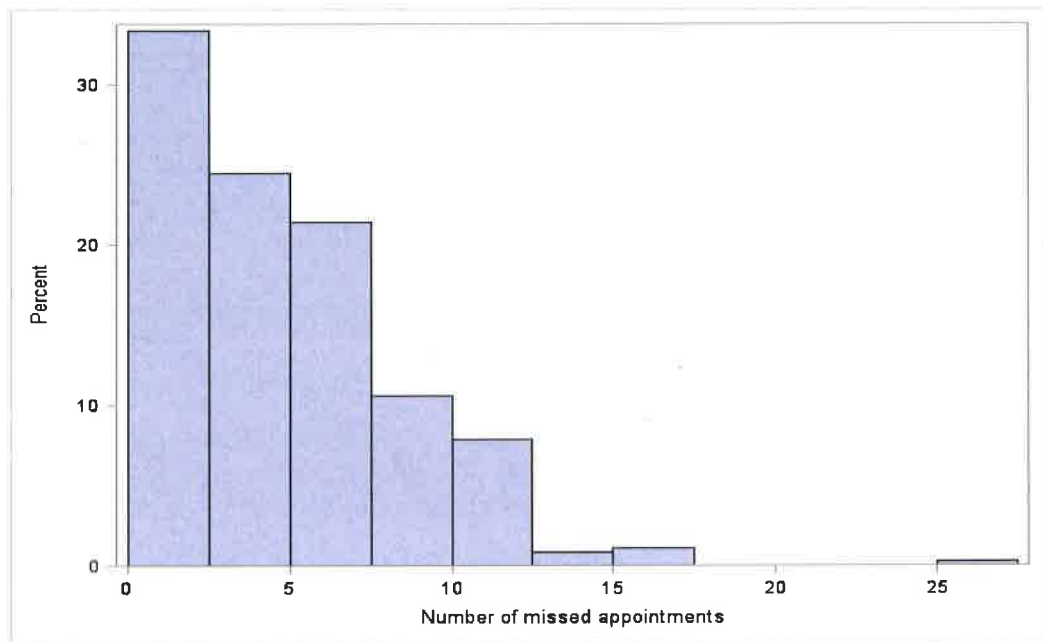


Figure 3.8 Number of missed clinic appointments in the 24-month period

Figure 3.9 shows that 53.8% of patients had no hospital admissions during the 24-months, whilst just fewer than 30% had had one hospital admission, less than 20% had two hospital admissions and less than 10% had three and more hospital admissions.

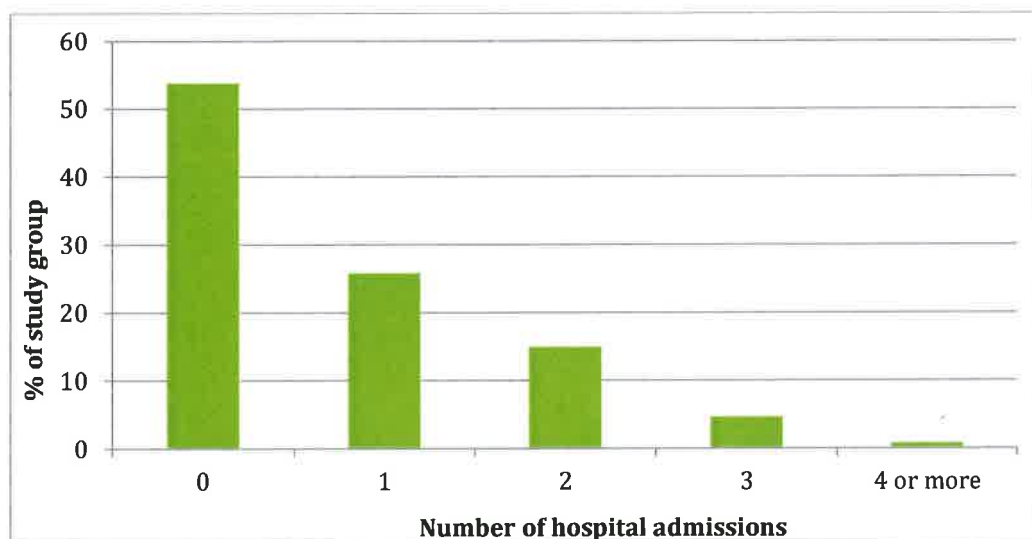


Figure 3.9 Number of hospital admissions in the 24-month period

The average length of stay for both the SUD and non-SUD group was 4.6 days. For the whole sample, the median length of stay (LOS) was 0 days (IQR 0-8 days; range 0-34 days) as shown in Figure 3.10 below. The distribution of the data is shown in Figure 10 below. Considering only the 170 patients with 1 or more hospital admissions, the median LOS was 10 days (IQR 7-12 days; range 1-34 days).

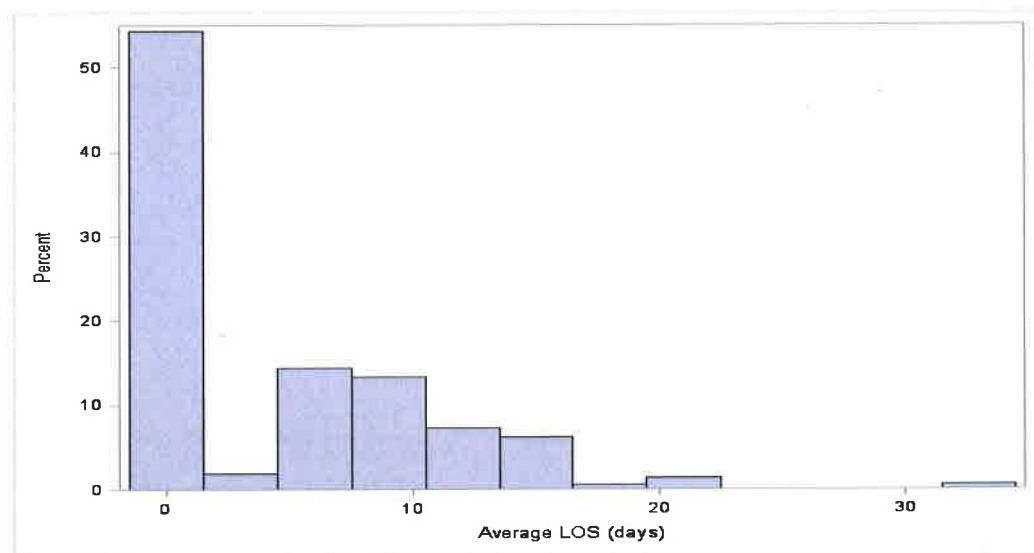


Figure 3.10 Average hospital length of stay (LOS)

3.4 Comparison of those with and without a substance use disorder

3.4.1 Sociodemographic differences

The sociodemographic comparison between those with and those without a SUD is presented in Table 3.2. Notably, those with a SUD were significantly more likely to be male ($p < 0.0001$), single ($p < 0.0001$), and have more than a primary school level of education ($p < 0.0001$). Although there was no significant difference in employment status between those with and without a SUD, those with a SUD were less likely to be in receipt of a disability grant ($p < 0.0001$).

