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Prevalence and patterns of substance use amongst psychiatric inpatients at Helen Joseph Hospital

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PREVALENCE AND PATTERNS OF SUBSTANCE USE AMONGST PSYCHIATRIC INPATIENTS AT HELEN JOSEPH HOSPITAL

Dr. ANI ANIC

A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of

Master of Medicine in the branch of Psychiatry

Supervisor: DR LESLEY ROBERTSON

Johannesburg

November 2017

DECLARATION

I, Dr Ani Anic, 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…….....Date…….....…

Name of Primary Supervisor: Dr. Lesley Robertson

Signature of Primary Supervisor ……Date……...…….....…

DEDICATION

To my family, my ladder to climb this wall.

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 of Helen Joseph Hospital for your kind facilitation during the time of data collection.

ABSTRACT

Background: Mental Disorders and Substance Use Disorders (SUD) commonly occur together, termed dual diagnosis, this is associated with poorer functioning, higher suicidality rates, hospitilisation, greater risk for crime and high health risk behavior.

Methods: Cross-sectional study with a sample size of 150 participants, gathered over 4 months. Data was collected with a structured clinical interview, and inpatient hospital records. Alcohol and drug misuse was screened for using the AUDIT and DUDIT respectively. A descriptive analysis was then made, prevalence of substance misuse was determined, and comparisons were made between those with and without substance misuse.

Results: The study group was predominantly young, single, african, unemployed men. The leading presenting symptoms were psychosis, aggression and mania, requiring mostly involuntary admissions, with a mean of 14 days hospital stay. Two-thirds of the participants were classified as substance misusers, these were significantly younger men, more often brought to hospital by the police or ambulance, and showed higher rates of substance use and substance-induced disorders.

Conclusion: This highlights the benefit of using screening tools for diagnosing substance use, and the need for improved management of those with a dual diagnosis.

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LIST OF ABBREVIATIONS

AUDIT – Alcohol Use Disorder Identification Test

DALY – Disability Adjusted Life Years

DSM V – Diagnositic and Statistic Manual edition five

DUDIT – Drug Use Disorder Identification Test

GAF – Global Assesment of Functioning

HIV – Human Immunodeficiecy Virus

HLOE – Highest Level of Education

HREC – Human Research Ethics Committee

ICD 10 – International statistical Classification of Diseases 10^{th} revision

MHCA – Mental Health Care Act

N - number

NAMI – National Alliance on Mental Illness

PSYCH D/T AMC – Psychotc Disorder due to Another Medical Condition

PTSD – Post Traumatic Stress Disorder

SACENDU – South African Community Epidemiology Network on Drug Use

SASH – South african Stress and Health

SCH - Schizophrenia

SIM – Substance Induced Mood disorder

SIP – Substance Induced Psychotic disorder

SM – Substance Misuse

SUD – Substance Use Disorders

THC – Tetrahydrocannibinol

UNODC – United Nations Office on Drugs and Crime

USA – United States of America

WHO – World Health Organisation

w.r.t – with respect to

YLD – Years Lived with Disability

ZCC – Zion Christian Church

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CHAPTER 1

INTRODUCTION

1.1 LITERATURE REVIEW

Background

There is a well-established relationship between mental disorders and substance use disorders (SUD), a vicious cycle, each increasing the risk of the other and therefore making diagnosis and treatment challenging; as well as each having their own prejudices (Saban et al. 2014). Although the term 'dual diagnosis' may be used for any two co-morbid conditions, as explained by the National Alliance on Mental Illness (NAMI), it is often used to describe people with both a mental illness and excessive substance use (NAMI 2013), and is used in this sense in this paper. The South African Stress and Health (SASH) study by Saban et al. (2014), found a comorbidity rate of 21.3% for any lifetime SUD and any DSM IV disorder, and 4.0% for any lifetime SUD with any anxiety or depressive disorder, with a predominantly strong relationship between cannabis use and mental disorder. It is therefore vital that we understand the prevalence of dual diagnosis in our setting, the available tools to identify co-morbid substance related problems and then, looking forward, prepare how best to treat such patients.

Outcomes Of Substance Use On Mental And Physical Health

Lagerberg et al (2010), documented a negative effect on outcome of treatment of patients with a dual diagnosis. In their study, they assessed the prevalence of substance use, and associated clinical and functional variables, amongst a sample of 125 people with bipolar disorder in Oslo. These were compared to the same variables of a matched sample of the general population, collected by the Norwegian Institute for Alcohol and Drug Research. The study revealed that patients with bipolar disorder had a three times higher rate of substance use, and those who used substances were at greater risk for impaired functioning with poorer education levels, occupation status, GAF-scores, medication compliance, and higher suicidality rates than those who did not use substances. A cross-sectional study by Wusthoff et al. (2011) examined 2,154 patients in community mental health centers across Norway. Their results mirrored previous important findings by Lagerberg et al. (2010), in that mental health care users with SUD displayed worse outcomes as evidenced by more severe morbidity among patients with a dual diagnosis. Patients with a dual

diagnosis were more often male, less often in a relationship and more often living alone. The dual diagnosis group had more problems with aggressive behavior, self-harm, relationships, occupation and activities of daily living. They also had less outpatient treatment, and therapists did not perceive the services to be sufficiently comprehensive, and therefore less improvement overall was seen. From a review of studies which examined patients with co-morbid mental and SUD (Najt et al. 2011), it was concluded that major depressive disorder and post-traumatic stress disorder could be potential predictors for a dual diagnosis and these patients showed worse outcomes long-term.

It is also important to remember, as Prince (2012) notes, that the risk of hospitalization for a mental illness increases for patients with a SUD. The study measured prevalence and correlates of substance use amongst the general population in the United States and found that people with alcohol and cannabis abuse or dependence had a three times increased likelihood of psychiatric hospitalization, compared to patients without SUD.

As well as worsening the outcome of the comorbid mental illness, SUD may lead to an increased risk of medical illnesses, including those associated with high-risk behavior such as sexually transmitted diseases and HIV. Teplin et al. (2005) interviewed 800 juvenile detainees at a detention center in Chicago, and found that those with SUD were at a particular risk for HIV, with or without a comorbid mental disorder. Silva et al. (2012) interviewed 191 adult patients five years after they had sought treatment for alcohol use in Sao Paulo, and found a 16.9% premature mortality rate: 27 deaths were due to liver and pancreatic disease, and 14 to accidents and/or violence.

Global Patterns Of Substance Use

Worldwide, 3.3 million deaths each year are attributed to the harmful use of alcohol, and at least 15.3 million persons have drug use disorders (World Health Organisation 2014). The United Nations office on Drugs and Crime (UNODC) reports the most commonly used illicit substance to be cannabis, during 2014 an estimated 183 million people used the drug; amphetamines remain the second most widely

used illicit substance (UNODC 2016). They further reported that evidence has emerged of increased use of synthetic cannabinoids especially amongst younger people. Synthetic cannabinoids have been shown to be more potent with more severe adverse events, thus increasing risk of psychosis (Murray et al. 2016).

Global Patterns Of Dual Diagnosis

Multiple studies internationally have attempted to gage the prevalence of SUD amongst psychiatric patients, in other words having a dual diagnosis, with vast ranges form 27% to 58%. Bonsack et al. (2006) revealed current alcohol use at 32% and cannabis 17% amongst psychiatric inpatients of Switzerland. Flovig, Vaaler and Morken (2009) found a rate of 31.7% SUD in a Norway psychiatric acute admission unit. Hansen et al. (2000) found a 50% prevalence of SUD amongst its' 12 Dannish psychiatric units. Wheeler, Robinson and Robinson (2005) revealed 27% comorbid SUD in their 3 psychiatric units in Auckland, New Zealand. Any lifetime SUD was recorded as 58% amongst 325 participants of a psychiatric unit in New Hampshire, USA (Muesser et al. 2000). Although varying rates, these studies reveal high prevalence of dual diagnosis amongst high income countries.

Patterns Of Dual Diagnosis In Low And Middle Income Countries

Rates of dual diagnosis amongst low income countries also tends to show a varying range. In Sri Lanka, Hapanagama (2013), found 43% comorbid SUD amongst 325 patients in a tertiary psychiatric unit. Pelzang et al. (2012) gave results of 46% SUD in its' study of 1336 patients in a psychiatric unit in Bhutan, South East Asia. Ndetai et al. (2008) in their study of 691 patients in a Kenyan psychiatric unit, reported 24% SUD.

Patterns Of Substance Use In South Africa

A large proportion of South African society is known to struggle with substance use (Crime Statistics SA 2013). This is continuous with low to middle income countries and higher than findings of higher income countries (UNODC 2016). In South Africa, statistics regarding substance use is provided by the South African Community Epidemiology Network on Drug Use (SACENDU), which is a national surveillance system on alcohol and other drug use derived from substance use rehabilitation

centers across the nine provinces (Dada et al. 2015). Their report on 9,679 substance users published in November 2015 revealed alcohol to be the most commonly used substance in the majority of the sites, most significantly in Kwa-Zulu Natal and the Central Region. Cannabis was the second highest drug of abuse in South Africa, but most commonly used substance in Gauteng, with 49% of patients in Gauteng rehabilitation centers revealing cannabis as their primary or secondary drug of dependence. Gauteng province statistics record 3,570 admissions to 17 treatment centres in the second half of 2015; 56% of which were referred to the centres by themselves, family, or friends; only 10% by social workers, and a mere 3% by a health care professional. SACENDU also reports a change in the demographic profile of patients seeking treatment for substance dependence; of the patients under 20 years, Gauteng has seen a rise in black-africans from 64% in 2008 to 77% in 2013, however this is still less than the population demographics. The average age of persons across the treatment sites was 26 to 31-years old, with those patients having inhalants or cannabis as their primary drug of abuse tending to be younger. This report illustrates the grave problem substance use is in the country, but it does not give information regarding co-morbid, or substance induced, mental illness.

Patterns Of Dual Diagnosis In South Africa

Weich and Pienaar (2009), explored the prevalence of SUD among acute adult psychiatric inpatients at Stikland Hospital in the Western Cape. They note the large variance in studies globally of SUD in psychiatric inpatients, ranging from 12% – 65% and from 48% to 64% for lifetime substance use; therefore highlighting the need for local surveys to explore the extent of dual diagnosis in individual centres, this having implications for staff training and service development. Amongst their sample of 298 participants, 51% were diagnosed with a comorbid SUD; these participants were significantly younger compared to those without a SUD, and more likely to have been involuntary admissions. Very few participants had documented evidence of prior interventions for their SUD: 3% had documented clinical notes of previously receiving psycho-education, 0.7% received detoxification, 0.7% attended an outpatient rehabilitation, and 5% attended at least one inpatient rehabilitation program.

Historically in South Africa, substance rehabilitation centres are considered to be under the Department of Social Development, and therefore referrals to these services are under their control (Government Gazette 2009). The Mental Health Care Act of 2002 emphasised the need to address the co-morbidity of SUD with mental illnesses, and a co-ordination of services was required. Therefore in the National Mental Health Policy and Framework Strategic Plan (Department of Health 2013), the Department of Health committed itself to providing care, treatment and rehabilitation for those users with a dual diagnosis, in designated psychiatric hospitals, rather than referring them to the Department of Social Services.

Identifying Dual Diagnosis

Unfortunately, patients with a dual diagnosis are often not identified and the co-morbid substance use may go untreated. Harris and Edlund (2005), examined a sample of 90,277 respondents that had completed the National Survey on Drug Use and Health in the USA; 65% of those with a mental health symptom and substance use (1,633 respondents), and 46% of those with severe mental illness and substance use (1,872 respondents), did not receive any treatment. Furthermore, less than a third (31.2%) of patients with dual diagnosis attending community mental health centers reported that they had received treatment for their SUD.

In addition, many patients attending mental health services present with substance-induced psychiatric disorders. Aggarwal et al. (2012) collected 13 years of data from a de-addiction center in India, and found the presentation of substance-induced psychotic disorders and primary psychotic disorders to be similar, making it difficult to distinguish between the two.

Morojele, Sabat and Seedat (2012) reviewed several studies and found clinical features and outcomes to be mixed in dual diagnosis patients, with heterogeneity in clinical presentation and symptom severity. They argue around the inadequacy of diagnosis of dual diagnosis disorders, with inadequate instruments contributing to the low levels of detection of dual disorders, and suggest the need for more routine application of screening tools.

Screening Tools For Diagnosing Substance Use Disorders

Wusthoff et al. (2011) outlined the importance of using structured screening tools for the presence of SUD, and suggested the use of the Alcohol Use Disorder Identification Test (AUDIT) and the Drug Use Disorder Identification Test (DUDIT). The AUDIT was developed by the World Health Organisation (WHO) as a screening tool to identify people with hazardous, harmful or dependent alcohol use. The DUDIT questionnaire was developed as a parallel instrument for identification of drug use patterns and related problems. The questions are based on DSM IV and ICD 10 criteria for substance abuse and dependence, and are designed to identify a range of substance use problems, from occasional use of a single drug to harmful use to dependence. The questionnaires yield best results when used with at-risk populations (Edward et al. 1977), for example mental health care users. Kader et al. (2012) compared self-reported results of AUDIT and DUDIT questionnaires to alcohol and drug analysis of hair and urine samples from 30 patients attending HIV clinics in Cape Town. They found that more tested positive on self-report then on biological markers and concluded that the AUDIT and DUDIT were a more cost-effective option for substance use screening. Gundersen et al. (2013) confirmed the AUDIT and DUDIT to be valid and reliable in its study of 256 inpatients in a Norwegian psychiatric emergency ward.

Motivation For The Study

In light of the above, it may be concluded that mental disorders and SUD commonly occur together, termed dual diagnosis. Patients with a dual diagnosis are known to have a worse prognosis in terms of poorer functioning, higher suicidality rates, higher rates of hospitilisation, greater risk for crime and high health risk behavior. It is therefore important to be aware which mentally ill patients are struggling with SUD so that we may help treat them and improve outcomes. Currently it is believed that we are under-diagnosing SUD, possibly because clinicians are not asking the right questions. The AUDIT and DUDIT have been found to be reliable, accurate interview tools to identify substance abuse or dependence. The National Mental Health Policy and Framework Strategic Plan (Department of Health 2013), states that mental health facilities are to run substance use services for dual diagnosis patients. It is

therefore our responsibility to evaluate substance use amongst patients attending mental health care facilities and institute treatment.

1.2 HYPOTHESIS

There will likely be a high prevalence of substance use amongst psychiatric inpatients in a general hospital in South Africa. Those with substance use should be younger, unemployed males, presenting with more psychotic and aggressive symptoms, and more readmissions, therefore a greater demand on hospital services.

