

**PREVALENCE AND PATTERNS OF SUBSTANCE USE DISORDERS
AMONG OUTPATIENTS AT MACHAKOS COUNTY REFERRAL
PSYCHIATRIC CLINIC IN MACHAKOS COUNTY.**

By

DR JENIFFER WAMBUI NJOKI

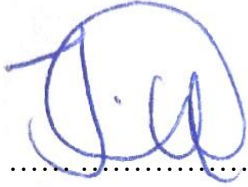
H58/11367/2018

**A Dissertation Submitted In Partial Fulfillment for the Award of Degree
of Master of Medicine in Psychiatry,
University Of Nairobi**

2022

DECLARATION OF ORIGINALITY FORM

I, Dr. Jeniffer Njoki hereby declare that this is my original work carried out in partial fulfillment of the award of master's degree of medicine in psychiatry at the University of Nairobi. I have not presented the same to any other higher institution for any award.



Signed

Date 16/02/2022

Dr. Jeniffer Wambui Njoki

Department of Psychiatry, University of Nairobi

jwnjoki@gmail.com

APPROVAL OF SUPERVISORS

This proposal has been submitted with our full approval as supervisors

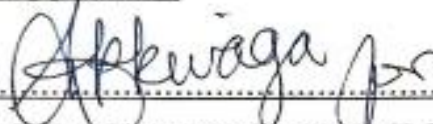
1. Dr. Lincoln Khasakhala

MBChB (UoN), MSC Cl. Psych.(UoN), Ph.D Cl. Psych.(UoN)

Department of Psychiatry, University of Nairobi

shaimbugwa@gmail.com

Signed.....



Dr. Lincoln I Khasakhala, MBChB, MSC. Cl. Psych. PhD

Date 20.2.2022

2. Dr Pius Kigamwa

MBChB(UoN), Mmed Psych (UoN),

Department of Psychiatry, University of Nairobi

kigamwa@uonbi.ac.ke

Signed.....



Date 20.2.2022.....

3. Prof. Obondo Anne A

BA (Hons) Sociology (India), MSW (India), PGDip. Psychiatric Social Work (UK), PHD (Nbi)

Chairperson, Department Of Psychiatry, University of Nairobi

obondo@uonbi.ac.ke



Signed.....Date: 25/07/2022....

ACKNOWLEDGEMENT

I would like to thank my supervisor the late Dr Lincoln Khasakhala for your support and great sacrifice towards this work even in the season when you were ailing. Am also thankful to Dr Pius Kigamwa for your willingness to guide and support me in this work and also to mentor me in the field of psychiatry.

Your efforts, sacrifice and hard work towards this work are much appreciated.

DEDICATION

I dedicate my thesis to my family and friends. Special appreciation to my dear husband Paul Kioi for being very helpful and supportive in this work. My dear mum, Njoki, thank you so much for your support and being there for me since my education journey started, you have been a strong pillar to this day. And to our young boy Moses you will achieve much more than we have achieved.

CONTENTS

DECLARATION OF ORIGINALITY FORM.....	i
APPROVAL OF SUPERVISORS.....	ii
ACKNOWLEDGEMENT	iii
DEDICATION	iv
CONTENTS.....	v
LIST OF FIGURES AND TABLES.....	ix
LIST OF ABBREVIATIONS.....	x
OPERATIONAL DEFINITION OF TERMS AND PHRASES	xi
ABSTRACT.....	xii
CHAPTER ONE	1
1.0 INTRODUCTION AND BACKGROUND INFORMATION	1
1.1 Introduction.....	1
1.2 Background Information.....	2
1.3 Problem statement.....	6
CHAPTER TWO	7
2.0 LITERATURE REVIEW	7
2.1 Introduction.....	7
2.2 Prevalence of substance use disorders	7
2.3 Pattern of substance use	8
2.4 Relationship between substance use disorders and psychiatric disorders.	10
2.5 Sociodemographic correlates of substance use disorders	11
2.6 Study justification	12
2.7 Significance of the study.....	12
2.8 Research questions.....	13
2.9 Research objectives.....	13
2.9.1 <i>Broad objective</i>	13
2.9.2 <i>Specific objectives</i>	13
2.10 Hypothesis statements.....	14

2.10.1 <i>Null hypothesis</i>	14
2.10.2 <i>Alternate hypothesis</i>	14
2.11 Conceptual Framework.....	14
CHAPTER THREE	16
3.0 METHODOLOGY	16
3.1 Study design.....	16
3.2 Area of study description	16
3.3 Study Population.....	17
3.4 Sample size	17
3.5 Sampling technique.....	18
3.6 Recruitment and consenting procedure.....	19
3.7 Data collection procedure	19
3.8 Methodology flow chart.....	21
3.9 Quality Assurance Procedures	22
3.10 Ethical consideration.....	22
3.10.1 <i>Ethics and informed consent</i>	22
3.10.2 <i>Obtaining Informed Consent</i>	22
3.10.3 <i>Potential benefits to study participants</i>	22
3.10.4 <i>Potential risks</i>	23
3.10.5 <i>Confidentiality</i>	23
3.10.6 <i>Voluntary Participation</i>	23
3.10.7 <i>Language barrier.</i>	23
3.11 Data management.....	23
3.11.1 <i>Data coding and data entry</i>	23
3.11.2 <i>Data cleaning</i>	24
3.11.3 <i>Statistical analysis</i>	24
3.12 Pretesting of Research Instrument	24
3.13 Study results dissemination plan.....	24
3.14 Study closure plan and procedure	25

CHAPTER FOUR.....	26
4.0 RESULTS	26
4.1 Introduction.....	26
4.2 Socio-demographic characteristics of patients attending psychiatric outpatient clinic in Machakos Level 5 Hospital.	26
4.3 Prevalence of substance use disorders among outpatients at Machakos County Referral Psychiatric Clinic	27
4.3 Pattern of substance use among outpatients at Machakos County Referral Psychiatric Clinic.....	27
4.4 Socio-demographic correlates of substances use disorders among outpatients at Machakos County Referral Psychiatric Clinic	28
4.5 Relationship between substance disorders and other psychiatric disorders among outpatients at Machakos County Referral Psychiatric Clinic	29
 CHAPTER FIVE	 31
5.0 DISCUSSION.....	31
5.1 Sociodemographic characteristics.....	31
5.2 Prevalence of substance use disorders.	32
5.3 Pattern of Substance Use disorders.....	32
5.4 Sociodemographic correlates of SUDs.	34
5.5 Relationship between SUDs and psychiatric disorders	35
 CHAPTER SIX	 37
6.0 CONCLUSION, RECOMMENDATIONS AND STUDY LIMITATIONS	37
6.1 Conclusion	37
6.2 Recommendations.....	37
6.3 Study Limitations.....	38
 REFERENCES.....	 39
 APPENDICES	 41
Appendix 1: Consent Explanation Document.....	41

Appendix 2. Consent explanation Document (Swahili Version).....	45
Appendix 3: Dummy tables	48
Appendix 4: Socio-demographic Questionnaire.....	50
Appendix 5: Focused group discussion guide for the patient`s(English Version).....	52
Appendix 6: Focused group discussion guide for the caregivers.	53
Appendix 7: Mini Mental State Exam	54
Appendix 8: KNH Ethical Approval Letter	55
Appendix 9: Machakos County Authorization Letter.....	57
Appendix 10: NACOSTI License.....	58

LIST OF FIGURES AND TABLES

Figure 1: Conceptual Framework	15
Figure 2: Methodology flow chart	21
Table 4.1: Socio- Demographic characteristics of study participants.....	26
Table 4. 2: Prevalence of substance use disorders among participants	27
Table 4 3: Prevalence of all Psychiatric disorders among participants.	27
Table 4.4: Pattern of substance use disorders	28
Table 4.5: Number of substance use disorders per patient.	28
Table 4.6 Socio-demographic correlates of substances use disorders	29
Dummy Table 1: Demographic Characteristics.....	48
Dummy Table 2: Psychiatric diagnosis	49
Dummy Table 3: Most commonly used substances	49
Dummy Table 4: Number of substances used per patient	49
Dummy Table 5: Number of psychiatric disorders per person.....	49

LIST OF ABBREVIATIONS

AUD	-	Alcohol Use Disorder
AUD	-	Alcohol Use Disorder
AUDIT	-	Alcohol Use Disorder Identification Test
CUD	-	Cannabis Use Disorder
DALYS	-	Disability adjusted life years
DSM 5	-	Diagnostic and statistical Manual of Mental Disorders 5 th edition
ERC	-	Ethics and Research Committee
HIV	-	Human Immunodeficiency Virus
KNH	-	Kenyatta National Hospital
MDD	-	Major Depressive Disorder
MINI	-	Mini International Neuropsychiatric Interview
MMSE	-	mini mental state examination
PI	-	Principal Investigator
SCID-P	-	Structured Clinical Interview for DSM-III-R Patients
SUDs	-	Substance use disorders
UON	-	University of Nairobi

OPERATIONAL DEFINITION OF TERMS AND PHRASES

Co-occurring Disorders – substance use disorder plus any other psychiatric illness

Inpatients – those admitted in a psychiatric unit for treatment

Outpatients– those who attend psychiatric hospitals/units for treatment but do not stay there overnight

General psychiatric ward – wards that admit patients with any psychiatric disorders.

Comorbidity- presence of more than one disorder co-occurring with a primary condition.

ABSTRACT

Introduction: There exists a high comorbidity of drug use disorders in mentally ill persons (Srivastava et al., 2018). There is scarcity of data locally on the prevalence, patterns of use, and the relationship of and SUDs and other psychiatric disorders.

Aim: The study aimed to determine the prevalence and patterns of Substance Use Disorders and the relationship between Substance Use Disorders and other psychiatric disorders among outpatients at Machakos County Referral psychiatric clinic.

Method: This was a cross-sectional descriptive study where data was collected from 127 outpatient psychiatric patients for quantitative study. Systematic stratified sampling method was used, where the researcher selected every 2nd patient in the clinic. The tools for data collection used were the socio-demographic questionnaire and the Mini International Neuropsychiatric Interview (MINI) version 7.0.0.

Data analysis: Data was entered into MS Excel and analysis done with SPSS version 23. For discrete variables, frequency tables were provided, while for continuous data, means and standard deviations were provided. Chi-square test was used to analyze the associations between variables at the bivariate level. Univariate analysis was done to show the prevalence, patterns and socio-demographic characteristics of the participants. Statistical significance thresholds was set at $p < 0.05$.

Results: There were 127 participants for the study. The mean age was 36.4 (SD 13.6) years. Most of the participants were male (94, 74%). The study also found out that most participants were single 57.4%, unemployed 76%, and were Christians 96.9%. This study found out that prevalence of SUDs was 48.8 %. My study found that only four main substance use disorders were present. The most commonly used substance was alcohol at 40.2%, Nicotine (cigarettes, chavis and kuber) 40%, Khat 27.6% and cannabis 24.4%. There was a statistical significant association between gender and substance use disorder, where males were 16.9 times more likely to have substance use disorder compared to females. There was a statistically significant association between patients with psychotic disorders and substance disorder, where they were 6.7 times more likely to have substance disorder than those without

psychotic disorder. Patients with bipolar were more likely to have substance use disorder than those without the disorder, and this was statistically significant but with a weak association.

Conclusion: This study found out that nearly half of the patients attending the psychiatric outpatient clinic in Machakos Level 5 Hospital had a substance use disorder indicating a high comorbidity of substance use disorders among psychiatric patients.

There is a need to explore further why these patients continue to use substances despite having another mental illness.

CHAPTER ONE

1.0 INTRODUCTION AND BACKGROUND INFORMATION

1.1 Introduction

Substance abuse is the dangerous or unsafe use of illicit psychoactive substances according to WHO 2019. This use of psychoactive drugs can contribute to syndromes of dependency, a cluster of phenomena that are behavioral, cognitive, and physiological. This dependency syndrome are manifested by having a strong desire or urge for the drug, uncontrollable drug use, giving up important roles to obtain the drug, tolerance and withdrawal symptoms (WHO 2019). This means that the person requires a lot of time to access the substance that leads to neglect of other important aspects of his or her life.

This drug-taking behavior has been linked to the early years of adolescence. According to research, substance usage begins in early adolescence (12-14 years) and continues into late adulthood (15-17 years). This is a critical phase for substance usage risk, with the peak occurring between the ages of 18 and 25 (UNODC 2019). Substance use surveys in the general population consistently show that the level of substance use remains lower among the aged than among the younger people. Data indicates that among those aged 18-25 years, peak levels of substance use are seen. This is usually the condition found in countries and with most forms of psychoactive drugs used in most regions of the world (UNODC 2019).