The median age of the SUD group (33y; IQR 27-40y) was significantly lower than that of the non-SUD group (44y; IQR 34-55y) ($p<0.0001$).

Table 3.2 Socio-demographic characteristics of those with and without a substance use disorder

Variable	Category	Overall		Without SUD		With SUD		p-value for between-group test (conditions with $n<15$ not tested)
		N	%	n	%	n	%	
N		368		201		167		
Sex	Female	176	47,8	134	66,7	42	25,1	<0.0001
	Male	192	52,2	67	33,3	125	74,9	
Population Group	Black	365	99,2	201	100,0	164	98,2	0,093
	Coloured	3	0,8	0	0,0	3	1,8	
Relationship status	Single	282	76,6	135	67,2	147	88,0	<0.0001
	In a relationship	86	23,4	66	32,8	20	12,0	
HLOE	Primary	105	28,5	80	39,8	25	15,0	<0.0001
	Secondary	160	43,5	72	35,8	88	52,7	
	Matric/Tertiary	103	28,0	49	24,4	54	32,3	<0.0001
Employment status	Unemployed	319	86,7	168	83,6	151	90,4	0,16
	Employed	42	11,4	27	13,4	15	9,0	
	Pensioner	7	1,9	6	3,0	1	0,6	
Disability Grant	No	218	59,2	93	46,3	125	74,9	<0.0001
	Yes	150	40,8	108	53,7	42	25,1	

HLOE=Highest level of education

3.4.2 Clinical differences

The clinical variables of those with SUD and those without SUD are presented in Table 3.3 below. Notably those diagnosed with schizophrenia were more likely to have SUD ($p<0.0001$) than those without schizophrenia. Those with major depressive disorder had significantly more patients without SUD than those with SUD ($p<0.0001$). There was no significant difference in those with and without SUD in patients diagnosed with bipolar disorder ($p<0.11$).

Table 3.3 Clinical characteristics of those with and without a substance use disorder

Variable	Category	Overall		Without a SUD		With a SUD		p-value for between-group test (conditions with n<15 not tested)
		n	%	n	%	N	%	
N		368		201		167		
Psychiatric diagnosis	Mood disorder due to AMC	15	4,1	12	6,0	3	1,8	0,044
	Substance Use Disorder	167	45,4			167	100,0	
	Psychosis due to AMC	28	7,6	20	10,0	8	4,8	0,063
	Substance induced mood disorder	21	5,7	0	0,0	21	12,6	
	Substance induced psychotic disorder	82	22,3	0	0,0	82	49,1	
	Psychosis NOS	5	1,4	3	1,5	2	1,2	
	Schizophrenia	113	30,7	43	21,4	70	41,9	<0.0001
	Schizoaffective disorder	27	7,3	20	10,0	7	4,2	0,035
	Bipolar Disorder I	68	18,5	43	21,4	25	15,0	0,11
	Bipolar Disorder II	4	1,1	2	1,0	2	1,2	
	Bipolar Disorder NOS	1	0,3	1	0,5	0	0,0	
	Major depressive disorder	61	16,6	54	26,9	7	4,2	<0.0001
	Dysthymia	5	1,4	5	2,5	0	0,0	
	General Anxiety Disorder	15	4,1	11	5,5	4	2,4	0,14
	Social Anxiety Disorder	0	0,0	0	0,0	0	0,0	
	Panic Disorder	2	0,5	2	1,0	0	0,0	
	Panic Disorder with agoraphobia	0	0,0	0	0,0	0	0,0	
	Post Traumatic Stress Disorder	2	0,5	1	0,5	1	0,6	
	Obsessive Compulsive Disorder	0	0,0	0	0,0	0	0,0	
	Major Neurocognitive Disorder	20	5,4	18	9,0	2	1,2	0,0011
	Minor Neurocognitive Disorder	0	0,0	0	0,0	0	0,0	
	Autistic Spectrum Disorder	0	0,0	0	0,0	0	0,0	
	ADHD	4	1,1	2	1,0	2	1,2	
	Severe Intellectual Disability	8	2,2	8	4,0	0	0,0	
	Moderate Intellectual Disability	16	4,3	12	6,0	4	2,4	0,094
	Mild Intellectual Disability	8	2,2	4	2,0	4	2,4	
	Cluster B Personality traits	17	4,6	7	3,5	10	6,0	0,25

ADHD=Attention Deficit Hyperactivity Disorder, NOS=Not Otherwise Specified, AMC=Another Medical

Condition

Of those diagnoses where a significant difference was found between the two groups, the prevalence of Schizophrenia was significantly higher in the SUD group compared to the non-SUD group (Figure 3.11). The reverse was found for Mood

disorder due to AMC, Schizoaffective disorder, Major depressive disorder, and Major Neurocognitive disorder.

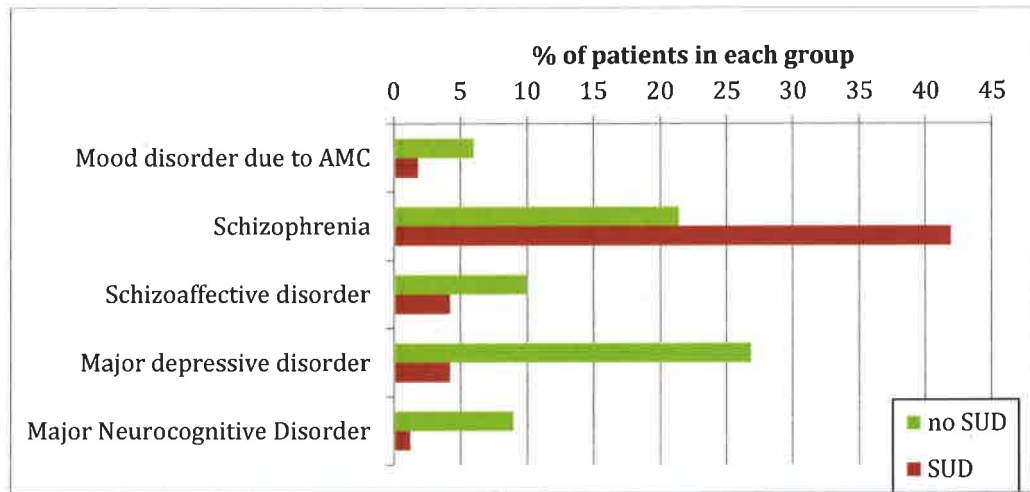


Figure 3.11 Significantly different psychiatric diagnoses among those with and without a substance use disorder

Comorbid medical conditions

There was a significant, weak, association between the number of medical comorbidities and SUD group ($p < 0.0001$; Cramer's $V = 0.27$). The SUD group had a higher proportion of patients with no medical comorbidities compared to the non-SUD group. Of those with medical comorbidities in the SUD groups, majority had only one medical condition.