1.3 AIM OF THE STUDY

By using the structured screening questionnaires, the AUDIT and DUDIT, this study aims to identify the prevalence and patterns of substance use according to severity and type of substance amongst a sample of inpatients at an acute psychiatric unit at Helen Joseph hospital, a tertiary academic general hospital in Johannesburg, South Africa.

1.4 OBJECTIVES

A. To describe the prevalence and patterns of substance use amongst a sample of psychiatric inpatients admitted to Helen Joseph Hospital.

B. To compare those who screen positive for excessive substance use to those without in terms of demographic profile, level of education, psychiatric diagnosis, length of hospital stay, and psychopharmacology.

CHAPTER 2

MATERIALS AND METHODS

2.1 STUDY DESIGN

A cross-sectional study using a structured clinical interview and inpatient hospital records.

2.1.1 Study Population

All patients who met the inclusion criteria, admitted to the Helen Joseph Hospital acute psychiatric unit were interviewed and screened with the AUDIT and DUDIT questionnaires until 150 patients had been captured into the study. This was conducted over the four-month period, February 2016 to the end of May 2016.

2.1.2 Study Setting

Helen Joseph Hospital is situated in the southern part of the Gauteng province in South Africa, and serves communities from eastern, central, and western suburbs of Johannesburg. Nearby areas are typically known for their crime and drug related problems. As an example, according to the census of 2011, Eldorado Park has a population of 65,698. From crime statistics (2013), we see that 136 drug-related crimes were reported in this area in 2004, this increased to 1,303 in 2013; and driving under the influence has increased from 50 cases in 2004, to 190 in 2013; confirming the rising trend of substance use and their related problems in the area over the years. The psychiatric unit at Helen Joseph Hospital, previously described in a retrospective study published by Janse van Rensburg (2010), is a thirty-bed, mixed male and female, adult assessment unit. The unit accepts referrals from surrounding clinics and those presenting to casualty. From April 2007 to March 2008 a total of 520 patients were admitted, 49.8% male and 50.2% female. The population race categories included 41.3% black, 27.5% white, 17.7% coloured, and 5.2% indian. The most common diagnoses were Schizophrenia (28.6%), Substance related disorders (20.5%), and Bipolar disorder (14.3%). Of the total number of patients, about 40% actively abused substances and 39% were non-adherent to their

outpatient medication prior to admission. However, other than routine clerking, there is no structured screening for substance use amongst inpatients.

2.1.3 Inclusion Criteria

Participants must:

- Be 18 years or older.
- Be conversant in English or Afrikaans.
- Have the capacity to give informed consent, for this the patients required a clear sensorium and able to understand the informed consent sheet
- Sign an informed consent document indicating that they understand the purpose of and procedures required for the study and are willing to participate in the study

2.1.4 Exclusion Criteria

Participants who:

- Do not meet the inclusion criteria listed above.

2.1.5 Sample Size

For the estimation of the prevalence of Substance Misuse (SM), based on an estimate of 40%, and a 95% confidence interval, a sample size of 150 participants was pre-determined, this corresponds to 8% precision. This is somewhat higher than the 5% precision which is the typical aim, but is still acceptable for an exploratory study.

The comparison of patients with/without SM with respect to demographic and clinical variables was done using the chi-square test. For a 4x2 table, typical of the comparisons required here, the detection of small, medium, and large effect sizes with 80% power and at the 5% significance level, requires sample sizes of 1091, 122

and 44, respectively. The sample size of 150 is thus adequate for the detection of a medium effect size.

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
(Daniel 1999)

Other sample size calculations were carried out in G*Power (Buchner 2007).

2.1.6 Sampling Strategy

Beginning on the 1st of February 2016, all patients admitted to Helen Joseph Hospital were assessed for inclusion in the study and approached to participate until the sample of 150 patients was reached.

The nursing and allied professional staff of the psychiatric unit were informed of the existence of the study. The principal investigator did all the data collection. Every weekday morning, the admission book of the psychiatric ward of Helen Joseph hospital was examined for new admissions. These patients were approached during their admission by the investigator at a time when informed consent could be obtained, and informed of the study using the patient information sheet in appendix 1. The patients were given an explanation of the research study and informed of what was involved, the risks and benefits to themselves and others and that participation was voluntary and confidential. Any admitted patients who were unable to be included in the study were recorded as such, together with the reason for non-participation (e.g. language, lack of capacity or unwillingness to provide informed consent or immediate transfer to another hospital before it was possible to interview the patient).

Once informed consent (appendix 2) was provided, the patient was interviewed according to the socio-demographic and clinical questionnaire attached in appendix 3, followed by the AUDIT (appendix 4) and DUDIT (appendix 5) questionnaires. The clinical records were used to gather information required on the socio-demographic and clinical questionnaire that the patient was not able to provide. The study continued until 150 patients had been interviewed, this occurred over a 4-month period, 1 February 2016 to 31 May 2016.

2.1.7 Study Instruments

The following study tools were used:

1. The socio-demographic and clinical questionnaire, attached in appendix 3, was used to collect demographic data and information regarding diagnosis, length of stay and psychopharmacology.

2. In this study the AUDIT questionnaire, attached in appendix 4, was used to screen for alcohol consumption. This questionnaire was developed by the WHO to briefly assess for excessive drinking. It differs from other self report methods by focusing on recent symptoms therefore emphasizing identification of hazardous drinking rather than long-term dependence. As recommended by the AUDIT manual (2001), a cut-off score of 8 or above for men and 6 or above for women was used to identify hazardous or harmful alcohol use and a score of 20 or more as an indication of alcohol dependence. In this study, the term “Misuse” was used to include all of those with either hazardous, harmful or dependent use.

3. The DUDIT questionnaire, attached in appendix 5; was developed as a parallel screening tool to the AUDIT, to identify individuals with drug-related problems. The DUDIT is appropriate for assessing those in a risk zone and those with no substance use problems. As recommended by the DUDIT manual (2003), a cut-off score of 6 or above for men and 2 or above for women was used to identify drug abuse or harmful use, and a score of 25

points or more for both sexes as an indication of drug dependence on one or more drugs.

2.1.8 Sociodemographic Measurements

2.1.8.1 Demographic data:

- Age
- Sex
- Relationship status
- Population group
- Religion.
- Highest level of education – none, primary, secondary to Grade 11, matric, tertiary.
- Employment Status – unemployed, formal employment, informal employment, receipt of disability grant.

2.1.8.2 Clinical data:

- Date of admission and discharge
- Mental health care act status on admission and discharge / transfer to another facility.
- Predominant presenting symptom / reason for admission.
- Index or repeat admission – number of admissions in past 24 months.
- Use of seclusion / acute injectable antipsychotics during admission.
- Diagnosis – psychiatric primary and secondary diagnosis.
- Co-morbid medical illness.
- Outcome of admission
    - Psychopharmacology on discharge
    - Referral to another facility or discharge home with an outpatient follow up.

2.2 DATA ANALYSIS

The following definitions were used:

Alcohol Misuse for the purposes of this study was defined as having an AUDIT score of 8 or more in men, and 6 or more in women. Therefore, encompassing hazardous or harmful use and dependence.
Drug Misuse for the purposes of this study, was defined as having a DUDIT score of 6 or more in men, or 2 or more in women.
Substance Misuse (SM), for the purposes of this study, was defined as having an AUDIT score of 8 or more in men, and 6 or more in women; and/or a DUDIT score of 6 or more in men, or 2 or more in women. Therefore, encompassing alcohol and drug misuse.
As the term "Substance Use Disorder" (SUD) is used by convention in the psychiatric unit for a clinical assessment of any substance use this term was retained in this study for the diagnosis according to the clinical records. It must be noted that the term does not indicate a formal DSM interview guided diagnosis but a working diagnosis.

Descriptive analysis of the data was carried out. Categorical variables were summarised by frequency and percentage tabulation, and illustrated by means of bar charts. Continuous variables were described by the mean, standard deviation, median, interquartile range, and histogram.

The clinical and demographic variables of those with SM, as identified by the AUDIT and DUDIT questionnaires, were compared to those without SM. The X^2 test was used to assess the relationships between categorical variables and SM group. 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 following scale of interpretation was used:

0.50 and above	high/strong association
0.30 to 0.49	moderate association
0.10 to 0.29	weak association

below 0.10	little if any association

The relationship between continuous variables and SM group was assessed by the t-test. Where the data did not meet the assumptions of the test, a non-parametric alternative, the Wilcoxon rank sum test was used. The strength of the associations was measured by the Cohen's d for the t-test and the r-value for the non-parametric test. The following scale of interpretation was used:

0.80 and above	large effect
0.50 to 0.79	moderate effect
0.20 to 0.49	small effect
below 0.20	near zero effect

Data analysis was carried out using SAS version 9.4 for Windows. The 5% significance level was used. In other words, a p-value < 0.05 implies statistical significance.

2.3 ETHICAL CONSIDERATIONS

1. Ethical clearance for the study was obtained from the University of the Witwatersrand, Human Research Ethics Committee (HREC), appendix 6. Written approval was granted by the study site research committee, certificate attached in appendix 7. The study had been structured in accordance with the Declaration of Helsinki (last updated: October 2013), which deals with the recommendations guiding doctors in biomedical research involving human participants.

2. Privacy And Confidentiality
   All the interviews had taken place in private and confidentiality was assured. All patients were assigned a study number. The patient's name, hospital number and date of birth were excluded from the data so as to maintain anonymity.
3. Protection of the patients' identity: Anonymity has been preserved. All participants were allocated a study number. Neither the patient name, date of birth or hospital number will appear in the data.
4. All information was collected by one investigator; including obtaining informed consent, review of the hospital file, and administration of the questionnaire; therefore privacy and confidentiality was conserved.
5. Prior to obtaining consent, participants were explained the purpose and reason for the study; the procedures, risks and benefits of the study. Their participation was entirely voluntary, and participation could be withdrawn at any time without stating a reason, without affecting their medical or psychiatric care.
6. There was no remuneration of patients.
7. No interference with service delivery and normal clinical duties occured as data was collected once ward work was completed, not interrupting the patient's ward routines either.
8. Results of the study are only available to professional colleagues, for examination purposes and via symposium presentations and peer-reviewed publication.

CHAPTER 3

RESULTS

3.1 SAMPLE CHARACTERISTICS

A total of 177 patients were admitted to the psychiatric ward of Helen Joseph Hospital during the study period. Of these 177 patients, 150 patients were interviewed.

The 27 were excluded for the following reasons:

- Eight declined to participate in the study
- Ten were transferred to Sterkfontein Hospital for further involuntary care prior to interview being possible
- Four were excluded as they did not speak English or Afrikaans
- Two were excluded as they were under 18-years-old
- Three were unable to consent
    - One was severely intellectually disabled
    - One diagnosed with a major neurocognitive disorder
    - One participant diagnosed with delirium.

3.1.1 Demographic Profile

Firstly looking at the information collected from the clinical data sheet, demographic information from the total study sample shows the following: a large majority of the sample size, 76.7% was under the age of 40-years. The median age of the study group was 30-years-old, with a range of 18 to 70-years (Figure 3.1).

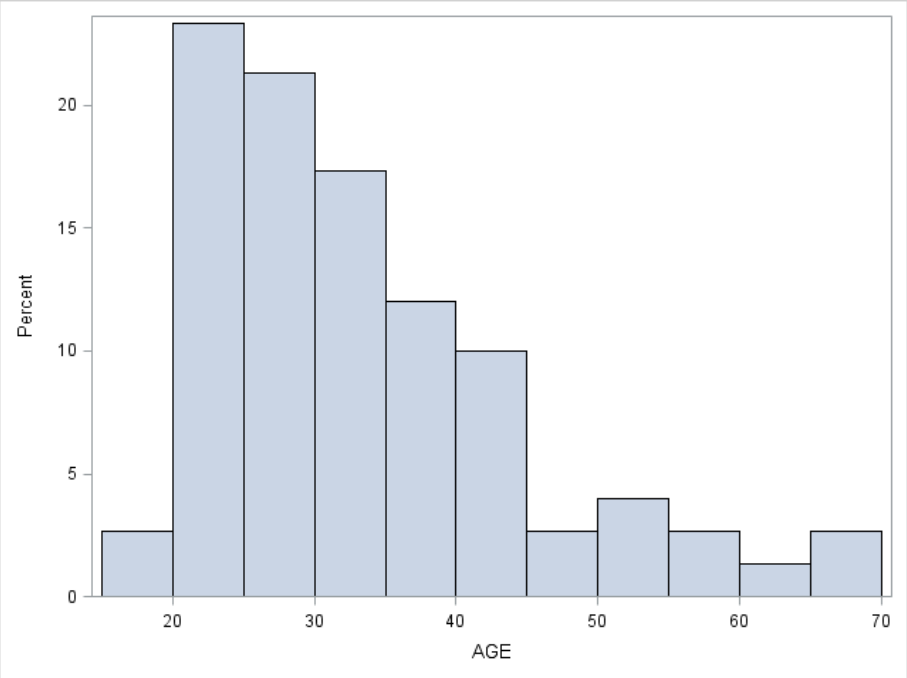


Figure 3.1 Age Distribution Of Patients Included In The Study

Approximately two-thirds of the study sample was male, and predominately African (Table 3.1). When looking at relationship status, the study group was predominately single, 46.0%. However when grouping together those that were single, divorced, separated and widowed, a total of 58.0% was reached; compared to 42.0% either married or in a relationship for more than six months.

Regarding their education level, most of the participants had either some High school (42.7%), or Matric (34.0%). A further 16.0% attended college or university. Despite the education received, the study group was predominately unemployed (54.0%), and only 22.7% declared having a permanent job.

A small portion of the study group received a disability grant (15.3%).

The study group was predominately Christian (64.0%).

Most of the study sample was right handed, a small minority of 4.0% left-handed, and 2.0% ambidextrous (Table 3.1).