There are different reasons which lead individuals use substances. Factors that are often out of their control affect the journey from initiation to unhealthy drug use by young people. Behavioral and mental health, neurological innovations and gene changes arising from social effects are variables at the personal level. There are individual or micro-level factors which include: family and parental functioning and effects of schools and peers. Then there are societal or macro-level factors which include: physical environment and social economic impacts. These factors make teenagers prone to drug use. These factors vary from person to person, and not every young person is at risk for substance misuse. There is no single element that is adequate to cause drug use, and these factors can change over time in various instances (UNODC 2019). Overall, a young person's vulnerability to drug use is

determined by the major combination of risk factors present and protective variables missing at some point in their lives. Early start of mental diseases and behavioral health problems, poverty, insufficient resources, loneliness, lack of parental direction and social support, negative peer influences, and poorly equipped schools are all more common triggers for people who use substances than those who do not. (UNODC 2019).

Drug usage among young individuals is higher than among older persons, according to general population drug use surveys. Cannabis has been found as the gateway drug among young people, this now opens the room for multiple substance use. The easy availability of cannabis, according to research findings from Western countries, makes it a popular substance whose usage begins in the teenage to adolescent years, accompanied by the false belief that there is a low danger of injury. Cannabis is frequently used in conjunction with other drugs, and the use of other substances is frequently associated with the use of cannabis (UNODC 2019). The hazardous use of substances has many direct effects on a human. Substance usage in puberty raises the risk of lack of jobs, ill general health, unstable relationships, self harm impulses, mental illness and even lower life expectancy. Adverse use of substances can lead to a period in the most serious situations, in which the socio-economic status and ability to develop relationships can be impaired. In our setting here in Kenya and in particular Machakos County, there is scarcity of data on the demographics, pattern of substance use and substance use disorders and this research intends to fill gap.

1.2 Background Information

Around 271 million people aged 15 to 64 years old used substances at least once in the previous year in the generation population, equating to 5.5 percent of the global population between the ages of 15 and 64, or one in every 18 people (UNODC 2019). About 35.0 million, or approximately 13 percent, of the estimated 271 million are estimated to be suffering from SUDs, indicating that their use of drugs is dangerous to a point that they may develop drug dependency and/or need care. This correlates to a 0.71 percent occurrence of SUDS globally among those in the population aged 15-644 years (UNODC 2019).

In any medical group, alcohol use was the most prevalent SUD (25 percent of all patients included) (Toftdahl et al., 2016). This shows us that drug use leads to drug

dependence and then leads to substance use disorders which usually need treatments in a psychiatric hospital or in a rehabilitation center. Roth et al., 2018, found out that in the mentally ill patients there was a great comorbidity of SUDs. In the study, the strongest links between SUD and mental disease were seen in schizophrenia (37%), schizotypal disorder (35%), other psychosis (28%), bipolar disorder (32%), depression (25%), anxiety (25%), 11 percent OCD, 17 percent PTSD, and 46 percent personality disorders. This demonstrates a strong link between substance use disorders and other mental problems in people. Collectively, 11.8 million people are directly or indirectly killed each year by smoking, alcohol and illegal drug use, which is one in five deaths worldwide. This is more than the sum of all cancer deaths (Roth et al., 2018).

Substance use disorders are classified as Substance-Related and Addictive Disorders in DSM 5. SUDs are a set of cognitive, behavioral, and physiological symptoms that emerge as a result of long-term drug use. Illicit substances are compounds which affects mental processes, such as cognition, when ingested. The most neutral and descriptive words are this term and its counterpart, psychotropic medication, for the entire class of drugs of drug policy concern, licit or illegal (WHO). All 10 types of drugs can be linked to the diagnosis of a SUDs.

In DSM 5, these 10 classes are: a) Alcohol, b) Caffeine (from beverages such as coffee, tea, energy drinks and from analgesics and cold remedies), c) Cannabis d) Hallucinogens (phencyclidine or arylcyclohexylamines with identical action and other hallucinogens such as LSD) e) Inhalants(are hydrocarbon based, commonly substances include glue, shoe polish, gasoline or spray paints) f) Opioids (natural opioids like morphine and codeine, semi synthetic opioid like heroin, and synthetic opioids like methadone ,fentanyl etc.) g) Sedatives, hypnotics, or anxiolytics; include benzodiazepines and like drugs, and barbiturates and like drugs h) stimulants i) Tobacco j) other/ unknown substances(not under the 9 classes) include anabolic steroids, NSAIDS, cortisol, antihistamines etc. These drugs cause their effects to the brain by different mechanisms.

There are strong effects on the brain due to addictive drugs. These effects account for the euphoric or deeply pleasurable feelings that individuals encounter during their initial use any psychoactive drugs, and, despite the risks of serious harm, these feelings inspire

individuals to use certain substances again and again. When people abuse alcohol or other substances, they experience progressive changes in the structure and function of their brains, known as neuroadaptations. These neuroadaptations decrease brain function and lead to the transition from occasional pleasure usage to excessive chronic use. In addition, even after a person stops using drugs, these brain changes endure. They can produce the substance's continued, intermittent craving that can lead to recurrence ((US) and (US), 2016). This is the mechanism by which disorders of substance use occur. SUDs are a collection of symptoms that develop as a result of continuing to use a substance despite its numerous negative consequences in one's life.

The DSM 5 classification of drug use disorders includes all 10 classes, with the exception of caffeine. They include alcohol, cannabis, phencyclidine, inhalants, opioids, sedative, hypnotic, or anxiolytics, tobacco, and other (or unknown) substance use disorders. Substance-induced mental disorders, such as intoxication, withdrawal, and other substance/medication-induced mental disorders, are discussed alongside substance use disorders, such as alcohol withdrawal disorders, cannabis-induced psychosis, and so on. However, the focus of this research will be on substance use disorders. According to the DSM 5, SUDs are diagnosed based on a specific cluster of behaviors associated with substance use. The criteria for SUDs diagnosis falls all into some general groups of control difficulties, impairment of one's social life, use in risky situations, and pharmacological criteria. There are 11 criteria's for diagnosis SUDs which include : (a) using the substance in greater quantities or for longer than was originally planned , b) Desiring to cut down or to stop substance use, c) Using much time to get, use, or to recover from the substance use, d) drug cravings that are intense drug desire or urges e) failure to fulfill significant everyday duties, (f) abandoning significant , occupational, social or pleasurable activities, (g) In cases where it is physically dangerous, recurrent use of substances, (h) Despite knowing that drug usage has contributed to or exacerbated a physical or psychological problem, the substance is nevertheless used i) tolerance- which is the need for a substance dose escalation to get a desired result or a diminished effect when the previous dose is consumed and, j) withdrawal effects which is development of withdrawal symptoms after abstinence from substance use. This happens when the substance's concentration in blood or tissue decreases in a person who has kept at prolonged use of a substance in large amounts. Substance use disorders are graded

into mild, moderate and severe. There are two to three symptoms in mild SUD, four to five symptoms in moderate SUD, and six or more symptoms in severe SUD.

Substance-related and addictive disorders, anxiety, bipolar and related disorders, depressive, feeding and eating disorders, obsessive-compulsive and related disorders, personality, trauma and stress, dissociative, somatic symptom, elimination, sleep wake, sexual dysfunctions, gender dysphoria, disruptive impulse control and conduct, neurocognitive, and medication-induced movement are all classified as psychiatric disorders in the DSM-5. According to Srivastava et al., 2018 substance use is 2.5 times higher in people with coexisting psychiatric disorders.

The pattern and prevalence of disorders of SUDs varies between different countries. Twelve month prevalence and lifelong SUDs in the United States was 3.9 per cent and 9.9 per cent. SUDs were found to be more prevalent among males, whites and the Native Americans, younger and those who were single, those with lower education and income, and those living in the West (Grant et al., 2016). In Europe, a study in England and Wales by UNODC 2019 found that cannabis was the popular drug, with the highest prevalence (Grant et al., 2016). In Brazil, Latin America's largest country, in the sample men were more than women at a mean age of 36 years. The most popular substance was alcohol (78 percent) then crack cocaine (51 percent). Alcohol was the drugs which lead most people to go for treatment at all centers. The prevalence rates of alcohol and drug addiction differ depending on the study, but the high lifetime prevalence of any drug or alcohol use, which can range between 22.8 and 74.6 percent, is a typical result (Faller et al., 2014).

Research done in India found that almost 80% of the 2895 individuals in the study were married, had less than or equal to high school education, and 70% were married. Alcohol use disorder and other SUDs had a prevalence of 7.9% and 2.48%, respectively. Tobacco dependence prevalence was 5.5 percent; 35 percent of households had one person with a drug use disorder. In the productive age group (30-39 years), urban metro systems and less educated people, the prevalence was highest (Chavan et al., 2019). In Nigeria, a prevalence and socio-demographic risk factors study was done among 207 psychiatric outpatients. They found that the prevalence for single drug use was 29.3 percent, while that

for multiple drugs was 17.7 percent. The SUDs found were alcohol, tobacco and cannabis and polysubstance use among these substances was also identified (Okpataku et al., 2014).

A research in Uganda found a male to female ratio of 1:1 among 2,902 people aged 12 to 24 years, with an average age of 16 and a half years. Approximately 70.1 percent had used alcohol or other drugs at some point in their lives. Only 39.1% of people used the substances on a regular basis. Alcohol was the most often used substance (23.3 percent), followed by kuber (10.8 percent), khat (10.5 percent), aviation fuel (10.1 percent), cannabis (9.2 percent), and tobacco (9.2 percent) (Abbo et al., 2016).

1.3 Problem statement

Substance use is common among people aged 15-24 years (UNODC 2019). This is the age in which people build up their life academically, socially and economically. When substance use sets in, and if no control measures are taken, it leads to substance use disorders which are psychiatric disorders that need treatment. Due to the expensive nature of the treatment approaches, most individuals cannot access the needed treatment.

Substance use disorders treatment needs a long time to achieve full recovery and at times no promising results are attained as the relapse rates are high (Saitz *et al.*, 2008). These individuals become a social burden; some don't reach their optimal level of education, and cannot maintain relationships leading to broken families (Daley, 2013). Srivastava et al., 2018 found out that substance use was 2.5 times higher among mentally ill patients (56.2%) than in non-mentally ill patients (22.5%). In the mentally ill, substance use is associated with poor compliance to medication, poor disease course and outcome with more relapses, higher homelessness, more unemployment, criminal offences, suicide, and poorer overall functioning whereas a reduction and avoidance of substance use is associated with a reduction in subsequent admissions and symptoms.

In view of the effects of substance use to an individual, information obtained from this study will serve as an informative tool to assess the burden of SUDs and work as a bridge which will attempt to improve the mental health services in the county in view of the prevalence and patterns of substance use.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

The chapter will address review of literatures, set research questions, objectives and hypothesis. Finally will provide the significance and conceptual framework.

2.2 Prevalence of substance use disorders

In 2014, twenty million persons in the USA reported having an SUD and seven million having an SUD and another psychiatric condition. Males made up four million of the seven million, (NIMH » Substance Use and Mental Health, 2014). Among 2475 psychiatric patients in Brazil a crosssectional research was conducted to estimate factors correlated with illegal drug usage by mental illness patients in Brazil found that 11.4 percent of all recent illicit drug use was prevalent (Naha et al., 2017). A cross-sectional analytical analysis conducted in Sri Lanka to assess SUDs in General Hospital in Sri Lanka among 325 mentally ill patients in a found that the prevalence of co-morbid drug use disorders was 43 percent. This research focused mostly on the co-morbidity of opioid use with other drug use disorders (Hapangama et al., 2013). In a cross-sectional study conducted in Iran to investigate the frequency and pattern of drug use in 210 psychiatric patients hospitalized, the prevalence of drug use was found to be 36.7 percent. (Ahmad et al., 2014a). This study focused on substance use not on substance use disorders.

A cross-sectional analysis conducted in Nigeria on prevalence and socio-demographic risk factors of substance use among 207 outpatients found that the prevalence for single drug use was 29.3 percent, while that for multiple drugs was 17.7 percent (Okpataku et al., 2014). Substances were used by 84.4% of patients with bipolar and 82.7% of schizophrenia patients in Ethiopia, according to a prevalence study in Ethiopia (Duko et al., 2016). In Kenya a study on the prevalence and socio-demographic characteristics related with mental and SUDs

among 420 people reported that the prevalence of SUDs was 32 (7.6%) in Kosirai Division, Nandi County (Kwobah et al., 2017). A study conducted by Jaguga 2019 (not yet published) among psychiatry outpatients, Moi Teaching and Referral Hospital, Eldoret, Kenya, to classify substance use disorders among 131 adult in-patients found that nearly half (49.6 percent) of participants had at least one diagnosis of substance use disorder. In June 2004, a cross-sectional study of inpatients at Mathari Referral Hospital in Kenya was conducted to see if there was a link between substance use and psychiatric disorders. The study indicated that 34.4 percent of the subjects met the DSM-IV definition for alcohol addiction/dependence (Ndetei et al., 2009).