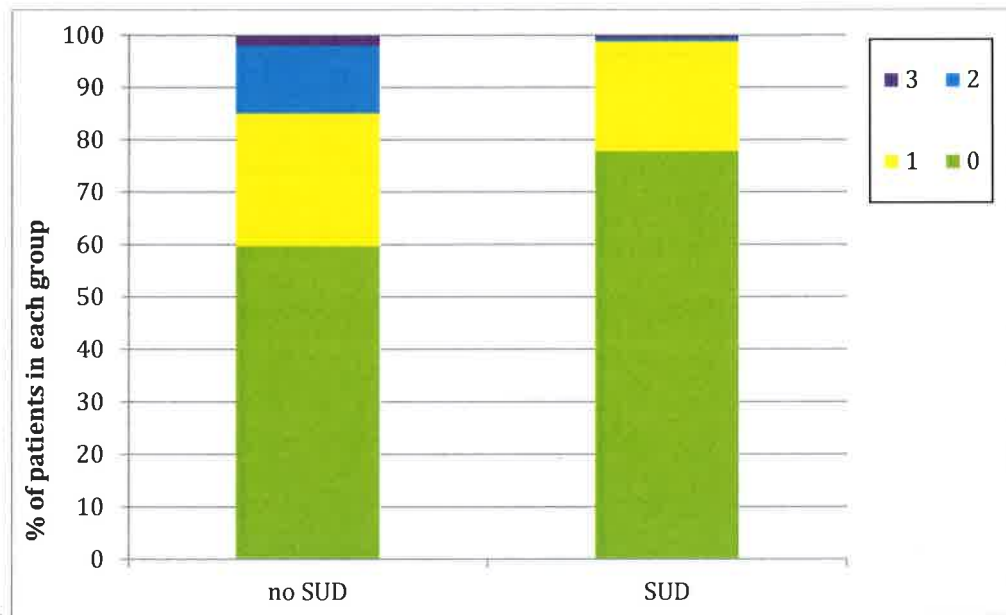


Figure 3.12 Number of comorbid medical conditions

Conditions with $n < 15$ were not tested (we cannot make inferences based on such a small number of patients). A significant difference between the two groups was found only for hypertension and diabetes (type 1 and type 2 grouped together). The percentage of patients with hypertension in the SUD group (5.4%) was significantly lower than in the non-SUD group (19.9%) ($p < 0.0001$). The effect size was small (phi coefficient=0.21). The percentage of patients with diabetes (both type 1 and 2) in the SUD group (0.6%) was significantly lower than in the non-SUD group (9.0%) ($p < 0.0001$). The effect size was small (phi coefficient=0.19).

Table 3.4 Medical comorbidity in those with and without a substance use disorder

Variable	Category	Overall		Without SUD		With SUD		p-value for between-group test (conditions with n<15 not tested)
		N	%	n	%	N	%	
N		368		201		167		
Medical comorbidity	Hypertension	49	13,3	40	19,9	9	5,4	<0.0001
	HIV	48	13,0	28	13,9	20	12,0	0,58
	Epilepsy	23	6,3	16	8,0	7	4,2	0,14
	Diabetes Mellitus type 1	12	3,3	11	5,5	1	0,6	<0.0001
	Diabetes Mellitus type 2	10	2,7	10	5,0	0	0,0	
	Asthma	5	1,4	3	1,5	2	1,2	
	TB	4	1,1	3	1,5	1	0,6	
	Hypercholesteremia	2	0,5	2	1,0	0	0,0	
	COPD	1	0,3	1	0,5	0	0,0	
	Peptic ulcer disease	1	0,3	1	0,5	0	0,0	
	Hypothyroidism	0	0,0	0	0,0	0	0,0	

The differences between the two groups for those medical comorbidities with more than 15 patients are illustrated in Figure 3.13.

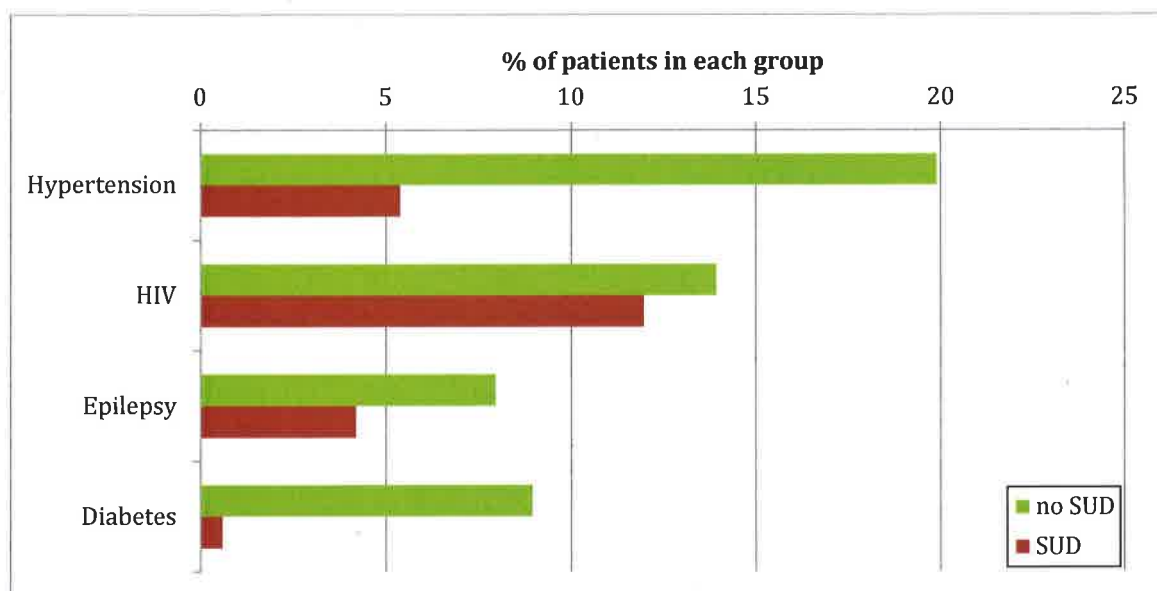


Figure 3.13 Significantly different medical comorbidities among those with and without a substance use disorder

Psychopharmacology

The differences in medications used by the two groups are shown in Table 3.5 and Figure 3.14. Medication groups with $n < 15$ were not tested for significance due to the small size. The use of FGA depot antipsychotics (Flupenthixol decanoate, zuclopenthixol decanoate), haloperidol, and anticholinergics were significantly higher in the SUD group compared to the non-SUD group, while the reverse was found for antidepressants.