Table 3.1 Demographics Of Sample Population

		Study sample	
Variable	**Category**	**n**	**%**
N		**150**	
Sex	FEMALE	56	37,3
	MALE	94	62,7
Ethnicity	AFRICAN	101	67,3
	COLOURED	26	17,3
	CAUCASIAN	20	13,3
	INDIAN/ASIAN	3	2
Relationship status	SINGLE	69	46,0
	MARRIED	36	24,0
	RELATIONSHIP > 6months	27	18,0
	DIVORCED	13	8,7
	SEPARATED	3	2,0
	WIDOWED	2	1,3
Relationship status (grouped)	SINGLE	87	58,0
	IN A RELATIONSHIP	63	42,0
Highest Level of Education	NONE	1	0,7
	PRIMARY	10	6,7
	HIGH SCHOOL	64	42,7
	MATRIC	51	34,0
	COLLEGE	11	7,3
	UNIVERSITY	13	8,7
Employment status	UNEMPLOYED	81	54,0
	PERMANENT JOB	34	22,7
	SELF EMPLOYED	14	9,3
	STUDENT	10	6,7
	TEMPORARY JOB	6	4,0
	PENSIONER	4	2,7
	PIECE JOBS	1	0,7
Employment status (grouped)	UNEMPLOYED	81	54,0
	EMPLOYED	55	36,7
	STUDENT/PENSIONER	14	9,3
Disability grant	NO	127	84,7
	YES	23	15,3
Religion	CHRISTIAN	96	64,0
	NONE	23	15,3
	ZCC	9	6,0
	MUSLIM	5	3,3
	JEWISH	3	2,0
	HINDU	1	0,7
	OTHER	13	8,7
Religion (grouped)	CHRISTIAN	96	64,0
	NONE	23	15,3
	ZCC	9	6,0
	OTHER	22	14,7

3.1.2 Clinical Profile

On the clinical information sheet, more information was gathered regarding the participants' current admission to the Helen Joseph Psychiatric unit. Duration of admission was recorded; showing the median length of stay was 11 days, with a mean of 14.3 days, and a range of 1 to 92 days (Figure 3.2).

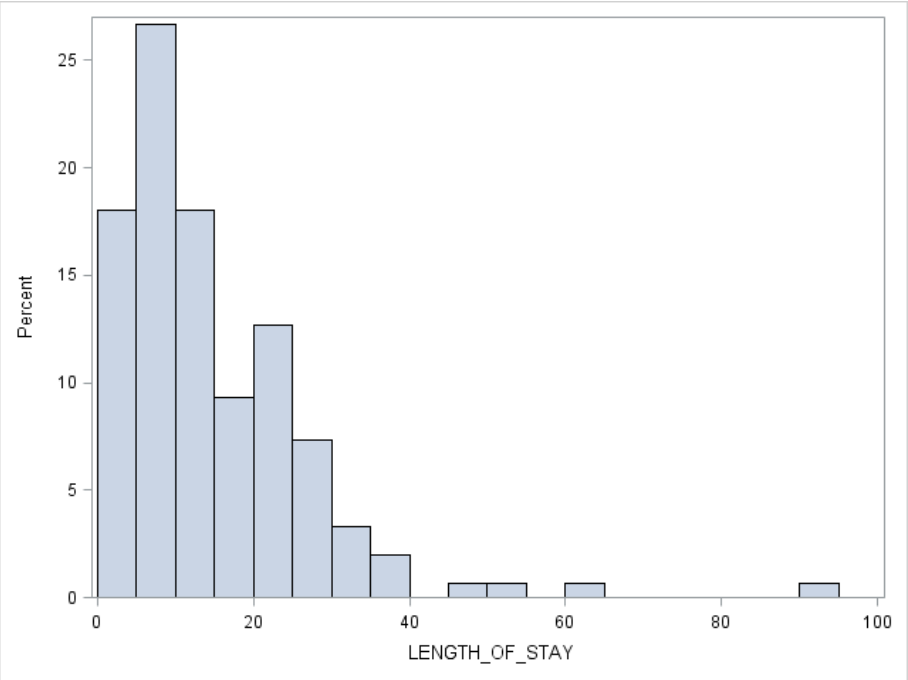


Figure 3.2 Length Of Stay In Days Of Overall Study Sample

The mental health care status of admissions was predominately involuntary (58.7%), or assisted (36.0%), and only 5.3% voluntary. Two-thirds of participants were brought to Helen Joseph Hospital by a relative, parent or spouse, a further 16.0% by the police, and 7.3% by the ambulance (Table 3.2).

For two-fifths of the participants this was their first presentation to psychiatry. Of the remaining three-fifths that are known mental health care users, one-quarter had had two admissions in the previous twenty-four months (Table 3.2).

Table 3.2 Clinical Data Of Study Sample From Admission, Including Mental Health Care Act Status, Who Brought The Participants To Hospital, Their Presenting Symptoms And Number Of Admissions.

		Overall	
Variable	**Category**	**n**	**%**
N		**150**	
Mental Health Care Act status	INVOLUNTARY	88	58,7
	ASSISTED	54	36,0
	VOLUNTARY	8	5,3
Brought by	RELATIVE	50	33,3
	PARENT	31	20,7
	POLICE	24	16,0
	SPOUSE	18	12,0
	AMBULANCE	11	7,3
	SELF	11	7,3
	OTHER	5	3,3
Presentation	INDEX	60	40,0
	REPEAT	90	60,0
Admissions in last 24 months	1	84	56,0
	2	37	24,7
	3	23	15,3
	4	5	3,3
	5	1	0,7

N = number

On admission almost 80% of the participants had presented with psychotic symptoms, and over 50% were aggressive (Figure 3). Seven participants were classified as having “other” presenting symptoms; two of the seven participants presented with confusion, two with disorganised behaviour, one with catatonia, one with seizures, and one with self-harming behaviour. Note that some participants had more than one presenting symptom therefore percentages do not add up to 100% (Figure 3.3).

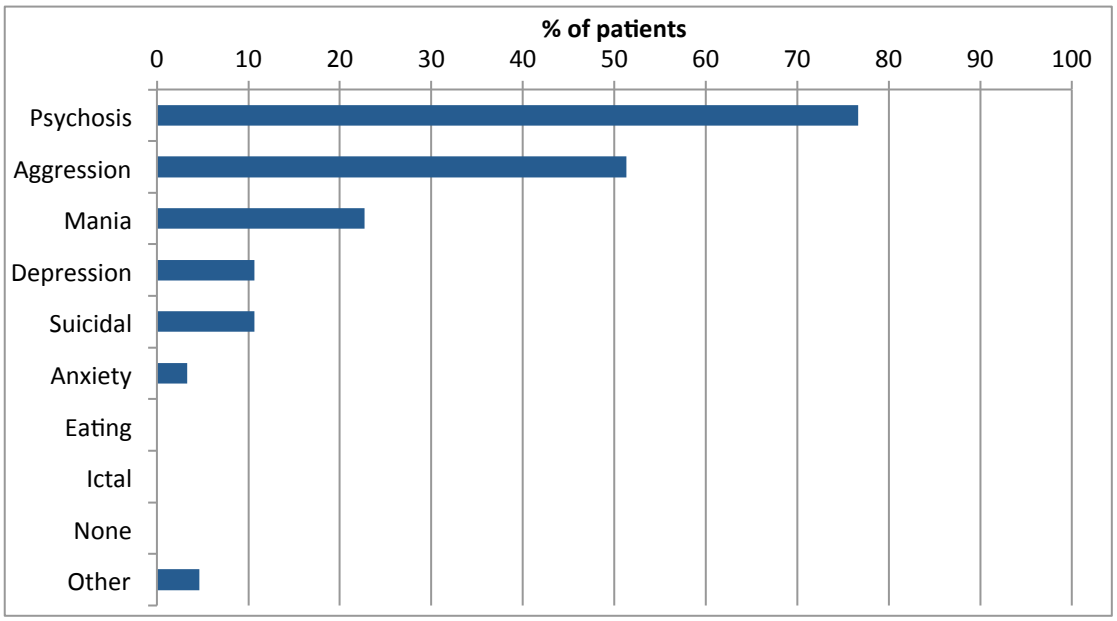


Figure 3.3 Presenting Symptoms On Admission Of Overall Study Sample

On discharge, 60% of the participants received a clinical diagnosis of a SUD, 30% were diagnosed with a Substance-Induced Psychotic disorder. Over 20% were diagnosed with Bipolar Disorder type 1, and just under 20% with Schizophrenia (Table 3.3).

The treating doctors diagnosed both a SUD and a psychiatric illness in 58.7% of the participants, in other words having a dual diagnosis. There were two participants that were diagnosed with a SUD and no other psychiatric disorder.

The predominant medical comorbidity of the 150 participants was HIV, 20 (13.3%) were known to be HIV reactive, or tested reactive during the admission; two-thirds tested non-reactive during the admission, and 31 participants remained unknown as testing was not performed. 77.3% of the participants had no medical comorbidities (Table 3.3).

Table 3.3 Psychiatric Diagnosis And Medical Comorbidities Of The Study Sample

		Overall	
Variable	**Category**	**n**	**%**
N		**150**	
Psychiatric diagnosis	SUBSTANCE USE DISORDER	90	60,0
	SUBSTANCE INDUCED PSYCHOTIC DISORDER	46	30,7
	BIPOLAR I	33	22,0
	SCHIZOPHRENIA	29	19,3
	CLUSTER B	16	10,7
	INTOXICATION	15	10,0
	SUBSTANCE INDUCED MOOD	12	8,0
	PSYCHOTIC DISORDER DUE TO ANOTHER MEDICAL CONDITION	12	8,0
	WITHDRAWAL	3	2,0
	SCHIZOAFFECTIVE	3	2,0
	DEPRESSION	3	2,0
	ANXIETY	3	2,0
	BIPOLAR II	1	0,7
	POST TRAUMATIC STRESS DISORDER	1	0,7
	NONE	0	0,0
	OTHER	15	10,0
	INTELLECTUAL DISABILITY	*6*	
	DEMENTIA	*4*	
	BRIEF PSYCHOTIC DISORDER	*2*	
	ADHD	*1*	
	ADJUSTMENT	*1*	
	DELIRIUM	*1*	
Medical comorbidities	HIV	20	13,3
	EPILEPSY	5	3,3
	HEAD INJURY	4	2,7
	HYPERTENSION	6	4,0
	DIABETES	3	2,0
	TUBERCULOSIS	0	0,0
	NONE	116	77,3
	OTHER	2	1,3
	SYPHILLIS	*2*	
	COLORECTAL CA	*1*	
	MENINGITIS	*1*	
HIV status	NEGATIVE	99	66,0
	POSITIVE	20	13,3
	UNKNOWN	31	20,7

N = number

ADHD = Attention Deficit Hyperactivity Disorder
HIV = Human Immunodeficiency Virus

3.1.3 Psychopharmacology

3.1.3.1 Psychopharmacology for tranquilisation on admission

101 participants required tranquilisation, Clonazepam was predominately used. Note that percentages in the graph do not add up to 100% since some participants had more than one tranquiliser (Figure 3.4).

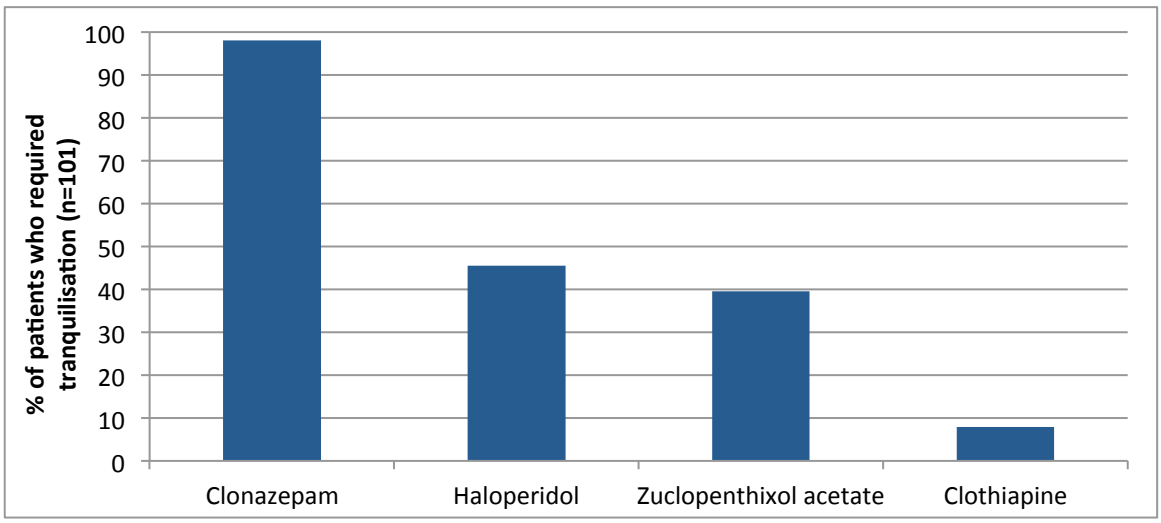


Figure 3.4 Percentages Of Participants Receiving The Various Tranquilisers

Some were not stabilised on a benzodiazepine alone, Clonazepam; and required added intramuscular tranquilisation with an antipsychotic, Haloperidol and/or Zuclopenthixol acetate injections.

Tranquilisation was not required in 32.7% of participants, conversely 52.7% of the participants required one or two types of tranquilisers, and 14.6% required three or four (Figure 3.5).

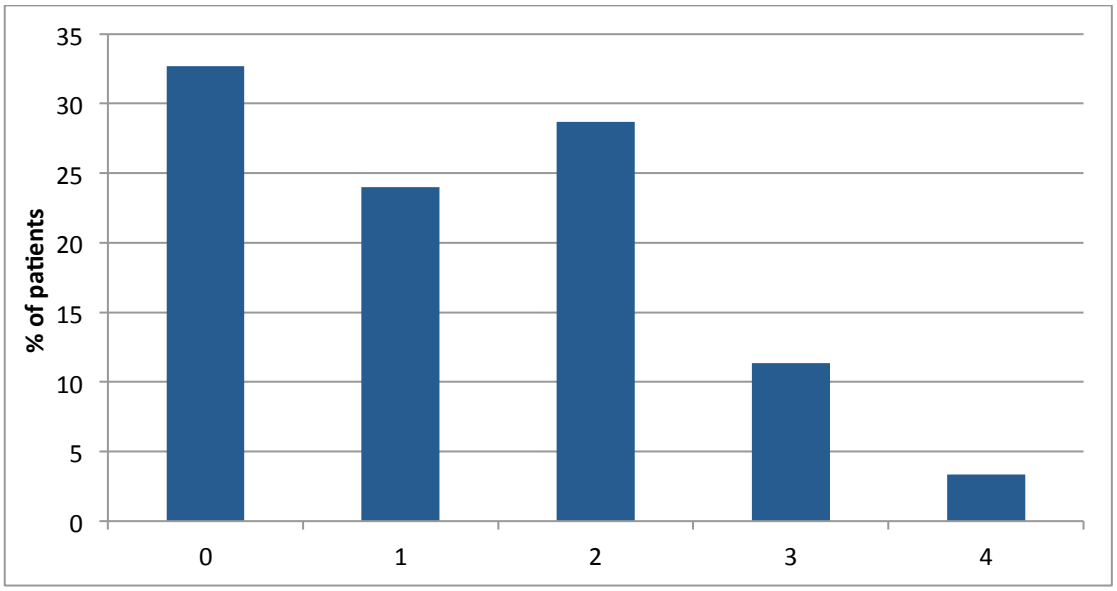


Figure 3.5 Percentage Of Participants Requiring One Or More Tranquilisers During Admission Of Overall Study Sample

3.1.3.2 Psychopharmacology on discharge

The most frequently prescribed medication on discharge was antipsychotics (85.3%) and benzodiazepines (77.3%). The other medications prescribed include Anti-retrovirals for HIV (seven participants), Orphenadrine (six participants), and Thiamine (two participants). Note that percentages in the graph do not add up to 100% since some patients had more than one medication prescribed on discharge (Figure 3.6).