2.3 Pattern of substance use

A cross-sectional analysis of 2475 psychiatric patients in Brazil to quantify factors associated with illegal drug use by mentally ill patients in Brazil found that cannabis (8.8 percent in the past year and 21.9 percent for life) was the substance used with the greatest prevalence for both men and women, then cocaine (3.4 percent in the previous year). In Jamaica, a national high school drug survey was done to promote the detection and understanding of adolescent drug use trends and related risk factors. The study used a survey approach that comprised a representative sample of high school students among 3365 students from 38 schools on the island. The study made particular reference among secondary school students on the prevalence of alcohol, tobacco smoke, cannabis and use of inhalants. They found that alcohol (64 per cent), tobacco smoke, marijuana and solvents/inhalants were the mostly used substances among the sample (Atkinson et al., 2015).

A cross-sectional survey of 119 male substance abusers in Pakistan from April to December 2016 was done to find the trend of substance use and the causes of relapses among male drug addicts seeking recovery facilities in various centers in Lahore, Pakistan. Charas-cannabis (44.4 percent), opium (41 percent), hashish (33.3 percent) and alcohol (28.2 percent) were the most common drugs used, then sedative tablets, cocaine and naswar-smokeless tobacco (12 percent), (Sadia et al., 2017). A cross-sectional survey of 110 adolescents in Sunder Nagari, New Delhi, to assess the prevalence and drug use trends among adolescent males found that use of any tobacco form was (77.05 percent), inhalant use

(26.23 percent), and alcohol use (11.47 percent) .These were commonest used substances by the respondents (Daniel et al ., 2017).

A study of 300 addicts in Upper Egypt to evaluate substance addiction trends discovered that the majority of patients mixed tramadol with other substances like alcohol, cannabis, and other opioids. Most people who only used one substance used tramadol (25%), followed by cannabis (6.6%) (Yassa et al., 2019). In Uganda, a cross-sectional study was done on 2,902 people. About 70.1% had ever used alcohol and substances. Just 39.1% frequently used drugs. Alcohol (23.3%) was the most common drug used, then smokeless tobacco (10.8%), miraa (10.5%), jet fuel (10.1%), cannabis (9.2%) and tobacco (5.9%), (Abbo et al., 2016). In Tanzania a research on prevalence of drug use among 184 mentally ill patients at the Bugando Medical Center in Mwanza (northern Tanzania) found that alcohol (59.3%), tobacco (38.6%), and cannabis (29.3%) were the most commonly used drugs among respondents, while heroin(2.1%) and cocaine(1.6%) (Hauli et al., 2011).

A 2017 NACADA study of 3136 individuals aged 15-65 years in 3637 samples in, Central, Eastern, Nairobi, Coast, Nyanza, Western North Eastern and Rift Valley found that alcohol contributes to Kenya's highest burden of drug use disorders (SUDs). The prevalence of AUDs among people aged 15-65 years stood at 10.4 percent in 2017. The prevalence of AUDs in the eastern region was 10.6 percent. The prevalence of serious alcohol use disorders was 6.2%. Research on tobacco use found a prevalence of 6.8 percent in 2017 among those aged 15-65 years. In 2017, the prevalence of khat/miraa use disorders among participants aged 15-65 years stood at 3.1%. The prevalence of khat/miraa usage disorders in the Eastern region was 6.9 percent in the eastern region. The prevalence of severe disorders of khat/miraa use was 1.6 percent. The prevalence of bhang/marijuana use disorders was 0.8 percent among participants aged 15-65 years in 2017. The prevalence in the Eastern region of Bhang Use Disorders was 0.3 percent. In Kenya, a cross-sectional study on the prevalence and patterns of alcohol and substance use among 406 first years at the University of Nairobi found that the lifetime and current prevalence of alcohol and substance use were 103 (25 percent) and 83 (20 percent). 69% of alcohol (22%), 33% of cannabis (8%) and 28% of tobacco are currently commonly used (7 percent). 48 (13 percent) respondents registered poly-substance use, with the major combinations being cannabis, tobacco, and alcohol (Musyoka et al., 2020).

Study on drug addiction and psychiatric comorbidities in Kenya: A case study was conducted among 691 patients at Mathari Psychiatric Hospital. SUDs were seen in 238 patients, 19.2% were opiate-dependent, 71.4%, were dependent on sedatives, while stimulants users were 58.8% (Ndetei et al., 2009).

2.4 Relationship between substance use disorders and psychiatric disorders.

A study was conducted in Taiwan to determine the relationship between certain psychiatric diseases and substance-related disorders. It was a population-based cohort research that employed longitudinal data from 2,000,118 patient medical records from 2000 to 2009. Between 1 January 2001 and 31 December 2006, a total of 124,423 people with selected psychiatric illnesses and the same number of people without a diagnosis of selected disorders were reported, followed by the diagnosis of substance-related disorders by the end of 2009. They discovered that patients with certain psychiatric disorders had a 5 times higher risk of getting substance-related disorders than those who do not (Chiu et al., 2018). According to a Danish study, the prevalence of any lifetime SUD was 37% for schizophrenia, 35% for schizotypal disorder, 28% for other psychoses, 32% for bipolar disorder, 25% for depression, 25% for anxiety, 11% for OCD, 17% for PTSD, and 46% for personality disorders (Schoeler et al., 2017).

A prevalence and associated factors research was conducted in a cross-sectional analytical study conducted in Sri Lanka to determine substance use disorders among 325 mentally ill patients at the Sri Lankan General Hospital. They found that the majority of patients diagnosed with depressive illness were 33 percent with comorbid drug use, those with schizophrenia were 30 percent, bipolar affective disorder were 23 percent with and 13 percent with other disorders. The prevalence of co-morbid SUDs was 43% and alcohol was the most common form of substance used (Hapangama et al., 2013). The Iranian cross-sectional analysis on comorbidity and drug use trends in 210 hospitalized psychiatric patients showed that mood disorders patients had the greatest degree of SUD comorbidity, (Sepehrmanesh et al., 2014b).

On the linkage between substance use and prevalent psychiatric disorders among young adults, a quantitative study was conducted on 1766 participants in the South African

Stress and Health (SASH) Survey. In the SASH trial, drug users were more likely than non-users to have had life-long or 12-month anxiety disorders or severe depression, regardless of substance use option. Furthermore, regardless of the medications taken, the current study's findings demonstrated statistically significant connections between psychopathology and drug use. The findings also reveal that illegal substances like cannabis have a higher risk of psychopathology when age and gender are taken into account (Chiu et al., 2018). In Ethiopia, researchers looked on the linkages and incidence of comorbid SUDs in psychiatric patients. According to the research, 220 of 261 bipolar patients and 215 of 260 schizophrenia patients used substances. The most commonly used substances for psychotic and schizophrenic patients are 161 (61.8%) and 155 (59.6%) khat, and 160 (61.3%) and 154 (59.2%) alcohol, respectively. Patients with mental diseases have a significant frequency of co-occurring drug use disorder, according to the study (Duko et al., 2016). A review of substance use and psychiatric comorbidities in Kenya was performed among 691 patients at Mathari Psychiatric Hospital. They discovered number of important associations between psychiatric disorders and alcohol use. Though not statistically important, both drug misuse was co-morbid with depressive episodes, dysthymia, and minor depressive episode, (Ndeti *et al.*, 2009).

2.5 Sociodemographic correlates of substance use disorders

A cross-sectional representative research was conducted among 2475 Brazil psychiatric patients to see factors associated with drug use in psychiatric patients by their genders. Males had greater prevalence of all substances than females, they found (17.5 percent and 5.6 percent, respectively). Drug use was associated with lower education, physical abuse history, and homelessness history in men; not belonging to any religion was only factor linked with drug use in women (Nahas et al., 2017). In Iran, a study was performed on the prevalence and pattern of opioid abuse in 210 psychiatric inpatients. The mean patient age was 37.9 years, with the majority being male, married and unemployed, they found (Sepehrmanesh et al., 2014b). A cross-sectional research was performed in a tertiary hospital in Nigeria on the prevalence and socio-demographic risk factors related with SUDs in 207 psychiatric out-patients. They discovered that being male, married with at least primary education and unemployed were important risk factors for the use of drugs

(Okpataku et al., 2014). At Bugando Medical Center in Mwanza, Tanzania, a study was undertaken on the prevalence of drug usage among 184 psychiatric patients (Northern Tanzania). They discovered a significant statistical difference between drug usage and the following factors: education level, formal employment, married status, sex, family history of mental illness, and family history of substance use (Hauli et al., 2011). In Kenya, a study on substance use and psychiatric comorbidities was done at the Mathari Psychiatric Hospital, a case study of 691 patients was conducted. The data revealed that this was a comparatively young population, with an average age of 31.97 years and an estimated 82.1 percent of people under the age of 40. More than half of the patients (58.4%) were single. Male patients made up 82.4 percent of this category, while female patients made up 17.6 percent (Ndetei et al., 2009).

2.6 Study justification

Srivastava et al., 2018 found out that substance use was 2.5 times higher among mentally ill patients (56.2%) than in non-mentally ill patients (22.5%). Globally, in 2016, 99.2 million DALYs (Disease adjusted life years) were attributable to alcohol use, and 31.8 million DALYs were attributable to drug use as a risk factor. The burden of disease attributable to alcohol and drug use varied substantially across geographical locations, and much of this burden was due to the effect of substance use on other health outcomes (Global burden of disease 2016). SUDs have been shown to be contributing factors of poor adherence to psychotropic medications and multiple psychiatric relapses (Schoeler *et al.*, 2017). Substance use disorders are frequently neglected and not given priority among patients with another psychiatric illness (Schoeler *et al.*, 2017). This study needs to be carried out as it will find out more concerning substance use disorders among the patients since there is scarcity of data on the same.

2.7 Significance of the study

The findings from this analysis will contribute to the information pool as to the county's prevalence of substance use disorders. This will also be helpful to the clinicians as it

will sensitize them on substance use disorders among the local population. It will also act as a resource for clinicians when budgeting and asking for funding support in regards to mental health in the county. Depending with the results, it can also be used as a lobbying tool to request for rehabilitative facilities for patients with substance use disorder since currently there are no government inpatient rehabilitative facilities in the whole county. The study findings will also be of help to the county government, planning and policy, as it will provide knowledge of substance use disorders in the county.

2.8 Research questions

1. What is the prevalence of substance use disorders among outpatients at Machakos County Referral Psychiatric Clinic?
2. What is the pattern of substance use among outpatients at Machakos County Referral Psychiatric Clinic?
3. What are the socio-demographic correlates of SUDs among outpatients at Machakos County Referral Psychiatric Clinic?
4. Is there a relationship between substance use disorders and other psychiatric disorders among outpatients at Machakos County Referral Psychiatric Clinic?

2.9 Research objectives.

2.9.1 Broad objective

To determine prevalence and patterns of substance use disorders and their relationship with mental disorders among outpatients at Machakos County Referral Psychiatric Clinic.

2.9.2 Specific objectives

1. To determine the prevalence of substance use disorders among outpatients at Machakos County Referral Psychiatric Clinic.
2. To assess the pattern of substance use among outpatients at Machakos County Referral Psychiatric Clinic.
3. To assess the socio demographic correlates of substances use disorders among outpatients at Machakos County Referral Psychiatric Clinic.

4. To assess the relationship between substance disorders and other psychiatric disorders among outpatients at Machakos County Referral Psychiatric Clinic.

2.10 Hypothesis statements

2.10.1 Null hypothesis

1. There are no substance use disorders among psychiatric outpatients at Machakos County Referral Psychiatric Clinic.

2.10.2 Alternate hypothesis

2. There are substance use disorders among psychiatric outpatients at Machakos County Referral Psychiatric Clinic.

2.11 Conceptual Framework

The framework explains the relationship between study variables. The independent variable are the substances used and dependent variable are SUDs and their relationship with other mental illnesses as confounders. Moderating factors will include the socio-demographic factors.