In terms of pharmacology for comorbid medical conditions, the use of anti-hypertensive was significantly lower in the SUD group compared to the non-SUD group (3.6% vs 11.4%; $p=0.0060$; phi coefficient=0.15).

Table 3.5 Psychopharmacology in those with and without a substance use disorder

Variable	Category	Overall		Without SUD		With SUD		p-value for between-group test (conditions with n<15 not tested)
		N	%	n	%	n	%	
N		368		201		167		
Medication	Risperidone	158	42,9	82	40,8	76	45,5	0,36
	Sodium valproate	94	25,5	51	25,4	43	25,7	0,93
	First generation antipsychotic depot	92	25,0	29	14,4	63	37,7	<0.0001
	SSRI	68	18,5	59	29,4	9	5,4	<0.0001
	Lithium	60	16,3	36	17,9	24	14,4	0,36
	Haloperidol	47	12,8	17	8,5	30	18,0	0,0076
	Olanzapine	39	10,6	26	12,9	13	7,8	0,11
	Antiretrovirals	34	9,2	20	10,0	14	8,4	0,72
	Lamotrigine	32	8,7	20	10,0	12	7,2	0,46
	Benzodiazepine	27	7,3	15	7,5	12	7,2	>0.99
	Anticholinergic	26	7,1	9	4,5	17	10,2	0,041
	Diuretics	20	5,4	16	8,0	4	2,4	0,021
	Clozapine	17	4,6	6	3,0	11	6,6	0,10
	Amisulpride	14	3,8	7	3,5	7	4,2	
	Quetiapine	13	3,5	7	3,5	6	3,6	
	Chlorpromazine	12	3,3	5	2,5	7	4,2	

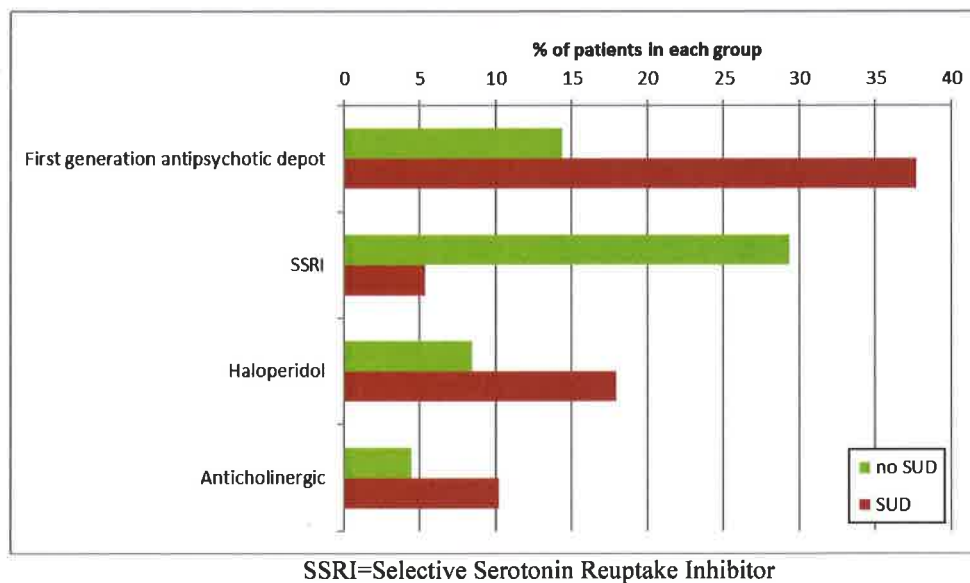


Figure 3.14 Significantly different psychotropic medications in those with and without a substance use disorder

3.5 Differences in missed appointments, hospital admissions and length of hospital stay

The median number of missed clinic appointments of the SUD group (5; IQR 3-8) was significantly higher than that of the non-SUD group (3; IQR 0-6) ($p<0.0001$), with a small effect size ($r=0.29$). There was a significant, moderate, association between the number of hospital admissions and the SUD group ($p<0.0001$; Cramer's $V=0.33$), as the SUD group had a higher proportion of patients with one or more hospital admissions compared to the non-SUD group. (Figure 3.15).

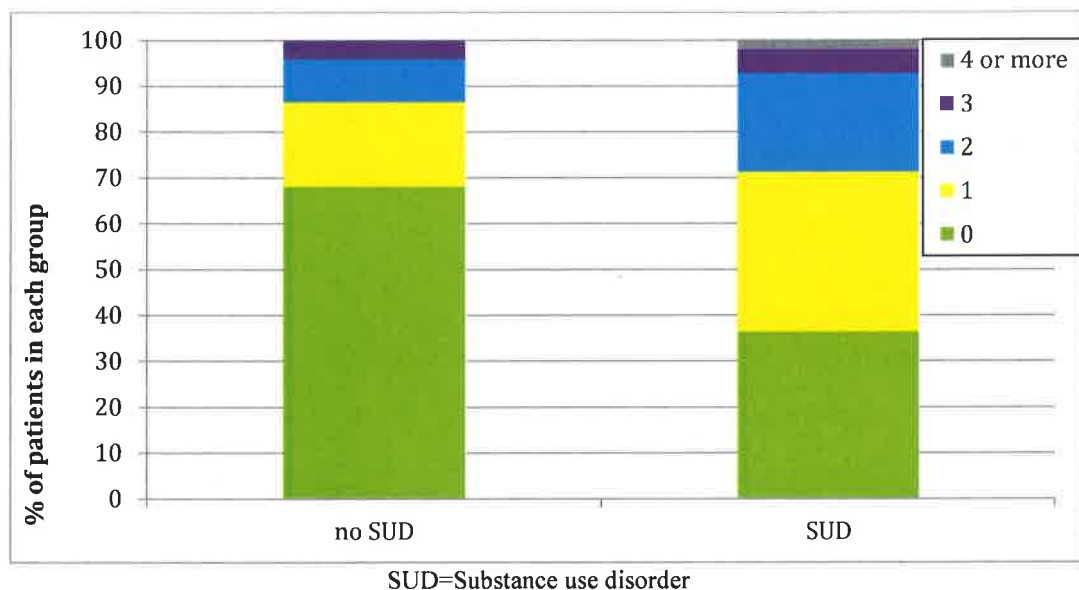


Figure 3.15 Number of hospital admissions in the 24-month period

The average length of hospital stay for the sample was 4.6 days. Of those who had a record of a hospital admission of at least 1 day ($n=170$), the median length of stay of the SUD group (7 days; IQR 1-10) was significantly greater than that of the non-SUD group (1 day; IQR 1 -7) ($p<0.0001$), with a small effect size ($r=0.31$).