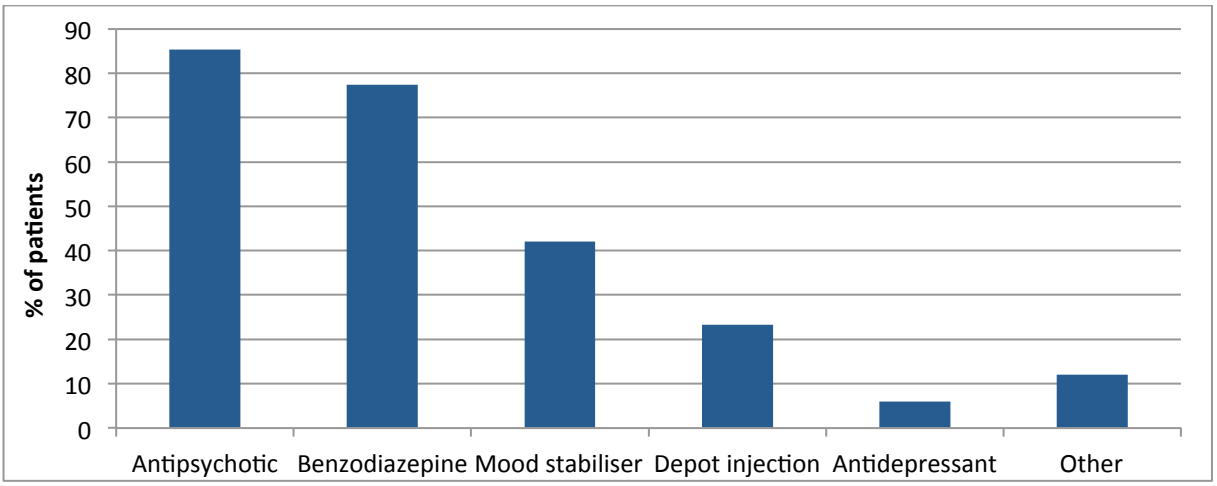


Figure 3.6 Psychopharmacology On Discharge For Overall Study Sample

3.1.4 Disposition Of Patients After Discharge

The majority of the participants were discharged to go home. Only two participants were sent to a substance rehabilitation facility, both organised by families to a private facility (Figure 3.7).

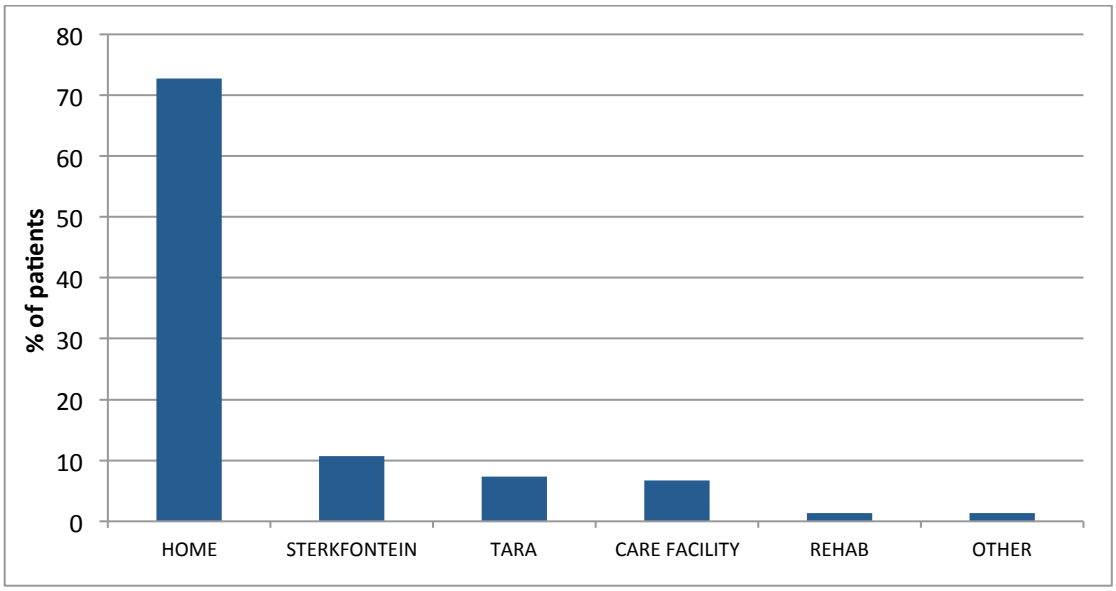


Figure 3.7 Disposition Of Participants Following Discharge From Helen Joseph Hospital

3.2 SUBSTANCE MISUSE

3.2.1 Distribution Of AUDIT Scores For The Sample

The distributions of the AUDIT scores by percentage of participants in the study sample are shown in Figure 3.8.

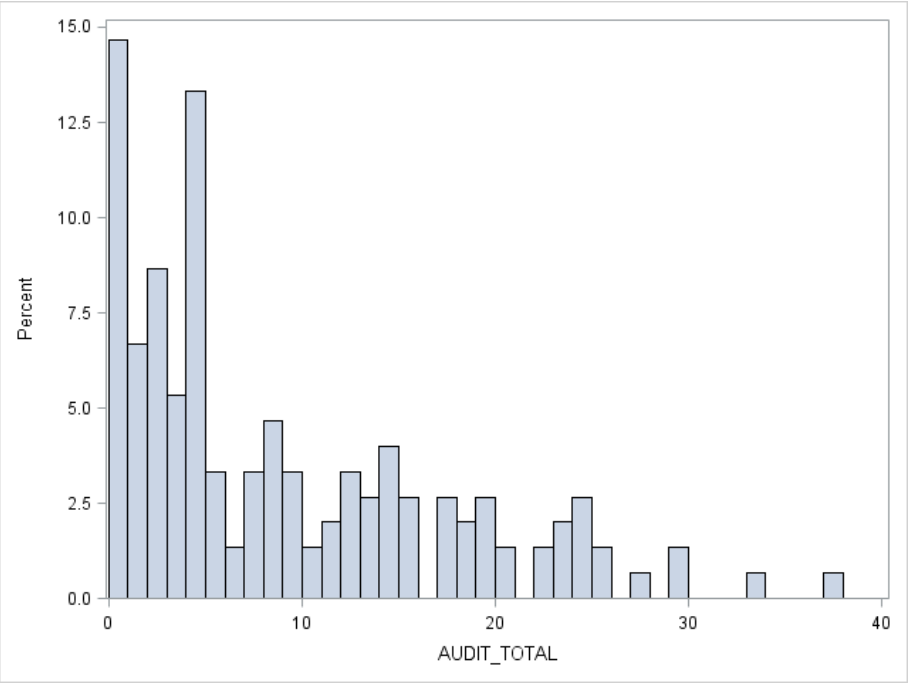


Figure 3.8 Distribution Of AUDIT Scores For Overall Study Sample

The categorised results are shown in Figure 3.9, with 32.7% of the total study sample admitting to hazardous or harmful alcohol use; and an added 12.0% admitting to alcohol dependence.

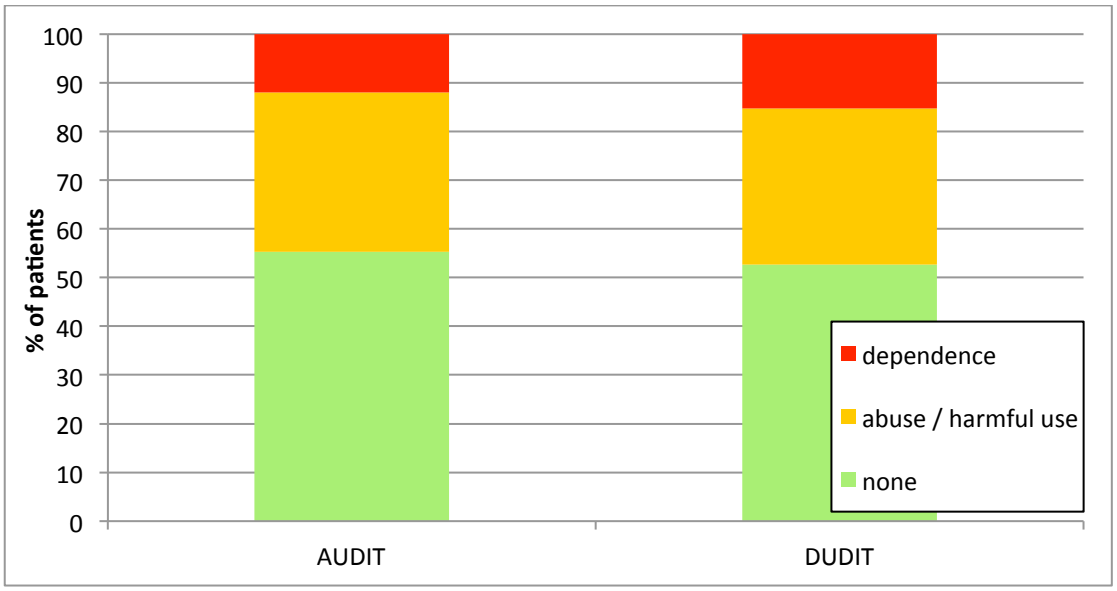


Figure 3.9 Categorised Results Of AUDIT And DUDIT Scores

3.2.2 Distribution Of DUDIT Scores For The Sample

The second questionnaire presented to the participants was the DUDIT, also described above. Scoring according to the answers given can be from 0 to 44 points. The distributions of the DUDIT scores by percentage of participants in the study are shown in Figure 3.10.

As recommended by the DUDIT manual, a cut-off score of 6 or above for men and 2 and above for women will be used to identify drug harmful use; and a score of 25 or more for both sexes as an indication of drug dependence on one or more drugs. This substance use excludes alcohol use, which is described in the AUDIT questionnaire. The categorised results are shown in Figure 3.9 above, with 32.0% of the total study sample admitting to harmful drug use; and an added 15.3% admitting to drug dependence.

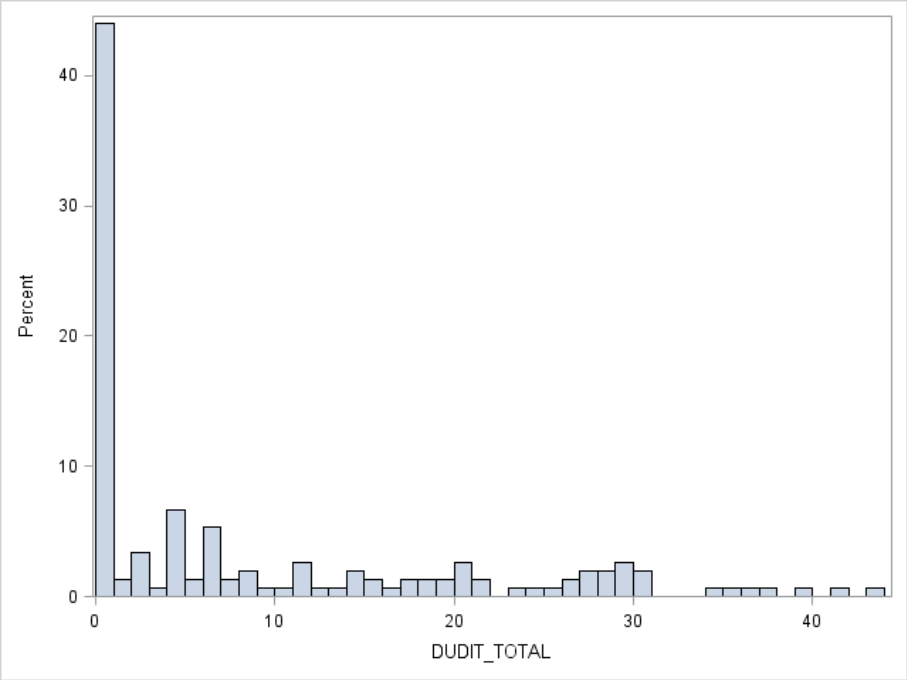


Figure 3.10 Distribution Of DUDIT Scores For Overall Study Sample

3.2.3 Categorised Results Of The AUDIT And DUDIT Scores For The Sample

The relationship between the AUDIT and DUDIT classifications is shown in Table 3.4. There is a fairly even distribution of participants with alcohol-only, drug-only and alcohol- and drug-problems.

Of the 150 participants, 83 denied any alcohol misuse disorder; 50 of these participants (one-third of the total study sample) had neither alcohol nor drug-related problems.

However, of the 67 with alcohol misuse, 49 participants were found to have hazardous or harmful alcohol use:

- 14% of these had no other substance misuse
- 11.3% had hazardous or harmful drug use
- 7.3% scored as having drug dependence

Of the remaining 18 participants with alcohol dependence:

- 5.3% had no drug misuse disorders
- 3.3% had hazardous or harmful drug use
- 3.3% had drug dependence

From the 83 participants with no alcohol related problems, 17.3% were found to have hazardous or harmful drug use, and a further 4.7%, drug dependence (Table 3.4).

Table 3.4 Relationship Between AUDIT And DUDIT Classifications

AUDIT	DUDIT			
	None	**Hazardous or harmful use**	**Dependence**	**Total**
None	50	26	7	83
	33.3%	17.3%	4.7%	55.3%
Hazardous or harmful use	21	17	11	49
	14.0%	11.3%	7.3%	32.7%
Dependence	8	5	5	18
	5.3%	3.3%	3.3%	12.0%
Total	79	48	23	150
	52.7%	32.0%	15.3%	100.0%

3.3 PREVALENCE OF ALCOHOL AND DRUG MISUSE FOR THE SAMPLE

3.3.1 Comparison Of Substance Misusers To Non Substance Misusers With Respect To The Study Variables

Substance Misuse (SM), for the purposes of this study, was defined as having an AUDIT score of 8 or more in men, and 6 or more in women; **and/or** a DUDIT score of 6 or more in men, or 2 or more in women. Therefore, combining hazardous use and dependence.