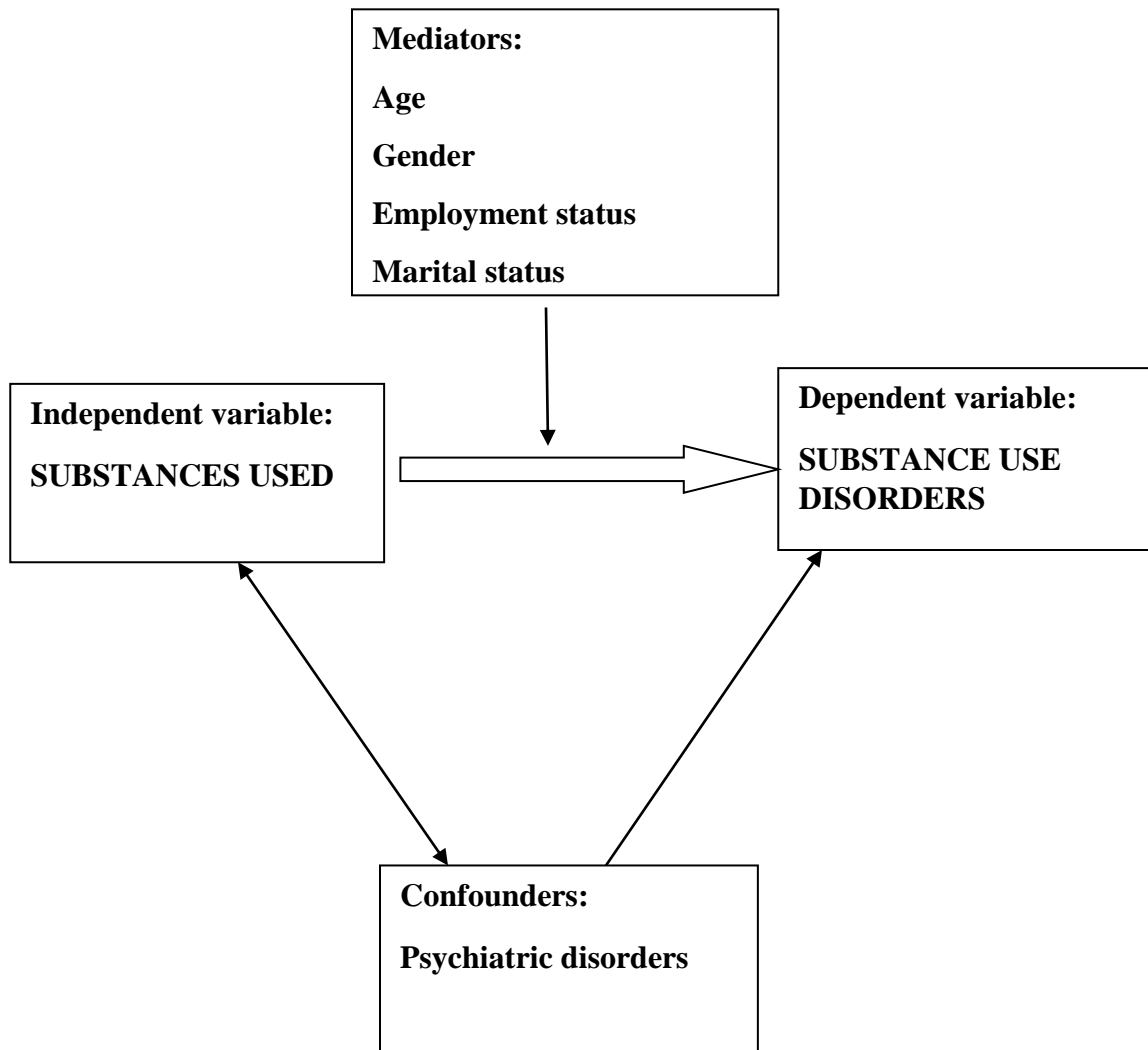


Figure 1: Conceptual Framework

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study design

This was a cross-sectional descriptive study. It was a quantitative approach.

3.2 Area of study description

According to the 2019 census, the total population of Machakos County is 1.4 million people. Machakos County has an area of 6,043 km². The county borders the counties of Nairobi and Kiambu in the west, Embu in the north, Kitui in the east, Makueni in the south, Kajiado in the southwest, and Murang'a and Kirinyaga in the northwest.

Machakos county referral hospital is a level 5 hospital with a big range of services delivered. The Psychiatric unit is one of the units in the referral hospital. This unit provides mental health services, inpatient and outpatient for all mental health disorders. It also is the only inpatient and specialist mental health service provider in the whole county. However, there are two level 4 hospitals: Kangundo and Kathiani which have a psychiatric clinic run by clinical officers. Mutituini level 3 hospital has a psychiatry clinic run by a nurse.

Machakos county referral hospital has also been serving as a referral hospital for psychiatric patients from neighbouring counties of Makueni, Kitui and Kajiado which do not offer inpatient psychiatric services. The inpatient unit has a bed capacity of 30:10 female and 20 male, however the ward usually admits beyond the capacity up to around 46 patients.

The team members include: 2 consultant psychiatrists, 1 clinical officer, 2 counseling psychologists, 2 social workers and an occupational therapist.

This team runs 5 outpatients clinics a week:

1. Adult psychiatry clinics, average number of patients per clinic 40.
2. Substance use clinic, average number of patients per clinic 10.

3. Child psychiatry clinic average number of patients per clinic 5.
4. Psychology clinic average number of patients per clinic 15.
5. Forensic clinic average number of patients per clinic 10.

The department offers a wide range of psychiatric services to the patients, curative and rehabilitative.

3.3 Study Population

Patients attending general psychiatric outpatient clinics in a period of two months till the sample size was attained.

Inclusion criteria

1. Adult patients attending psychiatric outpatient clinic
2. Those > 18yrs of age.
3. Those who consented to participate in the study.

Exclusion criteria

1. The severely sick.
2. Those who refuse to consent.

3.4 Sample size

Cochran's (1977) sampling formula is applied to estimate the sample size.

$$n = \frac{z^2 p(1-p)}{d^2}$$

Where:

n – Estimated sample size

d – The level of precision

p - Proportion of those with the condition of interest

z – Confidence level

Using a confidence interval of 95%, expected prevalence (p) of 34% (Ndetei *et al.*, 2008) and a level of significance of 5% (0.05),

$$n = \frac{1.96^2 \times 0.34 (1 - 0.34)}{0.05^2}$$

$$n = 345$$

Corrected sample size for finite population

$$n' = \frac{n}{1 + \frac{(n-1)}{N}}$$

Where, n' =adjusted sample size

n =sample size

N =population size

The population size of psychiatric outpatients in Machakos level 5 psychiatry unit is estimated to be 200. Thus:

$$N = 200$$

Therefore to get n' ,

$$n' = \frac{345}{1 + \left(\frac{345-1}{200}\right)}$$

$$n' = 127$$

3.5 Sampling technique

Systematic stratified sampling method was used, where the researcher selected every 2nd patient in the clinic. The researcher had a target of 20 patients in a week so approximately the study was done over 2 months (7 weeks).

3.6 Recruitment and consenting procedure

The participants were screened to see if they met the stated inclusion criteria. Those who met the inclusion criteria were given a Mini-Mental State Examination (MMSE) to assess their cognitive functions and ability to answer questions appropriately. Those who had a score of less than 25 were thanked and then dismissed. The researcher presented the study to people who scored 25 or higher on the MMSE and answered any questions or clarifications that arose as a result. After that, informed consent was sought. This approach entailed giving them an informed consent paper outlining the study's specifics and allowing them to ask any questions they had about it. Those who met the inclusion criteria and were willing to take part in the study were requested to sign an informed consent form. For those whom consent was not given, they were thanked and excluded. On obtaining consent, a socio-demographic questionnaire and MINI were administered. Participants were then thanked for being participants.

3.7 Data collection procedure

Data was collected by the principal investigator (PI). After consenting, the researcher started the interview. The socio demographic questionnaire was administered first followed by MINI VERSION 7.0.2 assessment tool to assess for psychiatric diagnosis. The data collection tool MINI is a long questionnaire which could be tiring for the participants. In some cases it took a shorter time as skipping was involved in the sections that were not relevant to a patient.

The data collection forms completed were stored in a locked cabinet managed by the principal investigator with access. With a password to which only the researcher was privy, data stored on a computer was secured.

The **study instruments** include:

1. **Screening tool: Mini-Mental State Examination**

This is a screening tool used to measure severity of cognitive impairment. It assesses areas of cognition such as orientation, registration, short term memory, attention, and language with scores adding up to 30. Scores of 25 and above are considered to be normal.

This tool has satisfactory reliability and validity results, with high sensitivity for moderate to severe cognitive impairment (Tombaugh and McIntyre, 1992). It will be used as a standardized way of assessing patient's ability to comprehend the study explanation for assent and answer questions objectively during the study. Those who score less than 25 will not be recruited into the study.

2. Socio-Demographic Data Questionnaire

This is a questionnaire produced by the researcher that captures demographic variables of a person. They include: age, sex, religion, marital status, the highest level of occupation of the respondent and amount of income.

3. Mini International Neuropsychiatric Interview (MINI)Adult 7.0.2

This is a structured diagnostic interview initially developed in 1990 for use in psychiatric disorders. It has been found to be an ideal tool for psychiatric assessment and outcome tracking, with an administration time of about 15 minutes. It is also the most widely used clinical structured screening interview method in the world, used by mental health professionals and health agencies in many nations. It evaluates for various disorders: suicidality, psychotic, anxiety, depression, panic, ocd , alcohol, eating disorders, antisocial personality, bipolar, SUDs and PTSD.

3.8 Methodology flow chart

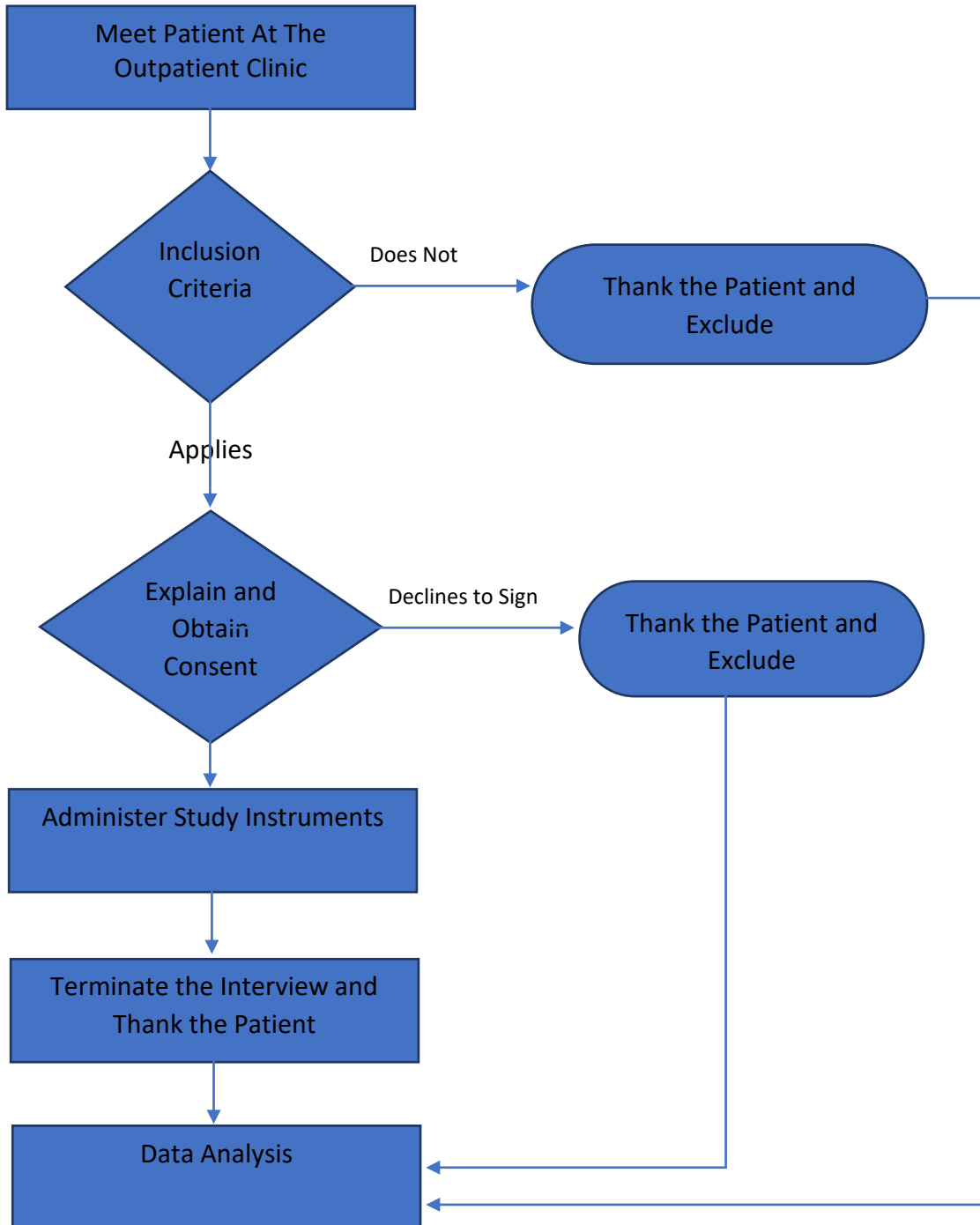


Figure 2: Methodology flow chart

3.9 Quality Assurance Procedures

The researcher emphasized the comprehension of the questions and the general concept of the study by the study participants. All the data was recorded and stored in secure cabinets that are only privy to the researcher.

3.10 Ethical consideration

3.10.1 Ethics and informed consent

The University of Nairobi/Kenyatta National Hospital Ethics Review Committee provided ethical permission, which was granted. The Machakos County Hospital administration, the hospital Research committee, and the Psychiatrist and Nurse in Charge of the Psychiatry Clinic all gave their written consent.

3.10.2 Obtaining Informed Consent

The principal investigator (PI) acquired informed consent with study details, and participants were given the opportunity to ask any questions they had about the study. Consent was obtained in a research designated room with only the PI and participant present. Consent was obtained before the study was carried out. After consent was obtained, data was collected in the same room to ensure confidentiality.