CHAPTER FOUR: DISCUSSION

This study, which was conducted in a community-based psychiatric clinic serving a black African township population, found a 45.4% prevalence of SUD. Those with SUD were more likely to be male, of a younger age, single and having more than a primary school level of education, than those without a SUD. In addition, having a SUD was associated with significantly higher rates of missed clinical appointments, hospital admissions, and increased length of stay in hospital.

4.1 Prevalence and type of substance use disorder

This retrospective record review in a community psychiatric setting found substance use disorder to be the most commonly diagnosed disorder, with a prevalence of 45.5% in those attending the community psychiatric clinic. The prevalence rate is slightly lower than that of 51% found by Weich and Pienaar (2008) among inpatients at Stikland psychiatric hospital in the Western Cape of South Africa. However, it is considerably lower than the 67% found by Anic (2017) found amongst psychiatric inpatients at Helen Joseph Hospital, a tertiary academic general hospital in Gauteng.

The lower prevalence in our study as compared to the Weich and Pienaar (2008) and Anic (2017) could be due to the fact that these studies were conducted amongst hospitalized patients, as compared to our study which was done in using outpatients. Another cause could be that the studies by Weich and Pienaar and by Anic were prospective, interview-based research, and may have yielded a higher prevalence

rate due to greater accuracy in identification of SUD. Notably, a previous study at Helen Joseph Hospital, a retrospective record review describing the profile of patients admitted to the unit in 2008 (Janse van Rensburg, 2010) found that approximately 40% of patients were documented as abusing substances prior to their admission, and 21% were diagnosed with a substance related condition.

In those with SUD, the most common substances used were cannabis (77.2%), alcohol (59.3%) and nicotine (42.5%). Weich and Pienaar (2008) also found similar results in that cannabis and alcohol were the most common reported substance in the inpatient population group, although their prevalence rates of these substances were lower (40% and 31%) than those in our study. SACENDU (Dada *et al* 2019), an epidemiological study conducted at substance use centres, also found a lower prevalence of cannabis (50%) and alcohol (14%) in the Gauteng region as compared to our study, but the trend was similar in that these were the two most common substances used. The frequency of cannabis use may be higher than that in other countries. In the USA, Watkins *et al* (2004) found that alcohol was the most common reported substance used (70%), followed by crack or cocaine (50%) among patients being treated at outpatient substance abuse centre. Alcohol was also found to be the most common substances used in a study by Miles *et al* (2003) in a South London community mental health clinic amongst people with comorbid substance use disorder, where 34% were using alcohol, 22% were using both alcohol and cannabis and 12% were only using cannabis. The USA and UK are first world countries and alcohol use is a substance of choice in social settings. The high prevalence of cannabis in our study as compared to alcohol could be due to

affordability. Cannabis is less expensive than alcohol and other illicit substance use, and may possibly be considered less harmful.

4.2 Socio-demographic characteristics

The median age of the SUD group (33y; IQR 27-40y) was significantly lower than that of the non-SUD group (44y; IQR 34-55y) ($p<0.0001$). Compared to those with no substance use, those with substance use disorder were more likely to be male (74.9% vs 33.3%; $p<0.0001$) and single (88.0% vs 67.2%; $p<0.0001$). However, the difference in employment between those with SUD and those without was not statistically significant. This may be related to the overall unemployment rate in the whole sample being already high at 86.7%; considerably higher than that found during the Census 2011 for the Sedibeng district, which was 31.9%. Anic (2017) found similar results among psychiatric inpatients, where those with SUD were more likely to be young (under 40) and male, but no statistically significant difference in employment rate and relationship status. Our findings were also similar to those of Wustoff *et al* (2011) in community mental health care centres in Norway, where they found those with SUD were more likely to be younger, male, single and living alone. This highlights that younger males are more vulnerable to the use of substance and that proper resources needs to be directed toward screening and treatments in this populations group.

In terms of education level, those with SUD were more likely to have a higher level of education (secondary school level) than those without SUD, who were more likely to have only a primary level of education (39.8%). Interestingly, the Census

2011 also found higher prevalence of those with matric (32.7%) at the Sedibeng District as compared to those with no schooling (10.2%) and higher education (12.3%). In our sample, the higher education among those with a SUD could be due to their being younger and having access to education, as compared to the older generation, who were less likely to have a SUD ($p < 0.0001$) and may have been less likely to have had access to education during their youth, which would have been more affected by apartheid. The higher education may be protective and allow for effective intervention measures to be implemented in order to reduce the harm of SUD in this group.

4.3 Comparison of clinical characteristics

With regards to psychiatric diagnosis, the most common diagnosis after SUD was schizophrenia. Those without SUD were more likely to be diagnosed with Major Depressive Disorder (26.9% vs. 4.9% among those with SUD, $p < 0.0001$) or a Major Neurocognitive Disorder (9.0% vs. 1.2 amongst those with SUD % $p = 0.0011$), with no difference for Bipolar Disorder ($p = 0.11$) or Generalised Anxiety Disorder ($p = 0.14$), whilst those with SUD are more likely to be diagnosed with substance-induced-psychotic-disorder (49.1%) and schizophrenia (41.9% vs. 21.4% amongst those without SUD, $p < 0.0001$). This was different to the findings of Wustoff *et al* (2011) in community mental health care centres in Norway: a higher prevalence of mood disorders and anxiety disorders in both those with and without SUD and a prevalence of psychotic disorders in those with SUD of only 10.7%. Anic (2017) found a weak association of schizophrenia and Bipolar Disorder I in those with SUD as compared to those without SUD. This was surprising, as typically these disorders

are common in people with a SUD. Weich and Pienaar (2008) found that the most common psychiatric diagnosis was schizophrenia (28.5%), followed by mood disorders. Substance related disorders only accounted for 7% of the sample.