With this definition, a total of 100 of the 150 participants scored applicably on the questionnaires; or two-thirds of the participants were classified as being substance misusers according to the AUDIT and DUDIT scoring (95% CI: 58.8 – 73.7%).

The median age of those with SM was significantly lower than those without SM (p=0.0043). The effect size was small (r=0.24). In addition the proportion of those aged 18-39 years was higher in the SM group (85.0%) compared to the non-SM group (60.0%) (Table 3.5).

Table 3.5 Comparison Of Age And Length Of Stay Amongst The Overall Study Sample, Non-Substance Misusers, And Substance Misusers

	Variable	N	Mean	Std Dev	Median	Interquartile range		Minimum	Maximum	p-value for between-group test
All	AGE	150	33,1	11,3	30	24	38	18	70	0,0045
	LENGTH OF STAY	150	14,3	12,3	11	6	21	1	92	0,56
	AUDIT TOTAL	150	8,5	8,3	5	2	14	0	38	
	DUDIT TOTAL	150	8,8	11,5	4	0	16	0	44	
Non SM	AGE	50	36,9	12,4	37	26	43	18	70	
	LENGTH OF STAY	50	15,5	15,3	11	7	21	2	92	
	TOTAL AUDIT SCORE	50	1,6	1,8	1	0	3	0	7	
	TOTAL DUDIT SCORE	50	0,4	1,2	0	0	0	0	5	
SM	AGE	100	31,2	10,3	29	24	34,5	18	68	
	LENGTH OF STAY	100	13,7	10,6	10,5	6	20	1	50	
	TOTAL AUDIT SCORE	100	11,9	8,2	11	4,5	17,5	0	38	
	TOTAL DUDIT SCORE	100	13,0	12,1	9,5	2	22	0	44	

N= number
Non SM = Non Substance Misuse
SM = Substance Misuse

Evaluating the demographics decribed above for the entire study sample, and making comparisons between the non-SM against the SM-group: there was a significant, weak, association between SM group and gender (p=0.012; phi=0.21): The proportion of males was higher in the SM group (70.0%) compared to the non-SM group (48.0%).

As visualised in Table 3.6, there was also a significant, weak, association between SM group and disability grant (p=0.015; phi=0.21): The proportion of patients on the grant was lower in the SM group (10.0%) compared to the non-SM group (26.0%).

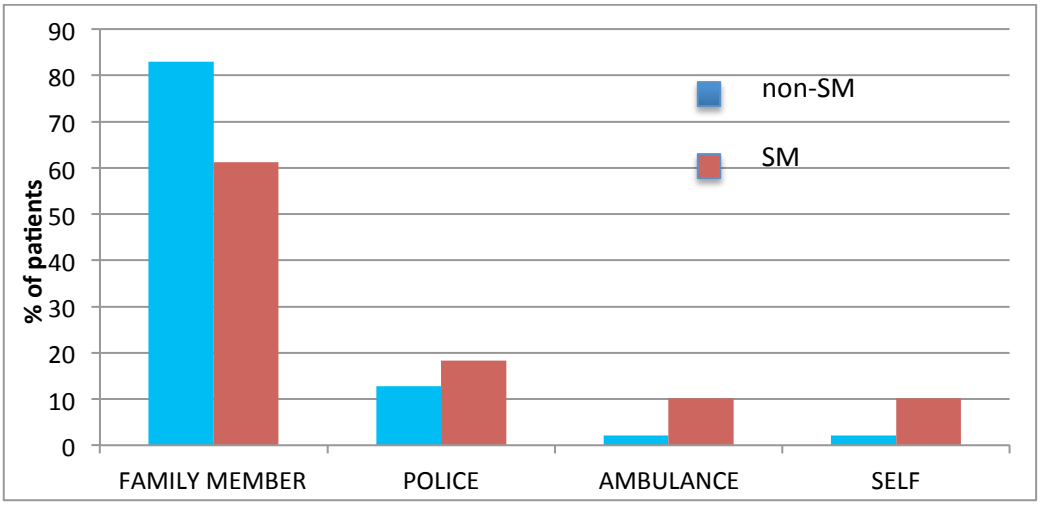
Table 3.6 Comparisons Of Demographics Between Non Substance Misusers And Substance Misusers

		non-SM		SM		p-value for between-group test
Variable	**Category**	**n**	**%**	**n**	**%**	
n		**50**		**100**		
Age	18-39y	30	60,0	85	85,0	0,0010
	40y+	20	40,0	15	15,0	
Gender	FEMALE	26	52,0	30	30,0	0,012
	MALE	24	48,0	70	70,0	
Ethnicity	AFRICAN	37	74,0	64	64,0	0,72
	COLOURED	7	14,0	19	19,0	
	CAUCASIAN	5	10,0	15	15,0	
	INDIAN	1	2,0	1	1,0	
	ASIAN	0	0,0	1	1,0	
Relationship status (grouped)	SINGLE	26	52,0	61	61,0	0,30
	IN A RELATIONSHIP	24	48,0	39	39,0	
Highest level of Education	NONE	1	2,0	0	0,0	0,44
	PRIMARY	2	4,0	8	8,0	
	HIGH SCHOOL	22	44,0	42	42,0	
	MATRIC	19	38,0	32	32,0	
	COLLEGE	4	8,0	7	7,0	
	UNIVERSITY	2	4,0	11	11,0	
Employment status (grouped)	UNEMPLOYED	25	50,0	56	56,0	0,66
	EMPLOYED	19	38,0	36	36,0	
	STUDENT/PENSIONER	6	12,0	8	8,0	
Disability grant	NO	37	74,0	90	90,0	0,015
	YES	13	26,0	10	10,0	
Religion (grouped)	CHRISTIAN	35	85,4	61	70,1	0,16
	NONE	4	9,8	19	21,8	
	ZCC	2	4,9	7	8,0	
	OTHER					
Handedness	RIGHT	48	96,0	93	93,0	0,63
	LEFT	2	4,0	4	4,0	
	AMBIDEX	0	0,0	3	3,0	
MHCA status	INVOLUNTARY	25	50,0	63	63,0	0,073
	ASSISTED	24	48,0	30	30,0	
	VOLUNTARY	1	2,0	7	7,0	

Non-SM = Non-Substance Misuse
SM = Substance Misuse
MHCA = Mental Health Care Act

Regarding who brought the patient to hospital, there was a significant, moderate, association between SM group and this variable (p=0.025; phi=0.30): SM patients were brought less often by relatives or spouses, compared to non-SM patients (Figure 3.11).

Figure 3.11 Comparing Non Substance Misusers And Substance Misusers, Escort To Hospital



Concerning the diagnoses made by their treating doctor on discharge, and again comparing non-SM against SM participants, higher proportions of the following disorders were seen in the SM group (Figure 3.12):

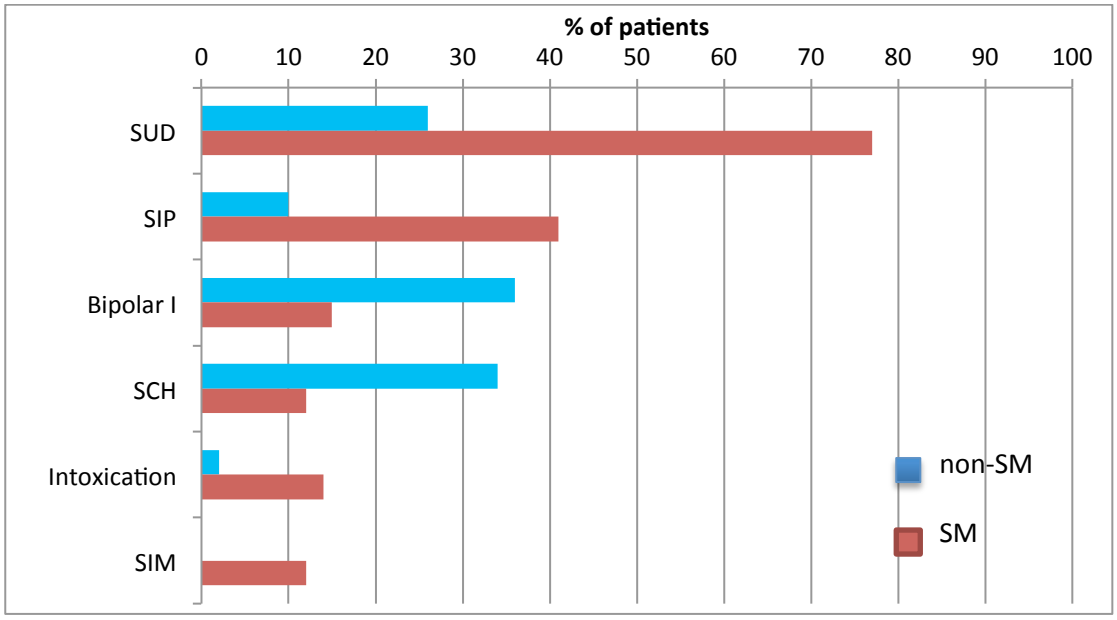
- There was a significant, high, association of SM users with a clinical diagnosis of SUD (p<0.0001; phi=0.49). In other words, there was a higher proportion of patients with SUD in the SM group (77.0%) compared to the non-SM group (26.0%).
- There was a significant, high, association with Substance Induced Psychotic disorder (p<0.0001; phi=0.32): The proportion of patients with this diagnosis was higher in the SM group (41.0%) compared to the non-SM group (10.0%).

- There was a significant, weak, association with Substance Induced Mood disorders (p=0.0088; phi=0.21): The proportion of patients with this diagnosis was higher in the SM group (12.0%) compared to the non-SM group (0.0%).
- There was a significant, weak, association with intoxication (p=0.021; phi=0.19): The proportion of patients with this diagnosis was higher in the SM group (14.0%) compared to the non-SM group (2.0%).

Lower proportions of the following disorders were seen in the SM group (Figure 3.12):

- There was a significant, weak, association with Schizophrenia (p=0.0020; phi=0.26): The proportion of patients with this diagnosis was lower in the SM group (12.0%) compared to the non-SM group (34.0%).
- There was a significant, weak, association with Bipolar I (p=0.0059; phi=0.24): The proportion of patients with this diagnosis was lower in the SM group (15.0%) compared to the non-SM group (36.0%).

Figure 3.12 Relative proportions of the clinical assesment in the Substance Misuse and Non-Substance Misuse groups



SUD = Substance Use Disorder; SIP = Substance Induced Psychotic disorder
SCH = Schizophrenia; SIM = Substance Induced Manic disorder
Non SM = Non Substance Misuse; SM = Substance Misuse

There were no significant findings from comparisons of the remaining data (Table 3.7).

Table 3.7 Comparisons Of Non Substance Misusers With Substance Misusers And Clinical Data

		non-SM		SM		p-value for between-group test
Variable	**Category**	**n**	**%**	**n**	**%**	
N		**50**		**100**		
Presenting symptoms	PSYCHOSIS	36	72,0	79	79,0	0,41
	AGGRESSION	24	48,0	53	53,0	0,61
	MANIA	11	22,0	23	23,0	>0.99
	DEPRESSION	5	10,0	11	11,0	>0.99
	SUICIDAL	4	8,0	12	12,0	0,58
	ANXIETY	1	2,0	4	4,0	0,67
	EATING					
	ICTAL					
	NONE					
	OTHER					
	CONFUSION					
	DISORGANISED					
	CATATONIA					
	SEIZURES					
	SELF HARM					
Psychiatric diagnosis	SUBSTANCE USE DISORDER	13	26,0	77	77,0	<0.0001
	SUBSTANCE INDUCED PSYCHOSIS	5	10,0	41	41,0	<0.0001
	BIPOLAR I	18	36,0	15	15,0	0,0059
	SCHIZOPHRENIA	17	34,0	12	12,0	0,0020
	CLUSTER B	4	8,0	12	12,0	0,58
	INTOXICATION	1	2,0	14	14,0	0,021
	SIM	0	0,0	12	12,0	0,0088
	PSYCH D/T AMC	5	10,0	7	7,0	0,54
	WITHDRAWAL	0	0,0	3	3,0	0,55
	SCHIZOAFFECTIVE	1	2,0	2	2,0	>0.99
	DEPRESSION	0	0,0	3	3,0	0,55
	ANXIETY	0	0,0	3	3,0	0,55
	BIPOLAR II	0	0,0	1	1,0	>0.99
	PTSD	1	2,0	0	0,0	0,33
	NONE					
	OTHER					
	INTELLECTUAL DISABILITY					
	DEMENTIA					
	BRIEF PSYCHOTIC DISORDER					

	ADHD					
	ADJUSTMENT					
	DELIRIUM					
Medical comorbidities	HIV	8	16,0	12	12,0	0,45
	EPILEPSY	2	4,0	3	3,0	>0.99
	HEAD INJURY	1	2,0	3	3,0	>0.99
	HYPERTENSION	3	6,0	3	3,0	0,40
	DIABETES	1	2,0	2	2,0	>0.99
	TUBERCULOSIS					
	NONE	36	72,0	80	80,0	0,30
	OTHER					
	SYPHILLIS					
	COLORECTAL CA					
	MENINGITIS					
HIV status	NEGATIVE	31	79,5	68	85,0	0,45
	POSITIVE	8	20,5	12	15,0	
	UNKNOWN					
Presentation	INDEX	15	30,0	45	45,0	0,081
	REPEAT	35	70,0	55	55,0	
Admissions in last 24 months	1	25	50,0	59	59,0	0,48
	2	15	30,0	22	22,0	
	3	8	16,0	15	15,0	
	4	1	2,0	4	4,0	
	5	1	2,0	0	0,0	
Transquiliser used at admission	CLONAZEPAM	31	62,0	68	68,0	0,47
	HALOPERIDOL	11	22,0	35	35,0	0,13
	ACCUPHASE	9	18,0	31	31,0	0,12
	ETOMINE	1	2,0	7	7,0	0,27
Psychopharmacology on discharge	ANTIPSYCHOTIC	43	86,0	85	85,0	>0.99
	BENZODIAZEPINE	42	84,0	74	74,0	0,22
	MOOD STABILISER	18	36,0	45	45,0	0,38
	DEPOT	15	30,0	20	20,0	0,22
	ANTIDEPRESSANT	4	8,0	5	5,0	0,48
	OTHER					
	ARV					
	ORPHENEDRINE					
	THIAMINE					
	DISIPAL					
	METFORMIN					
	METHYLPHENIDATE					
	PHENERGAN					
Disposal	HOME	37	77,1	72	72,0	0,28
	STERKFONTEIN	2	4,2	14	14,0	
	TARA	5	10,4	6	6,0	
	CARE FACILITY	4	8,3	6	6,0	
	REHABILITATION	0	0,0	2	2,0	
	OTHER					

3.3.2 Comparison Of The Questionnaire Findings Of SM And Clinical Diagnosis Of SUD

50 of the 150 participants were found to have neither alcohol nor substance misuse according to their AUDIT and DUDIT scores. Looking at the 100 that scored as having a SM problem, and comparing them to those 90 participants that were discharged with a psychiatric diagnosis of SUD by their doctors, reveals poor correlation. 76.0% of the participants were identified consistently (24.7% of those with no SM and no SUD, and 51.3% with a SM and SUD), while 24% (36 participants) were inconsistent.