Patients were not compensated and they were explained to that the research has no external funding and the data obtained was only for clinical and academic purpose and not for any financial gain. Those who were not able to make informed decisions despite being eligible were thanked and excluded from the study and be explained unwillingness to be part of the study did not affect their management now and thereafter.

3.10.3 Potential benefits to study participants

The findings of the study may aid patients and physicians in better understanding the prevalence and patterns of SUDS, allowing them to provide better evidence-based therapy while also taking into account the preferences of caregivers.

3.10.4 Potential risks

No physical harm was anticipated in the study. However there was a risk of emotional recollections, where one might feel ashamed or uncomfortable as they offer information about their past and current life of substance use and psychiatric illness, which are potentially sensitive topics.

In the event of mild or moderate distress, being a psychiatrist in training, those situations were normalized by giving psychological support. Severe distress was treated with appropriate medication and therapy.

3.10.5 Confidentiality

This being a vulnerable group, the researcher reassured all participants that the study was solely for research/academic work and that all information shared would be kept in strict confidence. To ensure that confidentiality was observed, the researcher assigned each questionnaire a number and their names were not used.

3.10.6 Voluntary Participation

The researcher explained to the study participants about the study procedures and the potential risks involved in the study. The participants were allowed to d can pull out at any time from the study.

3.10.7 Language barrier.

Participants not competent in English or Swahili and eligible were sought from consent to allow a translator since PI is not conversant with the local dialect. Those who did not agree to have a translator were thanked and explained to that their disapproval will not affect their treatment.

3.11 Data management

3.11.1 Data coding and data entry

After data enumeration, the researcher checked for completeness while in the field. Any missing data for each participant was filled before leaving the field. Collected data was

transported to a central place where was stored under lock and key. At the central place, data was coded in Microsoft Excel.

3.11.2 Data cleaning

Microsoft Excel was used to clean the data. Any errors found were fixed, allowing the data to be studied without compromising its integrity or robustness. A clean dataset was saved to a hard disk in preparation for analysis.

3.11.3 Statistical analysis

To describe the prevalence, patterns, and socio-demographic features of the individuals, a univariate analysis was used. Bivariate analysis was done to indicate the association between SUDs and other psychiatric illnesses. The threshold will be set at $p < 0.05$ for statistical significance. All analysis was performed using version 23 of SPSS. The findings were presented using tables.

3.12 Pretesting of Research Instrument

Prior to the study, a pretest was conducted at the Mathari Teaching and Referral Hospital to ensure the study tool's validity and reliability. A total of ten outpatient patients were employed in the study. This preliminary investigation was carried out to rule out any uncertainty and to determine the study's cost and logistical feasibility.

3.13 Study results dissemination plan

The researcher was responsible for submission of soft and hard copies to the Department of Psychiatry for grading and to facilitate chronic storage at University of Nairobi's library repository. The study results were presented during defense at the Department of Psychiatry. A research manuscript was produced and submitted later for publication in a peer-reviewed journal. The supervisors' role was to ensure correctness of data quality, clarity and completeness and facilitating publication of study in a peer reviewed journal.

3.14 Study closure plan and procedure

The data collected will be stored for at least five years, during which time we intend to publish the study. The soft copies of data will be stored in a hard drive while hard copies of study documents will be kept in a lockable cabinet. Both the soft and hard copies will only be accessible to the researcher and supervisors. At the end of the five years, data will be discarded by deleting soft copies and mechanical destruction of the hard drive, while the hard copy documents will be shredded.

CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

One hundred and twenty seven (127) psychiatric out patients were recruited into the quantitative study with 100% response rate. Data collected was then analysed to respond to each study objective. The results were as presented below:

4.2 Socio-demographic characteristics of patients attending psychiatric outpatient clinic in Machakos Level 5 Hospital.

Results of the demographic characteristics indicate that majority of the patients were aged between 21 to 40 years (76, 59.8%), where the mean age was 36.4 (SD 13.6) years, and the minimum and maximum age being 18.0 years and 79.0 years.

Table 4.1: Socio- Demographic characteristics of study participants.

		Frequency(<i>n</i> =127)	Percent
Age	≤20	9	7.1
	21 – 40	76	59.8
	41 – 60	33	26.0
	>60	9	7.1
Gender	Male	94	74.0
	Female	33	26.0
Religion	Christian	123	96.9
	Muslim	3	2.4
	Others	1	0.8
Education	None	5	3.9
	Primary	40	31.5
	Secondary	53	41.7
	Tertiary	29	22.8
Employment	Not employed	76	59.8
	Self-employed	27	21.3
	Employed	24	18.9
Income	Less than 20K	113	89.0
	20-35K	7	5.5
	35-50K	6	4.7
	Above 50K	1	0.8
Marital status	Single	73	57.5
	Married	47	37.0
	Sep./Div./Wid.	7	5.5
Family history of mental illness	Yes	44	34.6
	No	83	65.4
Parent drug use	Yes	44	34.6
	No	83	65.4

4.3 Prevalence of substance use disorders among outpatients at Machakos County Referral Psychiatric Clinic

Table 2 presents prevalence of SUDS among participants. Out of 127 participants, 62(48.8%) were found to be having a substance use disorder and 65 (51.2%) were not found to be having a substance use disorder.

Table 4. 2: Prevalence of substance use disorders among participants

		Frequency(<i>n</i> =127)	Percent
Substance use	Present	62	48.8
	Not present	65	51.2

Table 4 3: Prevalence of all Psychiatric disorders among participants.

		Frequency	Percent of patients(<i>n</i> =127)
Disorder	Psychotic disorder	70	55.1%
	SUD	54	42.5%
	Alcohol	50	39.4%
	Bipolar	32	25.2%
	Suicidality	8	6.3%
	PTSD	8	6.3%
	Depression	7	5.5%
	GAD	4	3.1%
	Panic disorder	1	0.8%
	Social anxiety	1	0.8%
	Agoraphobia	0	0.0%
	OCD	0	0.0%
	Anorexia	0	0.0%
	Bulimia	0	0.0%
	Medical organic	0	0.0%
Antisocial	0	0.0%	

In the above table, psychotic disorders were most prevalent at 55.1% followed by alcohol and other substance use disorders.

4.3 Pattern of substance use among outpatients at Machakos County Referral Psychiatric Clinic.

Table 4.4 tabulates the patterns of substances used by participants. Alcohol (40.2%) was most common SUD followed by nicotine (40%).

Table 4.4: Pattern of substance use disorders

		Frequency	Percent of patients, (n=127)
Substance	Alcohol	51	40.2%
	Nicotine	40	31.5%
	Khat	35	27.6%
	Cannabis	31	24.4%
	Tranquilizers	0	0.0%
	Inhalants	0	0.0%
	Hallucinogens	0	0.0%
	Cocaine	0	0.0%
	Opiates	0	0.0%
	Dissociative drugs	0	0.0%

Table 4.5: Number of substance use disorders per patient.

Of the 127 participants, 65 had no SUDs, and of those with SUDs, most of them (41) had multiple SUDs.

		Frequency, (n=127)	Percent
Number of substances	None	65	51.2
	1	21	16.5
	2	9	7.1
	3	10	7.9
	4	22	17.3

4.4 Socio-demographic correlates of substances use disorders among outpatients at Machakos County Referral Psychiatric Clinic

Results indicate that there was statistical significant association between gender and substance use disorder, where males were 16.9 times more likely to have substance use disorder than females ($p < 0.001$).

Those aged < 20 and between 21-40 years were 4.4 and 4.6 times respectively likely to have SUDs compared to those more than 60 years but there was no significant statistical association.

Christians were 2 times likely to use substances than other religions but there was no significant statistical association.

No statistical association was found between education level, employment status, amount of income, marital status, family history of mental illness, parental drug use and SUDS.

Table 4.6 Socio-demographic correlates of substances use disorders

		Yes, n (%)	No, n (%)	OR (95% CI)	p-value
Age	≤20	5 (8.1)	4 (6.2)	4.4 (0.6-33.9)	0.158
	21 – 40	43 (69.4)	33 (50.8)	4.6 (0.9-23.4)	0.069
	41 – 60	12 (19.4)	21 (32.3)	2.0 (0.4-11.2)	0.431
	>60	2 (3.2)	7 (10.8)	Reference	
Gender	Male	59 (95.2)	35 (53.8)	16.9 (4.8-59.3)	<0.001
	Female	3 (4.8)	30 (46.2)	Reference	
Religion	Christian	60 (96.8)	63 (96.9)	1.9 (0.2-21.6)	0.603
	Muslim	1 (1.6)	2 (3.1)	Reference	
	Others	1 (1.6)	0 (0.0)	-	
Education	None	4 (6.5)	1 (1.5)	4.9 (0.5-49.6)	0.176
	Primary	18 (29.0)	22 (33.8)	1.0 (0.4-2.6)	0.989
	Secondary	27 (43.5)	26 (40.0)	1.3 (0.5-3.2)	0.597
	Tertiary	13 (21.0)	16 (24.6)	Reference	
Employment	Not employed	37 (59.7)	39 (60.0)	0.8 (0.3-2.0)	0.640
	Self-employed	12 (19.4)	15 (23.1)	0.7 (0.2-2.0)	0.489
	Employed	13 (21.0)	11 (16.9)	Reference	
Income	Less than 20K	57 (91.9)	56 (86.2)	2.5 (0.5-13.7)	0.276
	20-35K	3 (4.8)	4 (6.2)	1.9 (0.2-17.3)	0.579
	Above 35K	2 (3.2)	5 (7.7)	Reference	
Marital status	Single	39 (62.9)	34 (52.3)	2.9 (0.5-15.7)	0.225
	Married	21 (33.9)	26 (40.0)	2.0 (0.4-11.5)	0.428
	Sep./Div./Wid.	2 (3.2)	5 (7.7)	Reference	
Family history	Yes	18 (29.0)	26 (40.0)	0.6 (0.3-1.3)	0.196
	No	44 (71.0)	39 (60.0)	Reference	
Parent drug use	Yes	19 (30.6)	25 (38.5)	0.7 (0.3-1.5)	0.356
	No	43 (69.4)	40 (61.5)	Reference	

4.5 Relationship between substance disorders and other psychiatric disorders among outpatients at Machakos County Referral Psychiatric Clinic

There was a statistical significant association between patients with psychotic disorders and substance disorder, where they were 6.7 times more likely to have substance disorder than those without psychotic disorder (p<0.001).

Patients with bipolar were less likely to have substance disorder than those without the disorder, and this was statistically significant (p<0.001).

There was no statistical significant association between patients with PTSD and substance disorder, though the results indicates that they were 8.1 times more likely to have substance disorder than those without PTSD ($p < 0.001$).

		Yes, n (%)	No, n (%)	OR (95% CI)	p-value
Psychotic disorder	Yes	48 (77.4)	22 (33.8)	6.7 (3.1-14.7)	<0.001
	No	14 (22.6)	43 (66.2)	Reference	
Bipolar	Yes	5 (8.1)	27 (41.5)	0.1 (0.04-0.3)	<0.001
	No	57 (91.9)	38 (58.5)	Reference	
Suicidality	Yes	3 (4.8)	5 (7.7)	0.6 (0.1-2.7)	0.512
	No	59 (95.2)	60 (92.3)	Reference	
PTSD	Yes	7 (11.3)	1 (1.5)	8.1 (1.0-68.2)	0.053
	No	55 (88.7)	64 (98.5)	Reference	
Depression	Yes	2 (3.2)	5 (7.7)	0.4 (0.1-2.1)	0.285
	No	60 (96.8)	60 (92.3)	Reference	
GAD	Yes	0 (0.0)	4 (6.2)	-	
	No	62 (100)	61 (93.8)		
Panic disorder	Yes	1 (1.6)	0 (0.0)	-	
	No	61 (98.4)	65 (100.0)		
Social anxiety	Yes	0 (0.0)	1 (1.5)	-	
	No	62 (100)	64 (98.5)		

CHAPTER FIVE

5.0 DISCUSSION

5.1 Sociodemographic characteristics

This study found out that majority of the participants were aged between 21 to 40 years (76, 59.8%), where the mean age was 36.4 (SD 13.6) years. This was comparable with other studies which have also shown that most participants were aged between 30 to 40 years. In Iran, a cross-sectional study done showed that the mean patient age was 37.9 years (Sepehrmanesh et al., 2014b). A case study done in Mathari Psychiatric Hospital, revealed that the participants were a relatively young population with an average age of 31.97 years, as 82.1% were 40 years of age and below (Ndetei *et al.*, 2009). A cross sectional study done in Ethiopia showed that the mean age of the respondents were 33.74 and 34 years for bipolar and schizophrenic patients respectively. (Duko et al ., 2016). All these studies done in different regions and in different years show that SUDS and mental illness have continually been a problem mostly affecting the younger population, less than 40 years. This is due to the fact that most mental illnesses have their onset in this age group and the fact that the young people tend to involve themselves in more risky behaviours like substance use compared to older people.