Searby, Maude and McGrath (2016) carried out research on the prevalence of co-occurring alcohol and other drug use in an Australian older adult mental health service. This paper explored the prevalence of co-occurring alcohol, as well as other drug use within an older adult community mental health service within inner Melbourne, Australia. They found that depression outweighed other conditions in the dual diagnosis group as the main mental health disorder. Dual diagnosis consumers within the sample were statistically highly likely to be male and younger in comparison to non-dual diagnosis counterparts. In South Africa, our study found schizophrenia outweighed other primary psychiatric disorder such as depression and mood disorders. While our findings differ to the Australian findings, the reason could be related to the older age of the Australian sample or may be related to differences in accessing mental healthcare between the two countries, so that people with SUD in South Africa may be more likely to access care if they have psychosis rather than depression..

Those with SUD had less medical comorbidity as compared to those without SUD. 77.8% of those with SUD has no medical comorbidities, whilst 21.0% had one comorbid medical illness and 0.6% three or more comorbidities. The two most common medical conditions in both with SUD and without SUD were hypertension and HIV. Although the difference in HIV rates between those with SUD (12.0%) and without SUD (13.9%) were not statistically significant, it might be expected to

have higher rates in those with SUD, due to the known increased risky behaviour of people using substances. This could be due to the fact that those with SUD were much younger as compared to those without SUD, so you would expect less chronic medical conditions. This is contrary to a study by Carey *et al.* (2004), which found that SUD was associated with high sexual risky behaviour such as unprotected sex and injection drug use, which led to increase in HIV rates. However, Anic (2017) found no significant associations when looking at medical conditions, possibly due to the younger population of the whole sample.

With regards to the current psycho-pharmacotherapy, there were no significant differences found with regards to psycho-pharmacology between those with SUD and those without SUD. This was unexpected, and perhaps because the treating doctors might not have perceived the severity of the symptoms of those with SUD as warranting extra medication and patient might have been sent to other non-pharmacological intervention facilities such as rehabilitation centres. The findings of the research further reveal that the most common psychiatric medication group was an SGA, risperidone. This could be due to the less extra pyramidal side effects seen with SGA as compared to FGA

4.4 Differences in clinical outcomes (missed clinic appointment, hospital admissions and length of stay).

The third objective of the research was to compare those with and without a recorded history of substance use in terms of the frequency of missed clinic appointments, hospital admissions for psychiatric symptoms, and duration of hospital stay. All three care outcomes were significantly worse among those with

SUD than those without SUD. This was consistent with Morojele, Seban and Seedat (2012), who describe more severe symptoms and course of illness in patients with dual diagnosis as compared to those without comorbid SUD. As well as the direct effect of substances on psychiatric symptoms, poor medication adherence has been increased among people with psychotic disorders and comorbid substance use, particularly with cannabis (Colizzi, 2016; Foglia, 2017). This could explain the increased number of missed appointments and readmissions found among this community-based sample with SUD, and increased severity of symptoms may have contributed to the longer duration of hospital stay.

4.5 Limitations

As a retrospective record review, this study had a number of limitations. For instance, incomplete patient records affected the completeness of data collection. Accuracy of diagnosis may differ amongst the clinicians depending on their clinical knowledge and experience. The other limitation was the fact that some of the patients could have failed to fully disclose their substance use history. The final limitation is the fact that the study results only reflect the pattern and demographics of patients from Levai Mbatha Community Health Care and might not necessarily be representative of other communities.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study shows that there is a high prevalence of SUD in patients with mental illness and the patients with SUD are more likely to be suffering from severe mental illness such as schizophrenia as compared to those without SUD who are more likely to have mood and anxiety related conditions. The patients with SUD are more likely to be male, unemployed, with secondary level of education and less likely to be on disability grant.

The study also shows that patients with SUD are more likely to have increased number of missed clinic appointments which leads to non-adherence to medication. This could also be the reason for the increased in hospital admission in those with SUD due to probably severe illness as compared to non-SUD, resulting in a higher length of stay when admitted to hospital. The study did not find an increased in medical comorbidities in those with SUD as compared to those without SUD, this could be due lack of screening of medical illness in those with SUD and lack of awareness and presentation to their health facilities. The most common medical comorbidities found in the sample were lifestyle related such as diabetes, hypertension and HIV. These were more common in those without SUD than those with SUD.

5.2 Recommendations

The increase in substance use in trend in patients with mental illness requires more vigilant and stricter measures of primary prevention, where patients with mental

illness are psycho-educated on the negative consequences of comorbid substance use. These primary prevention methods will need to happen at early diagnosis, with information on the different substance and its effects. On the other hand, most patients with mental illnesses such as schizophrenia and bipolar mood disorder use substances as a way of self-medicating their symptoms, especially cognitive related symptoms. It is important for health care practitioners to be aware of this, and institute early secondary preventive measures to prevent on-going use, which the study has shown, leads to poor adherence to clinic appointments and more hospital admissions. These measures could include screening tools and urine drug screen. With those who are already using any substance it's important to institute measures such as motivational interviewing on every contact with the patient. This will help understand the extent of the substance disorder and the readiness to stop the substances.

Facilities such as rehabilitation centres should be readily available for patients who need daily motivation to stop their substance use. This could be a day rehabilitation centre, where the patient can go on a daily basis for different psychological and behavioural intervention to stop the substance use. For patients who need extensive substance use rehabilitation, referral to dual diagnosis units such as the one available in Sterkfontein would be of benefit. Dealing with substance use in a patient with mental illness may increase compliance to medication, increase insight into illness and reduce the number of hospital admissions related to relapse. This in turn improves the quality of a patient's life with regards to increase in chances of finding employment and completing further education.