Within the 23 participants identified as SM by the questionnaires, but not SUD by their treating clinician, we find that:

- 44% were alcohol non-misusers and drug harmful users
- 35% were alcohol harmful users and drug non-misusers
- 17% had dependence on alcohol and/or drugs.

Within the 13 participants identified as SUD but not SM:

- 46% had at least one AUDIT/DUDIT question relating to past behaviour, that is alcohol/drug use over a year ago, possibility indicating why they were not identified as current SM, but identified as SUD in remission (Table 3.8).

Table 3.8 Comparison Of The Finding Of SM With The Psychiatric Diagnosis Of SUD

	SUBSTANCE MISUSE		
SUBSTANCE USE DISORDER	**No**	**Yes**	**Total**
No	37	23	60
	24.7%	15.3%	40.0%
Yes	13	77	90
	8.7%	51.3%	60.0%
Total	50	100	150
	33.3%	66.7%	100%

CHAPTER 4

DISCUSSION

Sample Characteristics: Demographic Profile Of The Sample

Over 75% of the study sample was under 40-years-old, three times greater than the Census 2011 statistics from City of Johannesburg (2011), which reported 22.6% of the population as being aged between 20-39 years. This raises concern, as this should be an economically productive age group.

As opposed to being 50% of the general population (Census 2011), men formed 62.7% of the study sample, and 70% of those with SM. At 67% of the sample (compared with 76.4% of the general population), Black Africans were under-represented, whereas Coloured and Caucasians were both over-represented at 17% and 13% compared to 5,6% and 12.3% respectively. The SM group showed slightly higher percentages of unemployed and single participants, but this was not found to be statistically significant. According to Statistics South Africa (City of Johannesburg, 2011), 35% of adults in the general population have a matric certificate; this corresponds closely to this study sample of 34%. In the city of Johannesburg (2011), 53% belong to mainstream Christian churches, which is slightly lower than the 64% of this sample population. No significance has been found with this regard. The SM group was more likely to be brought to hospital by police or ambulance, this could suggest a greater symptom severity, or possible estrangement from family members as a result of the negative effects of substance use.

Although statistically not significant, the findings of this study are consistent with those of other studies (Wustoff et al. 2011; Weich & Pienaar 2009), in that those with dual diagnosis were more likely to be male, single and unemployed. A greater sample size may assist in expounding this difference. Despite the education achieved the population of Johannesburg reports high 25% unemployment; the study sample rate of unemployment is even higher at 54.0%. This is excessive and concerning; it shows a large portion of patients at the hospital is young and unemployed with resultant consequences on the individual, family structure, and society. This may indicate a complicated relationship, where dual diagnosis increases the risk of unemployment (O' Conner et al. 2013), but also unemployment may increase the risk of mental illness (Artazcoz et al. 2004). A larger proportion of

the non-SM participants were receiving a disability grant. This may be due to the fact that substance users are disqualified from receiving grants.

Sample Characteristics: Clinical Profile Of The Sample

The mean duration of stay for the participants was 14 days; this was similar for non-SM and SM groups. Pressure of bed space may be a reason for similar rates of hospital stay, as possibly participants were either discharged home once considered low risk to self/others, or transferred to other longer stay units.

The majority of the participants presented with symptoms of psychosis or aggression, but these are symptoms requiring admission and therefore representative of the psychiatric inpatients. Thus it is not surprising that they were mainly admitted as either involuntary or assisted under the Mental Health Care Act, and few as voluntary. The hypothesis that those with SM would show higher rates of psychosis and aggressive symptoms was not confirmed in this study. However, of the 16 participants referred to Sterkfontein Psychiatric hospital, 12 were of the SM group. Although these numbers were too small to show significance, it is of concern as referral to Sterkfontein hospital indicates greater uncontained, very aggressive, or disorganised behaviour. Thus this may suggest a greater severity of symptoms amongst the SM group.

Of the 90 participants acknowledged to be known with psychiatric conditions from before this current admission, only 24 reported no admissions over the last 24 months. Therefore 66 had been admitted at least twice in two years, some more than twice; this is described as the “revolving door” often witnessed at the unit, where patients are having multiple admissions following a relapse. Over one-third of the participants are repeat admissions and substance misusers, however no significance was found when comparing non-SM and SM groups. Botha et al. (2010) described the revolving door phenomenon in three large state mental health hospitals, named as high-frequency users, these were more likely to admit to lifetime substance use, been treated with mood-stabilisers, and have been crisis discharges. Low frequency-users were more likely to be on depot injections. Due to the overwhelmed system and inadequate number of inpatient beds, Helen Joseph Hospital often resorts to

crisis discharges to accommodate for the large volumes of patients requiring admission.

The most commonly made diagnosis was SUD, and then substance-induced psychotic disorder. However, despite such high rates of substance use, only 2 participants were referred to a rehabilitation centre on discharge, both organised by families to a private facility. A concerning low number, and likely added factor to the "revolving door" experienced in such facilities, as many continue to use substances following discharge from the hospital. This finding is consistent with the low referral rate of 3% from Mental Health services described by SACENDU (Dada et al. 2015). Participants are discharged back to a single, unemployed home life in a city known to have high substance rates.

The unit was previously described in a retrospective study published by Janse van Rensburg (2010), as a mixed male and female, adult assessment psychiatric unit in a general hospital. By making comparisons we can see changing trends over the years. Substance use has risen to 60% and superseded Schizophrenia as the most common diagnosis. From April 2007 to March 2008 a total of 520 patients were admitted, 49,8% male and 50,2% female. The number of admissions has also increased; there was an average of 43 admissions per month, compared to 59 per month in this study. The population race categories included 41.3% Black, 27.5% Caucasian, 17.7% Coloured, and 5.2% Indian. Thus we can see currently the unit is experiencing an increasing number of Black (67.3%), men (62.7%). Of the total number of patients described by Janse van Rensburg, about 40% actively abused substances and 39% were non-adherent to their outpatient medication.

This study described the inpatients and not necessarily all those presenting to casualty. At the time of the data collection, half the ward was under renovation with a subsequent shortage of inpatient beds. This resulted in many patients being referred to clinics for outpatient care and only being admitted if deemed as a danger to themselves or others. This could mean that many patients that would benefit from an admission, and be admitted in a different setting, are being turned away to other services. This could be a possible reason for the increase in substance use. Under current protocol, substance intoxication and/or withdrawal are admitted under

medicine and not psychiatry. Therefore, it is important to remember that psychiatric inpatients do not account for all hazardous/dependent substance use presenting to the hospital.

Sample Characteristics: Psychopharmacology

The study surprisingly found no association between non-SM and SM groups regarding presenting symptoms and tranquilisation received. Possible reasons could include the poor record keeping in casualty, meaning data is lost; also most admissions are for severely disturbed behaviour, regardless of the presence or absence of SM. Of those receiving Zuclopenthixol accuphase for tranquilisation, 31 were SM and only nine non-SM, unfortunately these numbers are too small to make conclusions on significance, but a larger study sample may highlight the need for more aggressive tranquilisation in those using substances, suggesting these are presenting with more severe symptoms.

Substance Misuse: Categorised Results Of AUDIT And DUDIT

The cut-off scores for the AUDIT and DUDIT questionnaires was suggested by the WHO. With these scores in mind a total of 45% of the sample population had evidence of alcohol misuse, and over 47% drug misuse, combined a total of 67% had alcohol and/or drug misuse, or SM. It is important to note that hazardous and harmful use may, but do not necessarily fill the DSM criteria for a disorder, but dependence does; however also important to note, the clinical diagnosis of SUD was a high 60%.

These numbers are similar to the 58% SUD of Muesser et al. (2000) in the USA, however Muesser looked at lifetime SUD rather than current substance use. The results are higher compared to another global study of Wheeler, Robinson and Robinson (2005) which revealed 27% comorbid SUD; and also higher than an African study reporting 24% SUD in a Kenyan psychiatric unit (Ndetai et al. 2008). Locally, Weich and Pienaar (2009) diagnosed a comorbid SUD in 51% of their

participants. However differences in rates may be related to the study setting, as their study was performed in Stikland, a specialised psychiatric hospital in the Western Cape province, serving a different community compared to a general hospital psychiatric ward in Gauteng. Also their study made use of DSM IV criteria to diagnose SUD, not screening questionnaires, with 23% meeting criteria for substance abuse, 24% substance dependence, and 9% reporting previous substance dependence and currently in remission. This shows the importance of local surveys to explore the extent of dual diagnosis in individual centres, and implementing services according to the centers needs.

Statistical Analysis: Comparison Of Those With And Those Without Substance Misuse

Surprisingly, a weak association was seen with the proportion of patients having a diagnosis of Schizophrenia or Bipolar 1 being lower in the SM group than the non-SM group. Typically, these disorders are found to have higher rates of substance use (Lagerberg et al. 2010). However, the diagnoses used in the study were the working clinical diagnoses in the ward. Therefore, this trend could be a reflection of clinical perception rather than actual DSM 5 diagnosis. Of concern is that co-morbid psychiatric disorders may have been assessed incorrectly as being due to the substance use. Or, it could be that the given diagnoses are in fact accurate. Further exploration of the influence of substance use on clinical assessment is warranted.

There is no association found for the other mental illnesses diagnosed, (namely cluster B personality disorder, Psychotic disorder due to another medical condition, Schizoaffective disorder, Depression, Anxiety, Post-traumatic Stress disorder, etc.); and SM or non-SM groups, however these numbers are very small in this sample therefore no conclusions can be made from this.

No significant associations were made when looking at the medical comorbidities, being a younger population one would expect fewer chronic illnesses amongst this sample. A small minority have a diagnosis of HIV, again less than the general population of Johannesburg, which stands at 26%. Other studies have reported a

higher rate of HIV amongst substance users due to their risky behaviour (Teplin et al. 2005), this may mean that these medical conditions may manifest later, as this is a young study population. It should also be noted that 31 (20.7%) of the participants' HIV status was unknown, which could also help to explain this finding and shed some light on another major shortcoming of how dual diagnosis and psychiatric patients in general are managed in South African hospitals.

Statistical Analysis: Comparison Of Those Diagnosed With Substance Misuse And Those With A Clinical Diagnosis Of Substance Use Disorder

Whilst the proportion of patients identified with SM were more likely to have a diagnosis of SUD or Substance induced psychotic or Mood disorders, the correlation between the study findings and the clinical identification of substance use in general was poor. According to table 8, there is a poor correlation of those participants diagnosed with SUD by their doctors, and those picked up as having a SM by the AUDIT and DUDIT. The questionnaires identified 23 participants with at least hazardous use who were not clinically assessed as having an SUD, however some form of intervention would be required. There were 13 participants who were diagnosed with SUD but not identified by the AUDIT or DUDIT questionnaires as SM. Six of these participants had admitted in the questionnaire to past substance use over a year ago and had no current use and an overall score of less than 8 on the AUDIT and 6 on the DUDIT. The remaining 7 participants were missed by the questionnaires. However, in comparison to the 23 who were missed clinically, the questionnaires had better diagnosis rates, and consideration should be given to their routine use. This could also be explained by the participants not being entirely forthcoming about their substance use and the extent thereof, whereas the treating clinician may have access to collateral information on which a SUD diagnosis may partially be based on.

Due to limited resources, Helen Joseph Hospital did not have urine toxicology tests available, strengthening the argument for screening tools in these settings. Wusthoff et al (2011) outlined the importance of using structured screening tools for the presence of substance use, as those with a dual diagnosis have more problems with aggressive behaviour, self harm, relationships, occupation and activities of daily

living; therefore it is essential to correctly diagnose so that these problems are targeted in the treatment plan.

CHAPTER 5

CONCLUSIONS

5.1 CONCLUSION

From this study we can see a pattern amongst the psychiatric inpatients at Helen Joseph Hospital being younger, unemployed, single, African men. Majority of the participants presented with psychotic, aggressive and/or manic symptoms and consequently the majority required involuntary admissions, and tranquilisation. We can see a changing trend in admissions compared to a previous study at the same facility (van Rensburg 2010), with an increasing number of men from 50% to over 60%, increasing black-African from slightly over 40% to 67%, and increasing SUD from 40% to now over 60%. As substance use in this area is rising, consequently so too is the psychiatric sequelae, and therefore showing a changing trend in psychiatric admissions.

SM was associated with younger age, male sex, being brought to hospital by their parents or police, and not receiving a disability grant. A larger number of those referred to Sterkfontein Hospital for further care were substance misusers; generally patients transferred are known to be more uncontained and aggressive, thus pointing to possible greater severity of presenting symptoms amongst those with a dual diagnosis. However a small group were transferred to Sterkfontein hospital and thus it is difficult to make any conclusions from this group. It is concerning that this study clearly shows the participants being younger, and having multiple admissions, therefore proving an increase in DALY's amongst this population. This has long-term and cascading effects on the individual, their family, and society. This can be viewed as a vicious cycle of a mental illness increasing the risk for breakdown in society, and a broken society (with crime, substance abuse, unemployment, etc.) increasing the risk for mental illness.

Two-thirds were found to have alcohol and/or drug misuse. The AUDIT and DUDIT questionnaire's used in this study as screening tools for substance use has shown to be useful in this population. Clinician alone diagnosis of SUD, in other words by not using any screening tools, missed problematic substance use in 23 participants. Furthermore, this hospital, as many other facilities, does not have the financial resources to allow for urine toxicology testing on all of those presenting or admitted to their facility, thus these screening tools allow for a cost-effective alternative. As

they are quick to administer, about five minutes each, and this is a population with high numbers of substance users, consideration should be given to implementing these screening tools as standard use for all that are admitted to the facility. While administering the questionnaires, many were unaware that their substance use was problematic, and so this was educational in some cases as well as diagnostic.