Most of the participants were male (94, 74%). This compares to many other studies done among psychiatric population. A cross sectional study done in Ethiopia showed that among the respondents majority were males (Duko et al., 2016). In Iran, a cross-sectional study done showed that the majority of patients were male (Sepehrmanesh et al., 2014b). A case study done in Kenya by (Ndetei *et al.*, 2009) showed that the number of male patients was 82.4 percent and that of females was 17.6 percent. This could be attributed to that fact that society and cultural norms allow men to use substances in comparison to women who undergo a lot of stigma if they use drugs.

The study also found out that most participants were single 57.4%, unemployed 76%, and were Christians 96.9%. Being unemployed agrees with a study by (Okpataku *et al.*, 2014). This is because due to mental illness with the late health seeking behavior of people in our set up, some patients drop out of school and others become incapacitated to work

increasing chances of unemployment. A study done in Iran showed that the majority of patients were married (Sepehrmanesh et al., 2014b.) Another study done in Nigeria showed that being married was important risk factors for the use of drugs (Okpatakuet al., 2014). This study disagrees with the two studies as majority of the patients were single. This could be attributed to delay in marriage in our local set up where due to mental illness patients shy away from marriage.

5.2 Prevalence of substance use disorders.

This study found out that prevalence of SUDs was 48.8 %. This is comparable to most studies which showed a prevalence of SUDs between 30 to 50%.A cross-sectional analytic study conducted in Sri Lanka to assess SUDs among mentally ill patients a found that the prevalence of co-morbid drug use disorders was 43% (Hapangama et al., 2013). A study conducted by Jaguga et al., 2017, in the psychiatric outpatient clinic, Moi Teaching and Referral Hospital, Eldoret, Kenya among adult in-patients found a prevalence of 49.6%. This is quite comparable to my study findings. Another study in Kenya, at Mathari Hospital found that prevalence of SUDs was 34.4% (D. Ndetei et al., 2009). This is lower than what was found in my research, this could be due to the time difference where over time trends of SUDs have changed over the years. The UNODC (2020) reported an increase in the number of illicit substance users globally in 2018 by 30 % compared to 2009, and projected this to increase by 11% by 2030.UNODC 2020 found over 35 million people suffered from substance use disorders compared to over 29 million people in 2016 this supports the increasing trend. It is also possible that amounts of substances consumed are increasing and hence substance use disorder rates are rising as well. Trends in alcohol consumption have shown a steady increase in amounts consumed over time (Monteiro et al.,2015) and this has been projected to substantially increase over the coming years (WHO, 2014).

5.3 Pattern of Substance Use disorders.

My study found that only four main substance use disorders were present. The most commonly used substance was alcohol at 40.2%, Tobacco (cigarettes, chavis and kuber)

40%, Khat 27.6% and cannabis 24.4%. The findings that alcohol use disorders were the most prevalent is not surprising given that this is the most consumed substance (NACADA 2017). NACADA 2017 found out that alcohol was the most consumed substance in Kenya due to availability and affordability.

This is also comparable to other studies which showed alcohol use disorder as the most common SUDs ((Jadnanansing *et al.*, 2021), Hauli et al.,2011 Tanzania, Ndeti et al.,2009 and Abbo et al.,2016 Uganda . This however differs with other studies. Sadia et al., 2017 in Pakistan found out that cannabis use disorder was the most common while in Ethiopia, Duko et al., 2015 documented Khat (a methamphetamine) use disorder as the most prevalent. This variation in the most common substance use disorder could be due to differences in availability of substances in the underlying population as well as socio-culturally influenced preferences for certain substances. Khat for instance is widely grown all over Ethiopia, and its consumption is popular in all segments of the Ethiopian population (WHO, 2006 and (Mihretu et al 2017) .Cannabis use disorder could be most prevalent in Pakistan due to availability .Cannabis is grown in the neighbouring country Afganistan so its trafficked in large amounts to Pakistan (ONODC 2013).

My study showed that tobacco and khat were the second and third most common SUDS. This is not surprising as NACADA 2017 found out the same pattern of tobacco use disorder as the second highest followed by Khat then Cannabis. This differs from a study in Tanzania by Hauli et al 2011where tobacco was 2nd highest followed by cannabis. Another study done in Pakistan differed with my study where opium and hashish use disorder were second and third respectively (Sadia et al., 2017). GATS (Global adult Tobacco Survey) 2014 found out that Kenya has the highest Tobacco use in Africa. Kenya is a major producer of both raw tobacco and manufactured tobacco products, with 17.4 billion cigarettes produced in Kenya in 2016 (Tobacco Atlas 2018).Varying patterns of the most prevalent substance use disorders across regions likely reflects availability and socio-cultural preferences for substances, and emphasizes importance of conducting local studies.

The knowledge that alcohol, tobacco, khat and cannabis are the most common substance use disorders among psychiatric outpatients is of importance. Firstly, routine screening for substance use disorders ought to be geared towards these four substance use

disorders at the minimum. Also, resources could be prioritized towards the diagnosis and management of these three substance use disorders. For example priority could be accorded to providing laboratory tests and pharmacotherapy useful for the management of these three substance use disorders.

5.4 Sociodemographic correlates of SUDs.

Results indicate that there was statistical significant association between gender and substance use disorder, where males were 16.9 times more likely to have substance use disorder than females. This was similar to studies in Brazil by Nahas et al., 2017, in Iran a study done by Sepehrmanesh 2014b and in Kenya by Ndeti et al., 2009. Male gender has been shown to be associated with substance use disorders because of several reasons. Firstly, men have been shown to have more opportunities to try substances as compared to women (Van Etten et al., 2001). Secondly, in many cultures, gender roles may prevent the development of problematic substance use, and endorsing traditional gender roles has been shown to protect women from developing substance related problems (Kubicka et al., 2008) resulting in an over representation of males among those with substance use disorders. Both explanations seem possible in our setting since our society prescribes to strict gender roles where women are custodians of the care of the home and children while men remain the breadwinners (Kenya's National Gender Context and its Implications for Conservation: a Gender Analysis, 2013). This means that women spend a huge proportion of their time in the home and are therefore unlikely to access substances as compared to men. Additionally, strict cultural beliefs and values in our setting discourage women from the use of substances.

Those aged < 20 and between 21-40 years were 4.4 and 4.6 times respectively likely to have SUDs compared to those more than 60 years but there was no significant statistical association. In Iran, a cross-sectional study done showed that the mean patient age was 37.9 years (Sepehrmanesh et al., 2014b). Being young is a contributory factor to drug use due to idleness and effect of peer pressure. Age comes with more commitments and responsibilities which leads to lower drug use. Also the young are of more sound overall good health but as one gets older with the fear of age related diseases substance use decreases.

No statistical association was found between education level, employment status, amount of income, marital status, family history of mental illness, parental drug use and SUDs. This means that everyone is equally predisposed to having a SUD. With or without education, employed or not, married or not, history of mental illness or not and parental drug use or not, however this differs with a study done in Tanzania where they found that there was a substantial statistical difference between drug use and participants: education level (secondary level), association among those formally employed, among the singles, those with a family history of mental illness, and family substance use history (Hauli et al., 2011.) The difference could be due to the fact that this study was based on Substance use and not strictly on SUDs as in this study. This study compares with that of Musau et al., 2019 which showed no statistical association of these variables with SUDs except for educational level.

5.5 Relationship between SUDs and psychiatric disorders

A statistically significant association between patients with psychotic disorders and substance disorder, where they were 6.7 times more likely to have substance disorder than those without psychotic disorder. This is comparable to a research done by Schoeler *et al.*, 2017 in Denmark which found out that patients with psychotic disorders were associated more with SUDs than patients with other psychiatric disorders. This is also similar with what (McNeely *et al.*, 2018) found out in Norway that among outpatients, the prevalence of SUDs was more in schizophrenics and other psychoses. This is however different from a study in Sri Lanka where they found that the majority of patients diagnosed with depressive illness had SUDs (Hapangama et al., 2013). An Iranian study showed mood disorders patients had the greatest degree of SUD comorbidity, (Sepehrmanesh et al., 2014b). This is similar with my study which showed that patients with bipolar mood disorder have a higher likelihood to have substance use disorder compared to those who don't have bipolar, and it was statistically significant but with a weak association.

Musau et al., 2019, found greatest association of SUD with suicidality. This shows that different regions have different associations of mental illnesses and SUDs. These could be due to the different reasons which make one psychiatric illness more prevalent in one region compared to another. Different theories have come up on why psychotic patients are more

vulnerable to SUDs. The diathesis-stress model (also known as the "two-hit" model) depicts a neurobiologic vulnerability interacting with an environmental stressor (such as substance abuse) to cause schizophrenia (Fowles et al., 1992). According to another theory (the cumulative risk factor hypothesis), people with schizophrenia have higher chances of having substance use disorders as a result of the overall consequences of schizophrenia including: impaired cognition, poor social status and homelessness, lower levels of education, and poor vocational functioning (Mueser et al., 1990). The self-medication hypothesis proposes that substance use in schizophrenia patients is motivated by a desire to alleviate symptoms or reduce antipsychotic treatment side effects (Khantzian et al., 1997). While self-medication is a viable option, most studies have found no (or extremely limited) links between schizophrenia symptoms and substance use, or between medication side effects and use (DeQuardo et al., 1994).

My study also found a weak association of substance use disorders and Mood disorders. Substance use among bipolar patients have been seen to provide temporary relief in overwhelming and distressing circumstances. They have also been shown to provide relief of psychotic symptoms, improvement of mood, and inducement of relaxation with the substance (Dixon et al., 1990, Greg et al., 2007). During a mood disorder episode patients lack planning and foresight, and substance use occurs without reflection or deliberation (Dawe et al., 2004).

There was no statistical significant association between patients with PTSD and substance disorder, though the results indicates that they were 8.1 times more likely to have substance disorder than those without PTSD. Among individuals with PTSD a study in USA showed the prevalence of co-occurring SUD to be between 36% and 52%, which is higher than in the general population (Mills et al., 2006; Pietrzak et al., 2011). This is not comparable with our study as PTSD had a prevalence of 6.8%. The difference in association could be due to the fact that PTSD mostly occurs in areas with a lot of traumatic experiences which has not been the case for Machakos County so less prevalence rates of PTSD. The use of substances as a way to selfmedicate and susceptibility hypotheses are two of the hypotheses that have been shown to help explain the association of posttraumatic stress disorders and SUDs.

CHAPTER SIX

6.0 CONCLUSION, RECOMMENDATIONS AND STUDY LIMITATIONS

6.1 Conclusion

1. In conclusion the study found out that nearly half of the patients attending the psychiatric outpatient clinic in Machakos Level 5 Hospital had a substance use disorder.
2. The study also shows a high comorbidity of substance use disorders in patients with other mental illnesses.
3. The substance use disorders identified were: alcohol, nicotine, khat, cannabis.
4. Of those patients with SUDs, most of them had polysubstance use disorders.
5. Males were also found to be the majority and the majority of the participants were found to be single and unemployed.

6.2 Recommendations

1. The hospital's psychiatry department should implement a program of routine screening to detect substance use in all psychiatric patients in order to diagnose comorbidity and provide appropriate care.. This has shown improved outcomes of SUD and mental illness. (McNeely *et al.*, 2018)
2. The basic education curriculum should be enriched with topics on substance use as initiation into substance use starts early (12–14 years old) to late (15–17 years old) adolescence. (UNODC 2018)
3. Substance use topics should be incorporated in trainings/retreats in the county which involve people who work with children and the youth to sensitize and equip them with knowledge on substance use disorders.

6.3 Study Limitations

This is a hospital set up study, as a result, the findings cannot be applied to the entire population.

Data was collected 1 year 6months into the COVID pandemic, this would give higher levels of SUDs as COVID came with a lot of social issues which could precipitate substance. As of June 2020, 13 percent of Americans had started or escalated substance usage as a way of coping with stress or emotions related to COVID-19 according to CDC.