REFERENCE LIST

- Ambikile, J. & Masunga, I. (2017). Mental health care and delivery system at Temeke hospital in Dar es Salaam, Tanzania. *BMC Psychiatry*, 109(17), pp13-14.
- American psychiatric association DSM-5 task force. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5*, Washington, D.C., USA
- Amin-Esmaeili M., Rahimi-Movaghar A., Hajebi A., Radgoodarzi R., Mojtabai R., Hefazi M., Motevalian A. (2016). Epidemiology of illicit drug use disorders in Iran: prevalence, correlates, comorbidity and service utilization results from the Iranian Mental Health Survey. *Society for the study of Addiction*; 112(4), pp 733-734.
- Anic A. (2017) Prevalence and patterns of substance use amongst psychiatric inpatients at Helen Joseph Hospital. MMed Research report, University of the Witwatersrand. Available at <http://wiredspace.wits.ac.za/handle/10539/24810> [Accessed 7 October 2019].
- Appiah R., Boakye K., Ndaa P. and Aziato L. (2018). Drugs: Education, Prevention and Policy "Tougher than ever": An exploration of relapse prevention strategies among patients recovering from poly-substance use disorders in Ghana; 25(6) pp 467-474.
- Bakare AT., Isah BA. (2016). Psychoactive substances use among in-patients in a Nigerian neuropsychiatric hospital: prevalence, pattern and presentation. *MOJ Addict Med The*. 2(1), pp 18–22.
- Balhara YP., Ranjan R., Dhawan A., & Yadav D., (2014). Experiences from a community based substance use treatment centre in an urban resettlement colony in India. *Journal of Addiction*. 2014(6), pp 1-6.
- Botha UA., Kroen L., Joska JA., Parker JS., Horn N., Hering LM & Oosthuizen PP. (2010). The revolving door phenomena in psychiatry: comparing low-frequency and high-frequency users of psychiatric inpatient services in a developing country. *Soc Psychiat Epidemiol*. 45, pp 461-468.
- Carey M., Carey K., Maistro S., Schroder K., Vnable P. & Gordon C. (2004). HIV risk behaviour among psychiatric disorder, substance use disorder. *J Nerv Mental Dis*. 192(4), pp 289-296.
- Carrà G., Johnson S. & Bebbington P. (2012). The lifetime and past-year prevalence of dual diagnosis in people with schizophrenia across Europe: Findings from the European Schizophrenia Cohort (EuroSC)', *European Archives of Psychiatry and Clinical Neuroscience*. 262(7), pp 607–16
- Cohen L., Pooley JA., Clarke-Stewart A., Penner LA., Roy EJ., Bernstein DA., Provost S. & Cranney J. (2013). *Psychology: An International Discipline in Context*. Melbourne: Australia.
- Coker EM. (2005). Selfhood and social distance: toward a cultural understanding of psychiatric stigma in Egypt. *Soc Sci Med*. 61(5), pp 920-930
- Colizzi M, Carra E, Fraietta S, Lally J, Quattrone D, Bonaccorso S, Mondelli V, Ajnakina O, Dazzan P, Trotta A, Sideli L, Kolliakou A, Gaughran F, Khondoker M, David A, Murray R, MacCabe J, Forti M. Substance use, medication adherence and outcome one year following a first episode of psychosis. *Schizophr Res*. 216;170(2-3), pp 311-317.

Dada S., Burnhams N.H., Erasmus J., Lucas W., Parry C., & Bhana A. (2019) Monitoring alcohol, tobacco and other drug abuse treatment admissions in South Africa. *SACENDU*. <http://www.samrc.ac.za/sites/default/files/attachments/2019-10-16/SACENDUFULLReportPhase45.pdf>

Daniel WW. (1999) *Biostatistics: A Foundation for Analysis in the Health Sciences*. 7th Edition. New York: John Wiley & Sons.

Davis GP., Tomita A., Baumgartner JN., Mtshemla S., Nene S., King H., Susser E., Burns JK. (2016) Substance use and duration of untreated psychosis in KwaZulu-Natal, South Africa. *South African Journal of Psychiatry*, 22(1) a852. doi:10.4102/sajpsychiatry.v22i1.852

Foglia E., Schoeler T., Klamerus E., Morgan K., Bhattacharyya S., Cannabis use and adherence to antipsychotic medication: a systematic review and meta-analysis. *Psycho Med*. 2017;47(10), pp1691-1705

Gakinya B. (2015). The Prevalence of Substance Abuse among Psychiatric Patients at the Moi Teaching and Referral Hospital, Eldoret, Kenya. *International Journal of Novel Research in Healthcare and Nursing*; 2(1), pp 1-9.

Green AI., Drake RE., Brunnette MF., Noordsy DL. & Robert M. (2007). Schizophrenia and co-occurring use disorders. *American Journal of Psychiatry*, 164(3), pp 402-408.

Herman AA., Stein DJ., Seedat S., Heeringa SG., Moomal H. & Williams D. (2009). The South African Stress and Health (SASH) study: 12-month and lifetime prevalence of common mental disorders. *S Afr Med J*, 99(5), pp 339-44.

Janse van Rensburg AB. (2010). Acute mental health care and South African mental health legislation: part 1-morbidity, treatment and outcome. *African Journal of Psychiatry*, 13(5), pp 382-9.

Liao Y., Chen CY., Ng HM., Huang KY., Shao WC., Lin TY., Chen VC & Gossop M. (2017). Depression and severity of substance dependence among heroin dependent patients with ADHD symptoms. *The American Journal on Addiction*, 26(1), pp 26–33.

Maruish, M. 2017. *Handbook of Psychological Assessment in Primary Care Settings, Second Edition*. Florence: Taylor and Francis.

Miles H., Johnson S., Amphonsal-Afwape S., Finah E., Leese M., & Thornicroft G. (2003). Characteristics of subgroups of individuals with psychotic illness and comorbid substance use disorder: *Psychiatry online*. 54 (4), pp 101-102.

Morejele Nk., Seban A., Seedat S. (2012). Clinical presentations and diagnostic issues in dual diagnosis disorders. *Curr Opin Psychiatry*, 25(3), pp 181-6.

Piselli, M., Elisei S., Murgia N., Quartesan R., & Abram KM. (2016). Co-occurring psychiatric and substance use disorders among male detainees in Italy', *International Journal of Law and Psychiatry*. 32(2), pp 101–107.

Radhakrishnan R., Wilkinson ST., & D'Souza DC. (2014). Gone to pot: A review of the association between cannabis and psychosis. *Frontiers in Psychiatry*. 5 (54).

Robertson LJ., Chiliza B, Janse van Rensburg ABR., Talatala M. (2018). Towards universal health coverage for people living with mental illness in South Africa. In: Rispel LC, Padarath A, editors. *South African Health Review 2018*. Durban: Health Systems Trust.

Sara, GE., Burgees MP, Malhi, SG., Whiteford HA. & Hall WC. (2014). Stimulant and other substance use disorders in schizophrenia: Prevalence correlates and impact in a

population sample. *Australian and New Zealand Journal of Psychiatry*.48 (11), pp 1036-1047.

Saban A., Flisher AJ., Grisrud A., Morejele N., London L., Williams DR., & Stein DJ. (2014). The association between substance use and common mental disorders in young adults: results from the South African Stress and Health (SASH) Survey. *Pan Afr Med J*,17 Suppl:11.

Sepehrmanesh Z., Ahmadvand A. & Moraveji A. (2014). Comorbidity and Pattern of Substance Use in Hospitalized Psychiatric Patients. *Iran Red Crescent Med J*. 16(8), pp 2-4.