The large majority of participants were discharged home, and only 2 participants went to a rehabilitation facility following discharge. This lack of referrals to substance rehabilitation services needs to be explored. Possible reasons for this could be that the services are disjointed, as psychiatric services generally do not offer substance rehabilitation, this instead is under the control of the department of Social Welfare, therefore continuity of care is not offered and participants are lost to follow up. Rehabilitation centres have long waiting lists, by which time many would have relapsed. Sterkfontein offers the one dual diagnosis unit available in this area, however this is not easily accessible, not all are candidates for such an intensive program, and it seems Helen Joseph is not making use of this facility as no referrals were made to it.

This study shows a large number of those admitted to a mental institute are struggling with substance related disorders, and the numbers are increasing. This points to the need for development and co-ordination of services to address substance misuse effectively.

5.2 LIMITATIONS

This study was done at only one acute centre with a smaller sample size; Firstly, looking at the total sample size of 150 participants, with this 8% precision was achieved; to achieve 5% precision a sample size of 369 was needed. This would have taken approximately 10 months to achieve and therefore not feasible for this study, but could be aimed for in future studies.

Urine toxicology was not available during the data collection, and would have been helpful when assessing for substance use and self-report reliability.

The screening tools used do not assess for which drugs or what alcohol was used and so these variables could not be compared. This would have been important information as the wide range of available substances cause varying risk of addiction, severity of tolerance and different symptoms. This study grouped all those using alcohol and substances together when comparing variables, more specific information regarding the substances could allow for better profiling of participants as different substances may carry different patterns of demographics.

Poor note keeping of tranquilisation was noted in casualty, and doses of benzodiazepines and antipsychotics were not included in this study, this information could suggest degree of symptoms severity and therefore would have assisted in comparing severity of presenting symptoms between non-SM and SM groups.

5.3 RECOMMENDATIONS

There is clearly a rising trend of substance use, demonstrated undoubtedly in this sample of psychiatric inpatients. All clinicians, but especially mental health care providers should have high vigilance for substance use when caring for their patients. As urine toxicology is often not available, financial constraints are a constant problem, and participants often lack insight; screening tools should be routinely used to assist with improving insight and educating the public, assisting with diagnosis, and monitoring progress longitudinally.

Once diagnosis is made, treatment needs marked reshaping. With a change in structuring, the National Mental Health Policy and Framework Strategic Plan (NAMI 2013), states that mental health facilities are to run substance use services for dual diagnosis patients. Therefore primarily clinicians need to be trained in substance treatment, and better cohesion of services needs to be put in place.

The first step is looking at prevention, by educating the youth, targeting boys in low socio-economic areas, and assisting those with harmful substance use prior to escalation of their problems. For those with hazardous use or dependence and no psychiatric presentation, outpatient services and groups in the community may be adequate; these services need to be advertised and well run. Once admitted to a hospital better communication needs to be organised between the various services; those admitted under various specialities should also be screening for substance use and referred appropriately. Those admitted specifically under psychiatry with a dual diagnosis need specialised care targeting both diagnoses, and any other issues arising. By targeting both, the hope is to decrease substance use, improve insight and adherence to the management plan, resulting in decreased relapse and admissions to hospital, with improved cognitive and social functioning. It is recommended that Helen Joseph Hospital, and similar facilities, continue to make use of available services; that is referrals to Substance Rehabilitation services via Social services, and the Dual Diagnosis Unit available at Sterkfontein Hospital.

Ideally specialized addiction centres or wards could be made an option. These would allow for patients to be cared for in a more conducive environment, with a trained multi-disciplinary approach, amongst others struggling with similar issues. These centres would also decrease the burden on acute psychiatric centres such as Helen Joseph Hospital.

In South Africa specialised addiction centres may not be an option. Many participants in this study were stabilised and then followed-up at an outpatient facility, either their local clinic or Helen Joseph Psychiatric clinic. These generally offer treatment for the psychiatric diagnosis alone and view the substance use problems as separate. These places could be a target for improved intervention as they do have easy access to a multidisciplinary team (nursing, doctors, psychology, social workers, and occupational therapists), allowing for possible outpatient programs to be made available. These facilities could offer once weekly groups, run by different members of the multidisciplinary team on a rotational basis. Educating the groups on different aspects of substances and allowing for a supportive space with no stigma close to their homes, thus easily available.

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Appendix 8: Plagerism Declaration Form

Appendix 9: Turn It In Report

APPENDIX 1

INFORMATION LEAFLET AND INFORMED CONSENT

STUDY NUMBER: M151013

STUDY TITLE: Prevalence and patterns of Substance Use amongst Psychiatric Inpatients at Helen Joseph Hospital

INVESTIGATOR: Dr Ani Anic

INSTITUTION: Department of Psychiatry

University of the Witwatersrand

DAYTIME AND AFTER HOURS

TELEPHONE NUMBERS:

(011) 489 0792

(011) 489 0626

074 239 1209

To the potential Participant: *This consent form may contain words that you do not understand. Please ask the study doctor or the study staff to explain any words or information that you do not clearly understand. You may take* ***an unsigned copy of this consent*** *form to think about or discuss with family or friends* ***before making your decision.***

Good Day,

My name is Dr Anic. I am a registrar training in the Wits Department of Psychiatry, currently working at Helen Joseph Hospital. I would like to invite you to consider participating in a research study, entitled “Prevalence and patterns of substance use amongst psychiatric inpatients at Helen Joseph Hospital.”

1. Before agreeing to participate, it is important that you read and understand the following explanation of the purpose of the study, the study procedures, benefits, risks, discomforts, and precautions as well as the alternative procedures that are available to you, and your right to withdraw from the study at any time.
   This information leaflet is to help you to decide if you would like to participate. You need to understand what is involved before you agree to take part in this study**.**
2. If you have any questions, do not hesitate to ask me.
3. You should not agree to take part unless you are satisfied about all the procedures involved.
4. If you decide to take part in this study, you will be asked to sign this document to confirm that you understand the study. You will be given a copy to keep.
5. If you have a personal doctor, please discuss with or inform him/her of your possible participation in this study. If you wish, I can also notify your personal doctor in this regard.
6. Your treating doctor in the ward has been made aware of the study, and will be informed if the study reveals information suggestive of a problem. If I am your treating doctor, participation may augment your treatment as it may assist in diagnosis and treatment; however if you decide not to participate, you will still receive the best current care.

7. PURPOSE OF THE STUDY: You have been diagnosed as suffering from a mental illness, and I would like you to consider taking part in this research to help us better understand the patterns of alcohol and other substance use amongst people in Johannesburg with mental illness. The purpose of this study is to determine how many of a sample of people admitted to this ward uses alcohol and/or other substances, what substances they use and what types of mental illness they have. This study will compare those participants who use alcohol and / or other substances with those who do not in terms of their demographic data, clinical diagnosis and treatment received.

8. LENGTH OF THE STUDY AND NUMBER OF PARTICIPANTS: Every mental health care user in the ward will be asked to participate in this research, and the study will continue until 150 participants have consented.

9. REASON FOR THE STUDY: I have chosen to do research on alcohol and other substances used by people admitted to the psychiatric ward because drugs affect your mental health**,** and in turn people with mental illness are more likely to use substances than people without mental illness. For your information I have listed some of the problems caused by alcohol and substance use below:

   Alcohol can cause: Headaches, blackouts, forgetfulness, impaired judgment, decline in IQ, epileptic fits, bleeding, anxiety, depression, dementia, delusions, psychosis and death.

   Cannabis/Cocaine/MDMA/Ecstasy/Mephadrone/Ketamine/
   Methamphetamine - Drugs can cause: Confusion, anxiety, depression, paranoia, aggression, delusions, hallucinations, long term depressant effect and decreased motivation, problems with cognition - perception, memory, judgment, reasoning, affects concentration, ability to organize and use information. Death.
   Increased risk of developing a psychotic episode or Schizophrenia.

10. WHAT IS INVOLVED IN THE STUDY: As you can see from these symptoms, it is very important to be aware of how much and how often you are drinking alcohol or using other substances. Sometimes people use substances without realizing how much they are using. As explained above, during your admission in the ward, we require you to assist us in completion of the three questionnaires.

11. PROCEDURES: If you agree to take part in this study, I will be asking you about your habits regarding alcohol and substances using two established questionnaires. These questionnaires have been designed to help us recognize the amount of alcohol and substances we use, and if they are causing harm to our lives, our relationships and our bodies. These are the Alcohol Use Disorder Identification Test (AUDIT) and Drug Use Disorder Identification Test (DUDIT). They are screening instruments used to identify individuals with alcohol and drug related problems, they involve answering questions regarding your alcohol and drug use, and will take approximately 20 minutes to complete.

    In addition to the questionnaires on substance use I will ask you about yourself, your illness and your medication. If you do not know some of these answers I will find the information in your hospital file. This information is important, as it will help us to learn more about who is using which substances. It will also help us to learn about any associations of clinical diagnosis and treatment with substance use.

12. RISKS: This study requires the answering of questionnaires and contains no additional administration of procedures or medicine other than those involved in your routine care during your admission to Helen Joseph Hospital.

13. BENEFITS: The potential benefit of your participation in this study may be improved insight into your own substance use, and then assistance with access to care if desired. Your participation will also contribute to knowledge regarding substance use in this ward to improve future services.

14. RIGHTS AS A PARTICIPANT IN THIS STUDY: Your participation in this study is entirely voluntary and you can decline to participate, or stop at any time, without stating any reason. Your withdrawal will not affect your access to medical or psychiatric care

15. FINANCIAL ARRANGEMENTS: Neither you, nor your medical scheme will be expected to pay for your participation. You will not be paid to participate in this study.

16. ETHICAL APPROVAL: This clinical study protocol has been submitted to the University of the Witwatersrand, **Human Research Ethics Committee (HREC)** and written approval has been granted by that committee. The study has been structured in accordance with the **Declaration of Helsinki** (last updated: October 2013), which deals with the recommendations guiding doctors in biomedical research involving human participants. A copy may be obtained from me should you wish to review it.

17. SOURCE OF ADDITIONAL INFORMATION: To report complaints please contact HR of Helen Joseph, available at 011 489 1011

    If you want any information regarding your **rights as a research participant, or complaints regarding this research study**, you may contact Prof. Cleaton-Jones, Chairperson of the University of the Witwatersrand, Human Research Ethics Committee (HREC), which is an independent committee established to help protect the rights of research participants at (011) 717 2301.

MEDICINES CONTROL COUNCIL SOUTH AFRICA - MCC

If you have questions about this trial you should first discuss them with your doctor or the ethics committee (contact details as provided on this form). After you have consulted your doctor or the ethics committee and if they have not provided you with answers to your satisfaction, you should write to the Medicines Control Council (MCC) South Africa at:

The Registrar
Medicines Control Council SA
Department of Health
Private Bag X828
PRETORIA
0001

Tel: (012) 395 8032
Fax: (012) 395 9201
E-mail: gouwsj@health.gov.za

18. CONFIDENTIALITY: All information obtained during the course of this study, including hospital records, personal data and research data will be kept strictly confidential. Data that may be reported in scientific journals will not include any information that identifies you as a participant in this study.
    The information might also be inspected by the National Health Research Ethics Council (NHREC), University of the Witwatersrand, Human Research Ethics Committee (HREC), the South African Medicines Control Council (MCC) as well as your personal doctor. Therefore, you hereby authorise me to release your medical records to the South African Medicines

Control Council (MCC), the National Health Research Ethics Council (NHREC), and the University of the Witwatersrand, Human Research Ethics Committee (HREC). These records will be utilised by them only in connection with carrying out their obligations relating to this clinical study. Any information uncovered regarding your test results or state of health as a result of your participation in this study will be held in strict confidence. You will be informed of any finding of importance to your health but this information will not be disclosed to any third party in addition to the ones mentioned above without your written permission.

19. CONTACT DETAILS OF RESEARCHER:

Dr Ani Anic

Department of Psychiatry
Faculty of Health Sciences
University of the Witwatersrand
1 Jan Smuts Avenue, Johannesburg
PO Box 20, Wits 2050

Email: lupini@icon.co.za
Phone: 0742391209

APPENDIX 2

INFORMED CONSENT:

I hereby confirm that I have been informed by the study doctor, Dr A Anic, about the nature, conduct, benefits and risks of clinical study: Patterns and Prevalence of Substance Use amongst Psychiatric Inpatients at Helen Joseph Hospital. Protocol number M151013.

I have also received, read and understood the above written information (Participant Information Leaflet and Informed Consent) regarding the clinical study.

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

In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by Dr A Anic or on their behalf.

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

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

PARTICIPANT:

Printed Name **Signature / Mark or Thumbprint** **Date and Time**

I, Dr A Anic, herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

STUDY DOCTOR:

Printed Name **Signature** **Date and Time**

APPENDIX 3

SOCIO-DEMOGRAPHIC AND CLINICAL DETAILS

AGE: _____

SEX:

MALE	FEMALE

RACE:

AFRICAN	CAUCASIAN	COLOURED
INDIAN	ASIAN	OTHER

RELATIONSHIP STATUS:

MARRIED	SEPARATED	DIVORCED
SINGLE	WIDOWED	RELATIONSHIP > 6MO

HLOE:

NO EDUCATION	PRIMARY SCHOOL	HIGH SCHOOL
MATRIC	UNIVERSITY	COLLEGE

EMPLOYMENT:

UNEMPLOYED	SELF EMPLOYED	TEMPORARY JOB
PERMANENT JOB	PIECE JOBS	

RECEIVING DISABILITY GRANT:

YES	NO

RELIGION:

CHRISTIAN	CATHOLIC	JEWISH
MUSLIM	ZCC	HINDU
JEHOVAH'S WITNESS	NO RELIGION	OTHER:

HANDEDNESS:

RIGHT	LEFT	AMBIDEXTROUS

DATE OF ADMISSION: _____

MHCA STATUS:

VOLUNTARY	INVOLUNTARY	ASSISTED

DATE OF DISCHARGE: _____

LENGTH OF STAY: _____

BROUGHT TO HOSPITAL BY:

POLICE	AMBULANCE	PARENT
SPOUSE	RELATIVE	OTHER:

PRESENTING SYMPTOMS:

PSYCHOSIS	DEPRESSION	MANIA
ANXIETY	EATING	AGGRESSION
SUICIDAL	ICTAL	OTHER

PSYCHIATRIC DIAGNOSIS:

INTOXICATION	WITHDRAWAL	SUBST USE Disorder
SUBST IND PSYCH	SUBST IND MOOD	SCHIZO-AFFECTIVE
BIPOLAR I Disorder	DEPRESSIVE Disorder	SCHIZIPHRENIA
BIPOLAR II Disorder	ANXIETY Disorder	PTSD / Other trauma or stress related disorder

OTHER:

COMORBID MEDICAL ILLNESS:

EPILEPSY	HEAD INJURY	HYPERTENSION
DIABETES	TUBERCULOSIS	OTHER:

HIV STATUS:

POSITIVE	NEGATIVE	UNKNOWN

PRESENTATION:

INDEX	REPEAT

IF REPEAT ADMISSION, NUMBER IN LAST 24 MONTHS: _____

PSYCHOPHARMACOLOGY FOR TRANQUILISATION DURING ADMISSION:

PSYCHOPHARMACOLOGY ON DISCHARGE:

DEPO RECEIVED:
ORAL MEDICATION:

OUTCOME OF ADMISSION:

DISCHARGE HOME	REFER TO CARE FACILITY
REFER TO TARA	REFER TO STERKFONTEIN
DRUG REHABILITATION	OTHER

APPENDIX 4

The Alcohol Use Disorders Identification Test: Interview Version

Read questions as written. Record answers carefully. Begin the AUDIT by saying "Now I am going to ask you some questions about your use of alcoholic beverages during this past year." Explain what is meant by "alcoholic beverages" by using local examples of beer, wine, vodka, etc. Code answers in terms of "standard drinks". Place the correct answer number in the box at the right.