REFERENCES

- 1) (US), S. A. and M. H. S. A. and (US), O. of the S. G. (2016) 'THE NEUROBIOLOGY OF SUBSTANCE USE, MISUSE, AND ADDICTION'. US Department of Health and Human Services. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK424849/> (Accessed: 12 October 2020).
- 2) Chiu, M.-L. *et al.* (2018) 'The Temporal Relationship between Selected Mental Disorders and Substance-Related Disorders: A Nationwide Population-Based Cohort Study', *Psychiatry Journal*. Hindawi Limited, 2018, pp. 1–12. doi: 10.1155/2018/5697103.
- 3) Daley, D. C. (2013) 'Family and social aspects of substance use disorders and treatment', in *Journal of Food and Drug Analysis*. Elsevier Taiwan LLC, pp. S73–S76. doi: 10.1016/j.jfda.2013.09.038.
- 4) Duko, B. (2016) 'Prevalence and Correlates of Co-occurring Substance Use Disorder among Patients with Severe Mental Disorder at Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia', *Journal of Neuropsychopharmacology & Mental Health*. OMICS Publishing Group, 01(01). doi: 10.4172/2472-095x.1000101.
- 5) Hapangama, A., Kuruppuarachchi, K. A. and Pathmeswaran, A. (2013) 'Substance use disorders among mentally ill patients in a General Hospital in Sri Lanka: prevalence and correlates.', *The Ceylon medical journal*. Ceylon Med J, 58(3), pp. 111–115. doi: 10.4038/cmj.v58i3.6103.
- 6) Jadnanansing, R. *et al.* (2021) 'Prevalence of substance use disorders in an urban and a rural area in Suriname', *Tropical Medicine and Health*. BioMed Central Ltd, 49(1), pp. 1–10. doi: 10.1186/S41182-021-00301-7/TABLES/5.
- 7) McNeely, J. *et al.* (2018) 'Barriers and facilitators affecting the implementation of substance use screening in primary care clinics: A qualitative study of patients, providers, and staff', *Addiction Science and Clinical Practice*. BioMed Central Ltd., 13(1), pp. 1–15. doi: 10.1186/S13722-018-0110-8/TABLES/1.
- 8) Mihretu, A., Teferra, S. and Fekadu, A. (no date) 'What constitutes problematic khat use? An exploratory mixed methods study in Ethiopia'. doi: 10.1186/s13011-017-0100-y.
- 9) Ndeti, D. *et al.* (2009) 'Substance abuse and psychiatric co-morbidities: a case study of patients at Mathari Psychiatric Hospital, Nairobi, Kenya', *African Journal of Drug and Alcohol Studies*. African Journals Online (AJOL), 7(1). doi: 10.4314/ajdas.v7i1.46359.

- 10) Ndetei, D. M. *et al.* (2008) 'Clinical epidemiology in patients admitted at Mathari Psychiatric Hospital, Nairobi, Kenya', *Social Psychiatry and Psychiatric Epidemiology*, 43(9), pp. 736–742. doi: 10.1007/s00127-008-0360-y.
- 11) Okpataku, C. *et al.* (2014) 'Prevalence and socio-demographic risk factors associated with psychoactive substance use in psychiatric out-patients of a tertiary hospital in Nigeria', *Nigerian Medical Journal*. Medknow, 55(6), p. 460. doi: 10.4103/0300-1652.144695.
- 12) Saitz, R. *et al.* (2008) 'The Case for Chronic Disease Management for Addiction', *Journal of addiction medicine*. NIH Public Access, 2(2), p. 55. doi: 10.1097/ADM.0B013E318166AF74.
- 13) Schoeler, T. *et al.* (2017) 'Poor medication adherence and risk of relapse associated with continued cannabis use in patients with first-episode psychosis: a prospective analysis', *The Lancet Psychiatry*. Elsevier Ltd, 4(8), pp. 627–633. doi: 10.1016/S2215-0366(17)30233-X/ATTACHMENT/3CA53517-1DDF-4750-BF87-4FC97437FC51/MMC1.PDF.

APPENDICES

Appendix 1: Consent Explanation Document

PARTICIPANT INFORMATION AND CONSENT FORM

Title of Study: **PREVALENCE AND PATTERNS OF SUBSTANCE USE DISORDERS (SUDs) AMONG OUTPATIENTS AT MACHAKOS COUNTY REFERRAL PSYCHIATRIC CLINIC IN MACHAKOS COUNTY.**

Investigator: Dr. Jeniffer Njoki, University of Nairobi.

Introduction:

I would like to tell you about a study being conducted by **Dr. Jeniffer Njoki**, a Masters of Medicine (Psychiatry) student at the School of Medicine, University of Nairobi. The purpose of this consent form is to give you the information you will need to help you decide whether or not to be a participant in the study. Feel free to ask any questions about the purpose of the research, what happens if you participate in the study, the possible risks and benefits, your rights as a volunteer, and anything else about the research or this form that is not clear. When we have answered all your questions to your satisfaction, you may decide to be in the study or not. This process is called 'informed consent'. Once you understand and agree to be in the study, I will request you to sign your name on this form. You should understand the general principles which apply to all participants in medical research: i) Your decision to participate is entirely voluntary ii) You may withdraw from the study at any time without necessarily giving a reason for your withdrawal iii) Refusal to participate in the research will not affect the services you are entitled to in this health facility or other facilities. We will give you a copy of this form for your records.

May I continue? YES /NO

This study has approval by The Kenyatta National Hospital-University of Nairobi Ethics and Research Committee protocol No _____ and Machakos County Referral Hospital.

WHAT IS THIS STUDY ABOUT

The purpose of this study is to determine the: prevalence **and patterns of substance use disorders (suds) among outpatients at Machakos county referral psychiatric clinic in Machakos county.** Participants in this study will include patients who are on follow up in the substance use clinic and general psychiatry clinic. Participants will be asked questions about their socio-demographic characteristics, substance used by the patient and any psychiatric disorders.

WHAT WILL HAPPEN IF YOU DECIDE TO BE IN THIS RESEARCH STUDY?

If you agree to participate in this study, the following things will happen: You will be interviewed by the investigator in a private area where you feel comfortable answering questions. The interview will last approximately 45 Minutes.

ARE THERE ANY RISKS, HARMS DISCOMFORTS ASSOCIATED WITH THIS STUDY?

Medical research has the potential to introduce psychological, social, emotional, and physical risks. One potential risk of being in the study is the loss of privacy. We will keep everything you tell us as confidential as possible. We will use a code number to identify you in a password-protected computer database and will keep all of our paper records in a locked file cabinet. However, no system of protecting your confidentiality can be secure, so it is still possible that someone could find out you were in this study and could find out information about you. Also, answering questions in the interview may be uncomfortable for you. If there are any questions you do not want to answer, you can skip them. You have the right to refuse the interview or any questions asked during the interview. If by any chance we notice some psychological distress during the interview, we will stop it immediately and refer you to a psychosocial counselor based at the clinic for appropriate intervention.

We will do everything we can to ensure that this is done in private.

ARE THERE ANY BENEFITS BEING IN THIS STUDY?

There is no direct benefit to you from participating in the study. However, we hope that, in the future, other people might benefit from this study because it will allow us to learn more about substance use disorders and other psychiatric disorders.

WILL BEING IN THIS STUDY COST YOU ANYTHING?

Participating in this study will not cost you anything apart from the 45 minutes or so of your time.

WILL YOU GET REFUND FOR ANY MONEY SPENT AS PART OF THIS STUDY?

We shall not provide any monetary refund for participating in the study since the research is not funded.

CONFIDENTIALITY AND PRIVACY

The information you provide will be treated confidentially and only authorized members of the research team will have access to it. You will be assigned a unique study ID and no names will be written on the interview forms. Your name or other personal information will not be used in any reports or shared with anyone else. We will use the information for research purposes only.

WHAT IF YOU HAVE QUESTIONS IN FUTURE?

If you have further questions or concerns about participating in this study, please call or send a text message to the principal investigator at the phone **or email 0715993171/ jwnjoki@gmail.com**. For more information about your rights as a research participant, you may contact the Secretary/Chairperson, Kenyatta National Hospital-University of Nairobi Ethics and Research Committee Telephone No. **2726300 Ext. 44102 email: uonknherc@uonbi.ac.ke**.

WHAT ARE YOUR OTHER CHOICES?

Your decision to participate in research is voluntary. You are free to decline participation in the study and you can withdraw from the study at any time without injustice or loss of any benefits.

CONSENT FORM (STATEMENT OF CONSENT)

Participant’s statement

I have read this consent form or had the information read to me. I have had the chance to discuss this research study with a study counselor. I have had my questions answered in a language that I understand. The risks and benefits have been explained to me. I understand that my participation in this study is voluntary and that I may choose to withdraw at any time. I freely agree to participate in this research study.

I understand that all efforts will be made to keep information regarding my identity confidential.

(Signature/ Thumb Print of Participant)

(Date)

Statement of Person Who Obtained Consent

The information in this document has been discussed with the participant or, where appropriate, with the participant’s legally authorized representative. The participant has indicated that he or she understands the risks, benefits, and procedures involved with participation in this research study.

(Signature of Person who Obtained Consent)

(Date)

Appendix 2. Consent explanation Document (Swahili Version)

KIAMBATISHO CHA KWANZA: HABARI YA MSHIRIKI NA FOMU YA IDHINI

Kichwa cha utafiti: Idadi na mifumo ya shida za utumiaji wa madawa ya kulevya miongoni mwa wagonjwa wa kliniki ya wenye magonjwa ya akili katika hospitali kuu ya Machakos County Referral, Machakos County.

Mchunguzi: Dk. Jeniffer Njoki, Chuo kikuu ya Nairobi

Utangulizi

Ningependa kuwaeleza kuhusu somo ambalo linaongozwa na **Dk. Jeniffer Njoki**, mwanafunzi wa Shahada ya Uzamili ya Tiba (Psychiatry) katika Shule ya Medicine, Chuo Kikuu cha Nairobi. Madhumuni ya fomu hii ya idhini ni kukupa habari utakayohitaji kukusaidia kuamua ikiwa ni mshiriki wa utafiti huo au la. Jiskie huru kuuliza maswali juu ya kusudi la utafiti, ni nini kitatokea ikiwa utashiriki katika utafiti, hatari na faida zinazowezekana, haki zako kama kujitolea, bila chochote kingine juu ya utafiti au fomu hii ambayo haijulikaniwazi. Wakati tumejibu maswali yako yote kukuridhisha, unaweza kuamua kujihusisha kwenye somo au la. Utaratibu huu unaitwa “idhini ya habari ya Mara tu utakapoelewa na kukubali kuwa kwenye utafiti, nitakuomba utie sahihi jina lako kwenye fomu hii. Unapaswa kuelewa kanuni za jumla ambazo zinatumiwa kwa washiriki wote katika utafiti wa matibabu: i) Uamuzi wako wa kushiriki ni wa hiari kabisa, ii) Unaweza kujiondoa kutoka kwa utafiti wakati wowote bila lazima kutoa sababu ya kujiondoa kwako iii) Kukataa kushiriki katika utafiti haitaathiri huduma unazostahiki katika kituo hiki cha afya au vituo vingine. Tutakupa nakala za fomu hii kwa kumbukumbu zako, **Naomba niendelee! NDIO**

_____ **LA** _____

Utafiti huu umeidhinishwa na Itifaki ya Kamati ya Maadili na Utafiti ya Hospitali ya Kitaifa ya Kenyatta – Chuo Kikuu cha Nairobi **Nambari** _____ na Wasimamizi wakuu wa Hospitali ya Rufaa ya Machakos.

KUSUDI LA UTAFITI HUU

Kusudi la utafitihuu ni kufahamu Idadi na mifumo ya shida za utumiaji wa madawa ya kulevya miongoni mwa wagonjwa wa kliniki ya wenye magonjwa ya akili katika hospitali kuu ya Machakos County Referral, Machakos County Washiriki katika utafiti huu watajumuisha wagonjwa ambao wanahudhuria kliniki hii. Washiriki wataulizwa maswasli juu ya tabia zao za kijamii na jinsi wanavyo tumia madawa ya kulevya and dalili walizonazo za magonjwa mengineyo ya kiakili.

NINI KITAKACHOTOKEA UKIAMUA KUWA KWENYE UTAFITI HUU?

Ikiwa unakubali kushiriki katika utafiti huu, mambo yafuatayo utahojiwa na mchunguzi katika eneo la kibinafsi ambapo unahisi raha kujibu maswali. Mahojiano hayo yatachukuwa takriban Dakika 45.

KUNA HATARI ZOZOTE ZINAZODHURU AU KULETA HASARA ZINAZOHUSIANA NA UTAFITI HUU?

Utafiti wa kimatibabu una uwezo wa kuanzisha hatari za kisaikolojia, kijamii, kihemko, na kiafya. Hatari moja iwapo ya kuwa katika utafiti ni kupoteza faragha. Tutaweka kila kitu unatuambia kama siri iwezekanavyo. Tutatumia nambari ya kukutambulisha katika hifadhidata ya kompyuta iliyolindwa na nywila na tutaweka kumbukumbu zetu zote za karatasi kwenye kabati la faili iliyofungwa. Walakini, hakuna mfumo wowote wa kulinda usiri wako unaweza kuwa salama, kwa hivyo bado inawezekana kwamba mtu anaweza jua habari kukuhusu. Pia, kujibu maswalikwenye mahojiano au maswali yoyote yanayoumiza wakati wa mahojiano, tutaiacha mara moja na kukupeleka kwa mshauri wa kisaikolojia anayeishi katika kliniki ya afya ya akili, katika Hospitali ya Kenyata kwa uingiliaji unaofaa. Tutafanya kila tuwezalo kuhakikisha kuwa inafanyika katika sehemu fiche.