Statistics South Africa. (2012). Census 2011 municipal fact sheet. Pretoria.

http://www.statssa.gov.za/census/census_2011/census_products/Census_2011_Municipal_fact_sheet.pdf [Accessed 13 January 2020]

Szerman N., Martinez-Raga J., Peris L., Roncero C., Basurte I., Vega P., Ruiz P., Casas M. (2013). Rethinking dual disorders/ pathology. *Addictive Disorders and Their Treatment*, 12(1), pp 1–10.

Tasman A., Kay J., Lieberman JA., First MB. & Riba MB. (2015). *Psychiatry*. Chichester, West Sussex: John Wiley & Sons.

Trivedi JK. & Tripathi A. (2015). *Mental health in South Asia: Ethics, resources, programs and legislation*. 58(2), pp 319-332

Watkins KE., Hunter SB., Wenzel SL., Tu W., Paddock SM., Griffin A. & Ebener P. (2004). Prevalence and characteristics of clients with co-occurring disorders in outpatient substance abuse treatment. *Am J Drug Alcohol Abuse*, 30 (4), pp 749-64

Weich L. & Pienaar W. (2009). Occurrence of comorbid substance use disorders amongst acute psychiatric inpatients at Stikland Hospital in the Western Cape. *South African Journal Psychiatry*.12(2), pp 213-7.

Whiteford HA., Degenhardt L., Rehm J., Baxter AJ., Ferrari A., Erskine H., Charlson F., Norman R., Flaxman A., Johns N., Burstein R., Murray C. & Vos T. (2013). Global burden of disease attributable to mental and substance use disorders: Findings from the Global Burden of Disease Study 2010, *The Lancet* 382(9904), pp 1575–86.

World Psychiatric Association. (2014). 10 basic points on dual pathology: addiction and other mental illness [online]. Available at: <https://patologiadual.es/docs/wpa-10basic-points-dual-pathology.pdf> [Accessed 7 October 2019].

World Health Organisation. (2019). Management of substance abuse: diagnostic categories and terms [online]. Available at https://www.who.int/substance_abuse/en/ [Accessed 7 October 2019].

Wusthoff LE., Waal H., Ruud T., Grave RW. (2011). A cross-sectional study of patients with or without substance use disorders in community mental health care centres. *Bio Med Central Psychiatry*. 11(93), pp 1-9.

APPENDIX

Appendix 1: Socio-demographic data collection form

Sociodemographic data

MALE	1
FEMALE	2

POLPULATION GROUP

BLACK	
WHITE	
COLOURED	
INDIAN	
OTHER	

RELATIONSHIP STATUS

SINGLE	
IN A RELATIONSHIP	
DIVORCED	
SEPARATED	
WIDOWED	

EDUCATION LEVEL

PRIMARY	
SOME SECONDARY	
MATRIC	
TERTIARY	

EMPLOYMENT STATUS

EMPLOYED	
UNEMPLOYED	

DISABILITY GRANT

YES	
NO	

Appendix 2: Clinical data collection form

PRIMARY PSYCHIATRIC DIAGNOSIS:

PSYCHOTIC DISORDERS	1	0
ANXIETY DISORDERS	1	0
DEPRESSESIVE DISORDER	1	0
BIPOLAR AND RELATED DISORDERS	1	0
SUBSTANCE RELATED DISORDERS	1	0
TRAUMA AND STRESS RELATED DISORDERS	1	0
OBSESSIVE-COMPULSIVE DISORDERS	1	0
PERSONALITY DISORDERS	1	0
SOMATIC SYMPTOMS AND RELATED DISORDERS	1	0
OTHER MENTAL ILLNESS		

OTHER MEDICAL CONDITION:

PRESENT	1
NOT PRESENT	1

TYPES OF SUBSTANCES USED:

NICOTINE	1	0
CANNABIS	1	0
COCAINE	1	0
AMPHETAMINES	1	0
ALCOHOL	1	0
OTHERS	1	0

PSYCHOPHARMACOLOGY

ANTIPSYCHOTICS	1	0
ANTIDEPRESSANTS	1	0
MOOD STABILIZERS	1	0
STIMULANTS	1	0
BENZODIAZEPINES	1	0

NUMBER OF MISSED APPOINTMENTS	
NUMBER OF HOSPITAL ADMISSIONS	
AVERAGE DURATION OF HOSPITAL STAY	

Appendix 3: Ethics approval letter

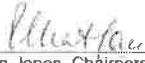


R14/49 Dr Lerato Mokwatsi

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M171046

NAME: Dr Lerato Mokwatsi
(Principal Investigator)
DEPARTMENT: Psychiatry
Levai Mbatha Community Health Centre, Evaton
PROJECT TITLE: Substance use Prevalence and Outcomes in a
Psychiatric Outpatient Population in Southern Gauteng
DATE CONSIDERED: 27/10/2017
DECISION: Approved unconditionally
CONDITIONS:
SUPERVISOR: Dr LJ Robertson

APPROVED BY: 
Professor P. Cleaton-Jones, Chairperson, HREC (Medical)

DATE OF APPROVAL: 30/10/2017

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary in Room 301, Third Floor, Faculty of Health Sciences, Philip Tobias Building, 29 Princess of Wales Terrace, Parktown, 2193, University of the Witwatersrand. I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report.** The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. In this case, the study was initially reviewed in October and will therefore be due in the month of October each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Principal Investigator Signature

Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Appendix 4: Research site permission letter



Sedibeng District Health
Services

Dr Victor Figueroa
Sedibeng District Research
Co-ordinator

To: Sebokeng Hospital Management
Human Research Ethics Committee, University of the Witwatersrand

Permission to conduct research

This is to certify that Dr. Lerato Mokwatsi, currently applying for ethical clearance for conducting research for the purpose of obtaining an MMed degree, is granted permission from Sedibeng District Research Committee to conduct the research at Leval Mbatha Community Health Centre in Evaton.

The Title of the study is: **Substance use prevalence and outcomes in a psychiatric outpatient population in Southern Gauteng**

The study will be a retrospective record review of patients attending the Leval Mbatha psychiatric clinic.

I, Dr. Victor Figueroa in my capacity as Sedibeng District Research Co-ordinator recommend and support her application to conduct the above research.
Regards,

Dr. Victor Figueroa

Date 2017/10/06



Appendix 5: TurnIt in Report

0404569y:MMed_Final_DrMokwatsi_26June.docx

ORIGINALITY REPORT

2%

SIMILARITY INDEX

2%

INTERNET SOURCES

0%

PUBLICATIONS

2%

STUDENT PAPERS

PRIMARY SOURCES

1

Submitted to University of Witwatersrand
Student Paper

2%

Exclude quotes On

Exclude bibliography On

Exclude matches < 2%