. How often do you have a drink containing alcohol?

(0) Never [Skip to Qs 9-10]
(1) Monthly or less
(2) 2 to 4 times a month
(3) 2 to 3 times a week
(4) 4 or more times a week

. How many drinks containing alcohol do you have on a typical day when you are drinking?

(0) 1 or 2
(1) 3 or 4
(2) 5 or 6
(3) 7, 8, or 9
(4) 10 or more

. How often do you have six or more drinks on one occasion?

(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

Skip to Questions 9 and 10 if Total Score for Questions 2 and 3 = 0

. How often during the last year have you found that you were not able to stop drinking once you had started?

(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

. How often during the last year have you failed to do what was normally expected from you because of drinking?

(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

7. How often during the last year have you had a feeling of guilt or remorse after drinking?

(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?

(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

9. Have you or someone else been injured as a result of your drinking?

(0) No
(2) Yes, but not in the last year
(4) Yes, during the last year

10. Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?

(0) No
(2) Yes, but not in the last year
(4) Yes, during the last year

Record total of specific items here

If total is greater than recommended cut-off, consult User's Manual.

APPENDIX 5

Id. nr. ☐☐☐☐☐☐

DUDIT

Drug Use Disorders Identification Test

Here are a few questions about drugs. Please answer as correctly and honestly as possible by indicating which answer is right for you.

☐ **Man** ☐ **Woman** **Age** ☐☐

1. How often do you use drugs other than alcohol? (See list of drugs on back side.)	Never ☐	Once a month or less often ☐	2-4 times a month ☐	2-3 times a week ☐	4 times a week or more often ☐
2. Do you use more than one type of drug on the same occasion?	Never ☐	Once a month or less often ☐	2-4 times a month ☐	2-3 times a week ☐	4 times a week or more often ☐
3. How many times do you take drugs on a typical day when you use drugs?	0 ☐	1-2 ☐	3-4 ☐	5-6 ☐	7 or more ☐
4. How often are you influenced heavily by drugs?	Never ☐	Less often than once a month ☐	Every month ☐	Every week ☐	Daily or almost every day ☐
5. Over the past year, have you felt that your longing for drugs was so strong that you could not resist it?	Never ☐	Less often than once a month ☐	Every month ☐	Every week ☐	Daily or almost every day ☐
6. Has it happened, over the past year, that you have not been able to stop taking drugs once you started?	Never ☐	Less often than once a month ☐	Every month ☐	Every week ☐	Daily or almost every day ☐
7. How often over the past year have you taken drugs and then neglected to do something you should have done?	Never ☐	Less often than once a month ☐	Every month ☐	Every week ☐	Daily or almost every day ☐
8. How often over the past year have you needed to take a drug the morning after heavy drug use the day before?	Never ☐	Less often than once a month ☐	Every month ☐	Every week ☐	Daily or almost every day ☐
9. How often over the past year have you had guilt feelings or a bad conscience because you used drugs?	Never ☐	Less often than once a month ☐	Every month ☐	Every week ☐	Daily or almost every day ☐
10. Have you or anyone else been hurt (mentally or physically) because you used drugs?		No ☐	Yes, but not over the past year ☐		Yes, over the past year ☐
11. Has a relative or a friend, a doctor or a nurse, or anyone else, been worried about your drug use or said to you that you should stop using drugs?		No ☐	Yes, but not over the past year ☐		Yes, over the past year ☐

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Karolinska Institutet, Stockholm, Sweden. Correspondence: + 46 8 517 74869, anne.h.berman@neurotec.ki.se

Turn the page to see the list of drugs

LIST OF DRUGS

(Note! Not alcohol!)

Cannabis	Amphetamines	Cocaine	Opiates	Hallucinogens	Solvents/inhalants	GHB and others
Marijuana Hash Hash oil	Methamphetamine Phenmetraline Khat Betel nut Ritaline (Methylphenidate)	Crack Freebase Coca leaves	Smoked heroin Heroin Opium	Ecstasy LSD (Lisergic acid) Mescaline Peyote PCP, angel dust (Phencyclidine) Psilocybin DMT (Dimethyltryptamine)	Thinner Trichlorethylene Gasoline/petrol Gas Solution Glue	GHB Anabolic steroids Laughing gas (Halothane) Amyl nitrate (Poppers) Anticholinergic compounds

PILLS – MEDICINES

Pills count as drugs when you take

- more of them or take them more often than the doctor has prescribed for you
- pills because you want to have fun, feel good, get ”high”, or wonder what sort of effect they have on you
- pills that you have received from a relative or a friend
- pills that you have bought on the ”black market” or stolen

SLEEPING PILLS/SEDATIVES

Alprazolam	Glutethimide	Rohypnol
Amobarbital	Halcion	Secobarbital
Apodorm	Heminevrin	Sobril
Apozepam	Iktorivil	Sonata
Aprobarbital	Imovane	Stesolid
Butabarbital	Mephobarbital	Stilnoct
Butalbital	Meprobamate	Talbutal
Chloral hydrate	Methaqualone	Temesta
Diazepam	Methohexital	Thiamyal
Dormicum	Mogadon	Thiopental
Ethcholorvynol	Nitrazepam	Triazolam
Fenemal	Oxascand	Xanor
Flunitrazepam	Pentobarbital	Zopiklon
Fluscand	Phenobarbital	

PAINKILLERS

Actiq	Durogesic	OxyNorm
Coccilana-Etyfin	Fentanyl	Panocod
Citodon	Ketodur	Panocod forte
Citodon forte	Ketogan	Paraflex comp
Dexodon	Kodein	Somadril
Depolan	Maxidon	Spasmofen
Dexofen	Metadon	Subutex
Dilaudid	Morfin	Temgesic
Distalgesic	Nobligan	Tiparol
Dolcontin	Norflex	Tradolan
Doleron	Norgesic	Tramadul
Dolotard	Opidol	Treo comp
Doloxene	OxyContin	

Pills do NOT count as drugs if they have been prescribed by a doctor and you take them in the prescribed dosage.

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Karolinska Institutet, Stockholm, Sweden. Correspondence: + 46 8 517 74869, anne.h.berman@neurotec.ki.se

APPENDIX 6

R14/49 Dr Ani Anic

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M151013

NAME: (Principal Investigator)	Dr Ani Anic
DEPARTMENT:	Psychiatry Helen Joseph Hospital
PROJECT TITLE:	Prevalence and Patterns of Substance Users Amongst Psychiatric Inpatients at Helen Joseph Hospital
DATE CONSIDERED:	30/10/2015
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Dr Lesley Robertson
APPROVED BY:	Professor P Cleaton-Jones, Chairperson, HREC (Medical)
DATE OF APPROVAL:	11/12/2015

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 Secretary in Room 10004, 10th floor, Senate House, University.
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**.

Principal Investigator Signature Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

APPENDIX 7

DR CRAIG BRACKEN
DEPARTMENT OF PSYCHIATRY
HELEN JOSEPH HOSPITAL
Perth Road Auckland Park
Private Bag X47 Auckland Park 2006
Phone 011 489 /0626 (office) /0619 (ward 2 nurses office);
Cell phone 0828259028 / Speed dial 52020
Fax to email 0867653264 or 011 489 0623 (ward 2)
craig.bracken@wits.ac.za
30 July 2015

WHOM IT MAY CONCERN

RE: PERMISSION FOR MMMED RESEARCH DR ANI ANIC

This letter confirms that Dr Ani Anic has been granted permission to conduct her research at Helen Joseph Hospital, psychiatric inpatient ward.

Research titled "Prevalence and patterns of substance users amongst psychiatric inpatients at Helen Joseph Hospital."

OUTLINE OF RESEARCH:
All patients admitted to the psychiatric ward of Helen Joseph Hospital who meet the inclusion criteria will be approached by the investigator to participate in the study. The first patients approached will be those already in the ward as of 1st February 2016, and the last would be those admitted on the 31st May 2016. These patients will be given an introduction to the research study, informed of relevant details (what is involved in the study, risks and benefits, also that involvement in the study will remain voluntary and confidential); and then consent obtained if willing to participate.

The patient will be interviewed according to the socio-demographic and clinical, alcohol use identification test (AUDIT) and drug use identification test (DUDIT) questionnaires. Their hospital inpatient file will be used to augment the socio-demographic sheet. All patients will be assigned a study number, and their name, hospital number and date of birth will be excluded from the data so as to maintain anonymity. Any missing data will be asked directly of the patient.

The information gathered will then be analysed so as to look at prevalence of substance use amongst the study population; and compared with their demographic details to assess for any relevant patterns amongst them.
Yours sincerely

DR CRAIG BRACKEN
PSYCHIATRIST
CLINICAL HEAD PSYCHIATRY
HELEN JOSPEH HOSPITAL

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

Helen Joseph Hospital
Enquiries: Dr. M.R. Billa
Chief Executive Officer
Tel: (011) 489-0306/1087
Fax: (011)726-5425
Email:Raymond.Billa@gauteng.gov.za

PERMISSION TO CONDUCT RESEARCH AT HELEN JOSEPH HOSPITAL

PRINCIPAL RESEARCHER			
FULL NAME	DR. ANI ANIC		
DESIGNATION	MB BCh PSYCHIATRY REGISTRAR		
CONTACT NUMBER	074 239 1209		
E-MAIL ADDRESS	ani.anic0211@gmail.com.		
DEPARTMENT	PSYCHIATRY		
HEAD/S OF DEPARTMENT/S	DR BRACKEN		
TITLE OF RESEARCH	PREVALENCE AND PATTERNS OF SUBSTANCE USERS AMONGST PSYCHIATRIC INPATIENTS AT HELEN JOSEPH HOSPITAL.		
OBJECTIVES OF RESEARCH	(1) To DESCRIBE THE PREVALENCE AND PATTERNS OF SUBSTANCE USE AMONGST PSYCHIATRIC INPATIENTS ADMITTED OVER 4 MONTHS, TO HELEN JOSEPH HOSPITAL. (2) To COMPARE THOSE WITH A DUAL DIAGNOSIS TO THOSE WITHOUT IN TERMS OF DEMOGRAPHIC PROFILE, LEVEL OF EDUCATION, PSYCHIATRIC DIAGNOSIS, LENGTH OF HOSPITAL STAY, AND PSYCHOPHARMACOLOGY		
STUDY SITE/S	HELEN JOSEPH HOSPITAL		
BRIEF OUTLINE OF METHODOLOGY	CROSS-SECTIONAL STUDY USING STRUCTURED CLINICAL INTERVIEW AND INPATIENT HOSPITAL RECORDS.		
EXPECTED START DATE	01 FEB 2016	**EXPECTED DURATION**	31 MAY 2016
ETHICS CLEARANCE	YES	NO	PENDING ✓
CONFLICTS OF INTEREST	YES	NO ✓	DETAILS:
COSTS TO HOSPITAL AND/OR OTHERS	YES	NO ✓	
SOURCE OF FUNDING	NO FUNDING NEEDED		
SIGNATURE OF RESEARCHER & DATE	ANIC 21/08/15		
PERMISSION GRANTED	YES	NO	GAUTENG PROVINCIAL GOVERNMENT HELEN JOSEPH HOSPITAL PRIVATE BAG X47 08 SEP 2015
G.D. Kirby	G.D. KIRBY Clinical Manager		
SIGNATURE (CLINICAL MANAGER /CEO)	**NAME IN PRINT & DESIGNATION**		**OFFICIAL STAMP & DATE** HELEN JOSEPH HOSPITAL GAUTENG PROVINCIAL GOVERNMENT

APPENDIX 8

DEPARTMENT OF NEUROSCIENCES

Neurology, Neurological Surgery, Ophthalmology, Otorhinolaryngology, Psychiatry

School of Clinical Medicine, Faculty of Health Sciences,
7 York Road, Johannesburg 2193, South Africa
Tel: +27 11 717-2774 · Fax: +27 11 717 2775

Plagiarism declaration for written work

I ..... AN ANIC ..... as a postgraduate student registered for a MMed at the University of the Witwatersrand declare the following:

- I am aware that plagiarism is the use of someone else's work without their permission and or without acknowledging the original source.
- I am aware plagiarism is wrong.
- I confirm that this written work is my own work except where I have stated otherwise.
- I have followed the required conventions in referencing the thoughts and ideas of others.
- I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or if I have failed to acknowledge the ideas or writing of others.

Signature .....

Date 20 JUNE 2017

APPENDIX 9

Masters.pdf

ORIGINALITY REPORT

13%	11%	6%	11%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to University of Witwatersrand Student Paper	4%
2	Submitted to Griffth University Student Paper	3%
3	Submitted to University of Southern California Student Paper	1%
4	wiredspace.wits.ac.za Internet Source	1%
5	www.witshealth.co.za Internet Source	1%
6	www.biomedcentral.com Internet Source	<1%
7	ira.lib.polyu.edu.hk Internet Source	<1%
8	www.pubmedcentral.nih.gov Internet Source	<1%
9	Weich, L, and W Pienaar. "Occurrence of comorbid substance use disorders among acute psychiatric inpatients at Stikland	<1%