KUNA FAIDA ZOZOTE ZINAKUWA KATIKA UTAFITI HUU?

Hakuna faida ya moja kwa moja kwako kwa kushiriki katika utafiti huu. Walakini, tunatumahi kuwa, katika usoni za kibinafsi, watu wengine wanaweza kufaidika na utafiti huu kwa sababu itaturuhusu kujifunza zaidi juu ya kuenea kwa wasiwasi, unyongovu na dhiki ya baada ya kiwewe kati ya watu waliokatwa miguu. Kushiriki katika utafiti huu hautakugharimu chochote isipokuwa dakika zako 40 au zaidi zako.

JE, UTAGHARIMIKA KWA KUSHIRIKI KATIKA UTAFITI HUU?

Kushiriki katika utafiti huu hakutakugharimu chochote isipokuwa muda wako wa takriban dakika arobaini na tano.

UTAPATA PESA ZOZOTE KWA KUSHIRIKI KATIKA UTAFITI HUU?

Hakuna malipo yoyote utakayopata kwa kushiriki katika utafiti huu kwa maana pia utafiti huu hauna mtu ambaye anaupa pesa ndiyo ufanywe. Mtafiti amejitolea tu kufanya utafiti huu.

USIRI

Habari unayotoa itashughulikiwa kwa siri na wanachama tu walioidhinishwa wa timu ya utafiti. Utapewa kitambulisho cha kipekee cha kusoma na hakuna majina yatakayopewa kuandika kwenye fomu za mahojiano. Jina lako au habari nyingine ya kibinafsi haitatumika katika ripoti zozote au kushirikishwa na mtu mwingine yeyote. Tutatumia habari hiyo kwa madhumuni ya utafiti tu pekee.

NINI UKIWA NA MASWALI BAADAYE?

Ikiwa una maswalizaidi au wasiwasi juu ya kushiriki katika utafiti huu, tafadhali piga simu au tuma ujumbe mfupi kwa mpelelezi mkuu kwa simu **0715993171** au barua pepejwnjoki@gmail.com.

Kwa habari zaidi juu ya haki zako kama mshiriki wa utafiti , unaweza kuwasiliana na Katibu / Mwenyekiti Barua pepe: uonherc@uonbi.ac.ke, au nambari ya simu 2726300 ext 44102

CHAGUO ZAKO ZINGINE NI NINI?

Uamuzi wako wa kushiriki katika utafiti ni wa hiari. Uko huru kukataa kushiriki katika utafiti na unaweza kujiondoa kutoka kwa utafiti wakati wowote bila udhalimu na upotezaji wa ada yoyote.

FOMU YA IDHINI

Taarifa ya mshiriki

Nimesoma fomu hii idhini au habari hiyo imesomwa kwangu. Nimepate nafasi ya kujadili utafiti huu na mshauri wa masomo nimajibiwa maswali yangu kwa lugha ambayo inayoeleweka. Nimeelezwa hatari na faida za kushiriki. Ninaelewa kuwa kushiriki kwangu katika utafiti huu ni kwa hiari na kwamba ninaweza ujiondoa wakati wowote. Ninakubali kwa hiari kushiriki katika utafiti huu.

Ninaelewa kuwa juhudi zote zitafanywa kutunza habarikuhusu kitambulisho changu kuwa siri

(Saini Thumb Uchapa wa Mshiriki)

(tarehe)

Taarifa ya Mtu Ambaye Amepata Idhini

Maelezo katika hati hii yamejadiliwa na mshiriki au inapofaa, na mwakilishi aliyeidhinishwa kisheria. Mshiriki ameonyesha kuwa anaelewa hatari, faida, na taratibu zinazohusika katika utafiti huu.

(Saini ya mtu aliyepata Idhini)

(tarehe)

Appendix 3: Dummy tables

Dummy Table 1: Demographic Characteristics

Participant characteristics		Number	Percentage
Gender	Male		
	Female		
Highest Level of Education completed	None		
	Primary		
	Secondary		
	College		
Religion	Christian		
	Muslim		
	Other		
	None		
Marital status	Single		
	Married		
	Separated		
	Divorced		
	Widowed		
Employment status	Formal employment		
	Self employed		
	Retired		
	Student		
	Unemployed		

Dummy Table 2: Psychiatric diagnosis

Diagnosis	File		Tool	
	Number	Percentage	Number	Percentage

Dummy Table 3: Most commonly used substances

Substance	Ever used		Used in last 12 months	
	Number	Percentage	Number	Percentage
Alcohol Cannabis Cigarettes Prescription medication Khat Other				

Dummy Table 4: Number of substances used per patient

Number of substances	No. using	percentage
1		
2		
3		
4		
>= 5		

Dummy Table 5: Number of psychiatric disorders per person

Number disorders per person	Number	percentage
1		
2		
3		
4		
>=5		

Appendix 4: Socio-demographic Questionnaire

Please answer each question as accurately as possible by selecting the correct answer or filling in the space provided.

Part 1: To be filled by patient

1. What is your age in years
2. What gender are you: Male
Female
3. What religion do you practice.....
4. What is the highest level of education you have achieved?.....
5. What is your current employment status.....
6. What is your monthly net income?
 Less than KS. 20,000
 20,001 – 35,000
 35,000 – 50,000
 Above 50,000
 Other (Specify).....
7. What is your marital status?
Single
Married
Separated
Divorced
Widowed

8 Has anyone else in your family suffered from a psychiatric illness?

a. Yes

b. No

9 Does any of your parents use alcohol or any other substances?

c. Yes

d. No

Part 2: To be filled with information from interviewee's file

8. What is the working diagnosis?

Appendix 5: Focused group discussion guide for the patient`s(English Version)

1. What are the substances you commonly use?
2. Why do you use the substances?
3. How has substance use affected your life academically, socially and occupationally?
4. Do you understand the reason as to why you come for the clinic follow ups?

Swahili version:

1. Je! Ni madawa gani ya kulevya unatumia kawaida?
2. Kwanini unatumia vitu hivyo?
3. Je! Matumizi ya madawa ya kulevya yameathiri vipi maisha yako kimasomo, kijamii na kazini?
4. Je! Unaelewa sababu ya kwanini unakuja kwa ufuatiliaji wa kliniki?

Appendix 6: Focused group discussion guide for the caregivers.

1. What is your relationship with the patient?
2. For how long have u known the patient?
3. How has substance use affected his life?
4. How best can we treat your patient as clinicians?

Swahili version:


1. Uhusiano wako na mgonjwa ni upi?
2. Umemjua mgonjwa kwa muda gani?
3. Je! Matumizi ya dawa za kulevya yameathiri vipi maisha yake?
4. Jinsi bora tunaweza kumtibu mgonjwa wako kama madaktari?

Appendix 7: Mini Mental State Exam



MINI MENTAL STATE EXAMINATION (MMSE)

Patient's name:
Hospital number:

ONE POINT FOR EACH ANSWER	DATE				
ORIENTATION					
Year Month Day Date Time	___/5	___/5	___/5	___/5	___/5
Country Town District Hospital Ward	___/5	___/5	___/5	___/5	___/5
REGISTRATION					
Examiner names 3 objects (eg apple, table, penny) Patient asked to repeat (1 point for each correct). THEN patient to learn the 3 names repeating until correct.	___/3	___/3	___/3	___/3	___/3
ATTENTION AND CALCULATION					
Subtract 7 from 100, then repeat from result. Continue 5 times: 100 93 86 79 65 Alternative: spell "WORLD" backwards - dlrow.	___/5	___/5	___/5	___/5	___/5
RECALL					
Ask for names of 3 objects learned earlier.	___/3	___/3	___/3	___/3	___/3
LANGUAGE					
Name a pencil and watch.	___/2	___/2	___/2	___/2	___/2
Repeat "No ifs, ands, or buts".	___/1	___/1	___/1	___/1	___/1
Give a 3 stage command. Score 1 for each stage. Eg. "Place index finger of right hand on your nose and then on your left ear".	___/3	___/3	___/3	___/3	___/3
Ask patient to read and obey a written command on a piece of paper stating "Close your eyes".	___/1	___/1	___/1	___/1	___/1
Ask the patient to write a sentence. Score if it is sensible and has a subject and a verb.	___/1	___/1	___/1	___/1	___/1
COPYING					
Ask the patient to copy a pair of intersecting pentagons:					
	___/1	___/1	___/1	___/1	___/1
TOTAL	___/30	___/30	___/30	___/30	___/30

Appendix 8: KNH Ethical Approval Letter



UNIVERSITY OF NAIROBI
COLLEGE OF HEALTH SCIENCES

P O BOX 19676 Code 00202
Telegrams: varsity
Tel: (254-020) 2726300 Ext 44355

KNH-UoN ERC

Email: uonknh_erc@uonbi.ac.ke
Website: <http://www.erc.uonbi.ac.ke>
Facebook: <https://www.facebook.com/uonknh.erc>
Twitter: @UONKNH_ERC https://twitter.com/UONKNH_ERC



KENYATTA NATIONAL HOSPITAL
P O BOX 20723 Code 00202

Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP, Nairobi

Ref: KNH-ERC/A/231

30th June, 2021

Dr. Jennifer Wambui Njoki
Reg. No. H58/11367/2018
Dept. of Psychiatry
School of Medicine
College of Health Sciences
University of Nairobi



Dear Dr. Njoki,

RESEARCH PROPOSAL: PREVALENCE AND PATTERNS OF SUBSTANCE USE DISORDERS (SUDs) AMONG OUTPATIENTS AT MACHAKOS COUNTY REFERRAL PSYCHIATRIC CLINIC IN MACHAKOS COUNTY (P43/01/2021)

This is to inform you that the KNH- UoN Ethics & Research Committee (KNH- UoN ERC) has reviewed and **approved** your above research proposal. The approval period is 30th June, 2021 – 29th June, 2022.

This approval is subject to compliance with the following requirements:

- i. Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
- ii. All changes (amendments, deviations, violations etc.) are submitted for review and approval by KNH-UoN ERC before implementation.
- iii. Death and life threatening problems and serious adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH-UoN ERC within 72 hours of notification.
- iv. Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH- UoN ERC within 72 hours.
- v. Clearance for export of biological specimens must be obtained from KNH- UoN ERC for each batch of shipment.
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. (Attach a comprehensive progress report to support the renewal).
- vii. Submission of an executive summary report within 90 days upon completion of the study.

Protect to discover

This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/ or plagiarism.

For more details consult the KNH- UoN ERC website <http://www.erc.uonbi.ac.ke>

Yours sincerely,



PROF. M. L. CHINDIA
SECRETARY, KNH-UoN ERC

- c.c. The Principal, College of Health Sciences, UoN
The Senior Director, CS, KNH
The Chair, KNH- UoN ERC
The Dean, School of Medicine, UoN
The Chair, Dept. of Psychiatry, UoN
Supervisors: Dr. Lincoln Khasakhala, Dept. of Psychiatry, UoN
Dr. Pauline Ng'ang'a, Dept. of Psychiatry, UoN

Protect to discover

Appendix 9: Machakos County Authorization Letter

REPUBLIC OF KENYA



GOVERNMENT OF MACHAKOS COUNTY
DEPARTMENT OF HEALTH AND EMERGENCY SERVICES
Office of the County Director of Medical Services

Machakos Highway
P.O. Box 2574-90100
Machakos, Kenya
REF: MKS/DHES/RSCH/VOL 1/56

Telephone: +254 -44-20575
Fax: 254-44-20655
30th July 2021

Principal Investigator - ATTN: Jennifer Wambui Njoki

Dear Jennifer,

RE: LETTER OF AUTHORIZATION FOR CONDUCTING PROPOSED RESEARCH

Reference is made to your request to conduct a study titled "**Prevalence and patterns of substance use disorders among outpatients in Machakos Level 5 Hospital psychiatric clinic**".

Thank you for selecting Machakos level 5 hospital as your study site.

You are hereby authorized to proceed with the research and urged to share the findings with the Department of Health and Emergency Services; Machakos County, through this office.

Sincerely,

A handwritten signature in black ink, appearing to read 'Clarice Ambale'.


Dr. Clarice Ambale


Research Co-ordinator

CC

Medical superintendent Machakos Level 5 Hospital


Appendix 10: NACOSTI License


REPUBLIC OF KENYA


NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY & INNOVATION

Ref No: **661884** Date of Issue: **21/July/2021**


RESEARCH LICENSE




This is to Certify that Dr. JENIFFER WAMBUI NJOKI of University of Nairobi, has been licensed to conduct research in Machakos on the topic: PREVALENCE AND PATTERNS OF SUBSTANCE USE DISORDERS (SUDs) AMONG OUTPATIENTS AT MACHAKOS COUNTY REFERRAL PSYCHIATRIC CLINIC IN MACHAKOS COUNTY. for the period ending : 21/July/2022.

License No: **NACOSTI/P/21/11864**

661884
Applicant Identification Number


Director General
NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY &
INNOVATION

Verification QR Code



NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.